



Our ref. 20202987

15 May 2020

Ms Jennifer Hoy
Senior Solicitor assisting the Special Commission
of Inquiry into the Ruby Princess

By email: jennifer.hoy@rubyprincessinquiry.nsw.gov.au;
enquiries@rubyprincessinquiry.nsw.gov.au

Australian Government Solicitor
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Canberra
Sydney
Melbourne
Brisbane
Perth
Adelaide
Hobart
Darwin

Dear Ms Hoy

INQUIRY INTO THE RUBY PRINCESS

1. We refer to the Special Commission of Inquiry into the Ruby Princess (the Commission) established by the NSW Government under the *Special Commissions of Inquiry Act 1983* (NSW) (Commissions of Inquiry Act). The terms of reference of the Commission, as set out in the Letters Patent signed by the Governor of NSW on 15 April 2020, require that Special Commissioner Bret Walker SC inquire into and report and make recommendations to the NSW Government on certain matters including the communications, decisions and actions of the Commonwealth, specifically (but not confined to) the Australian Border Force (which is part of the Department of Home Affairs portfolio) and the federal Department of Agriculture, Water and the Environment.
2. The Australian Government Solicitor acts for the Commonwealth of Australia in relation to the Commission on the instructions of the Department of Agriculture, Water and the Environment, the Department of Home Affairs and the Department of Health.
3. The Commonwealth is in the course of preparing documentation about the Ruby Princess cruise ship, including matters that might be relevant to the Commission's inquiry. To assist the Commission the Commonwealth intends voluntarily to provide the Commission with relevant material by 29 May 2020, noting the Commission's website invites provision of material by that date.
4. It is intended that the Commonwealth's material will focus on matters concerning communications, decisions and actions of the Department of Agriculture, Water and the Environment, the Department of Home Affairs (including the Australian Border Force) and the Department of Health relevant to the Commission's terms of reference with a view to assisting the Commission's inquiries and preparation of its report to the NSW government. It will also address the relevant legal framework in which decisions and actions occurred.

Australian Government Solicitor

5. The Commonwealth's preparedness to assist the Commission voluntarily should not be taken as a concession that the Commonwealth or its officers and employees are bound by the Commissions of Inquiry Act or subject to any of the Commission's coercive powers.
6. Please direct to us any communication regarding the Commonwealth, its agencies, employees or officers.

Yours sincerely

**Simon Daley**

Chief Solicitor

T 02 9581 7490

simon.daley@ags.gov.au

Paul Vermeesch

Deputy Chief Solicitor

T 02 6253 7428

paul.vermeesch@ags.gov.au



Special Commission of Inquiry into the Ruby Princess

15 May 2020

Mr Paul Vermeesch
Deputy Chief Solicitor
Locked Bag 35
KINGSTON ACT 2604

By email: paul.vermeesch@ags.gov.au

Dear Mr Vermeesch

Re: Your letter dated 15 May 2020

I refer to the above Special Commission of Inquiry (**the Commission**), established by letters patent dated 15 May 2020, in which I assist Commissioner Bret Walker SC.

Thank you for your letter dated 15 May 2020. The Commissioner has noted the matters you have raised, including those in point 5 of your letter.

The Commissioner is of the view that the Commonwealth and its officers and employees are compellable under the *Special Commissions of Inquiry Act 1983* (NSW) (**the Act**), by reason of the *Service and Execution of Process Act 1992* (Cth).

However, the Commissioner has asked me to pass on that he greatly appreciates the preparation of documentation that you have described, and that he considers he will be much assisted by the provision of a statement dealing with the matters outlined in point 4 of your letter, with any relevant material annexed. The Commissioner will not take this assistance as being any indication by the Commonwealth that it is bound by the Act. The date you have proposed is suitable to the Commission.

Enclosed with this letter are the following Schedules:

- | | |
|-------------------|-----------------------------------------------------------------------------------|
| Schedule A | Documents requested from the Commonwealth Department of Health |
| Schedule B | Documents requested from the Department of Agriculture, Water and the Environment |
| Schedule C | Documents requested from the Australian Border Force. |

To the extent that the materials described therein do not already form part of the documentation that the Commonwealth intends to provide to the Commission, the Commissioner has asked that the Commonwealth give consideration to providing the Commission with those materials, as well.

Yours faithfully

A handwritten signature in black ink, appearing to read 'Jennifer Hoy'.

Jennifer Hoy

Senior Solicitor Assisting the Special Commission

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Schedule A – documents requested from Department of Health

Policies and Procedures

1. In relation to the Australian Government Cruise Ship Protocol for Covid-19 dated 6 March 2020, please provide:
 - a. A copy of the document;
 - b. Any record of the process of creation of the document; and
 - c. Any record of the author of the document.

2. In addition to (1), and in relation to any other policies, procedures, guidelines, public health orders or protocols used, developed or implemented by the Department of Health from 1 January 2020 in respect of:
 - a. An epidemic or a pandemic;
 - b. Control of infectious disease (including an epidemic or pandemic) in the community;
 - c. cruise ships;
 - d. people arriving in Australia from overseas; and
 - e. COVID-19;

please provide:

- a. A copy of the document;
 - b. Any record of the process of creation of the document; and
 - c. Any record of the author of the document.

3. In relation to the documents described in (1) and (2), information as to the other Commonwealth government agencies and NSW government agencies that were provided with copies of those documents, and the time at which they were provided those copies.

Information in relation to the Ruby Princess

4. All available information, including that obtained by the National Incident Room, as at the date of production in relation to:
 - a. How many passengers of the Ruby Princess have contracted COVID- 19;
 - b. How many crew members of the Ruby Princess have contracted COVID-19;
 - c. How many passengers have died as a result of contracting COVID-19;
 - d. How many passengers or crew members remain in hospital for treatment of COVID-19;

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- e. How many cases of COVID-19 are associated with the disease being passed on from a passenger to someone in the community;
 - f. How many persons, if any, who were not passengers on the Ruby Princess have died as a result of contracting COVID-19 from a passenger or crew member of the Ruby Princess; and
 - g. The identities and the addresses and contact details of the persons in (a) to (f), above (and in the case of persons who have died, identified in subparagraphs (c) and (f), their last known addresses).
5. In relation to (4), all available information as to the questions asked of, and information requested from, passengers of the Ruby Princess to obtain the information referred to in (4)(a)-(f), including in relation to the onset date of symptoms of COVID-19.
6. In relation to (5), the answers provided, and information and documents produced in response to those questions and requests.
7. In relation to the voyage of the Ruby Princess between 8 March and 19 March 2020, including: (a) its departure on 8 March 2020; (b) the docking and disembarkation of the ship on 19 March 2020; and (c) subsequent efforts to diagnose and treat Ruby Princess passengers, all records of communications with:
- a. Princess Cruises Ltd and Carnival plc;
 - b. the Port Authority of New South Wales;
 - c. the Australian Border Force;
 - d. the Department of Agriculture, Water and the Environment;
 - e. the NSW Police Force; and
 - f. NSW Health.

Public Health measures

8. Any documents, records, communications or other information in relation to the disembarkation of the Ruby Princess on both the 8 March 2020 and the 19 March 2020, including:
- a. Notices, correspondence or communications with passengers who were aboard the Ruby Princess since 24 February 2020; and
 - b. Tracing the contact Ruby Princess passengers have had with other persons since leaving the vessel.

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Pandemic planning

9. All documents relating to the exercise known as the “EmegenSea Detour” involving: an outbreak of pandemic influenza on a cruise ship coming into Sydney; and an outbreak of an unknown, but clinically severe disease on a cruise ship coming into Hobart.
10. A copy of the National Protocol for Pandemic (H1N1) 2009 on Cruise Ships.
11. A copy of any policy, protocol or procedure developed by, or in consultation with, the Communicable Diseases Network Australia, in relation to border control measures:
 - a. relating to Covid-19;
 - b. relating to human biosecurity generally and in force during 2020;
 - c. relating to cruise ships (either generally or any cruise ship in particular).
12. A copy of any advice provided by the Communicable Diseases Network Australia in relation to border control measures or cruise ships since 1 January 2020.

Schedule B – documents requested from Department of Agriculture, Water and the Environment

Policies and Procedures

1. In relation to any policies, procedures, guidelines, public health orders or protocols used, developed or implemented by the Department of Agriculture, Water and the Environment from 1 January 2020 in respect of:
 - a. An epidemic or a pandemic;
 - b. Control of infectious disease (including an epidemic or pandemic) in the community;
 - c. cruise ships (including the grant of pratique);
 - d. overseas travellers returning to Australia; and
 - e. COVID-19;

please provide:

 - a. A copy of the document;
 - b. Any record of the process of creation of the document; and
 - c. Any record of the author of the document.
2. In relation to the documents described in (1), information as to the other Commonwealth government agencies and NSW government agencies that were provided with copies of those documents, and the time at which they were provided those copies.

Coordination with other agencies

3. Any delegations, authorisations or appointments (including under the *Biosecurity Act 2015* (Cth)), protocols, memoranda of understanding or other arrangements in place since 1 January 2020 between the Department of Agriculture, Water and the Environment and the NSW government (including any of its agencies) concerning the management of human biosecurity and health risks (including in relation to arriving cruise ships).

Pandemic planning

4. All documents relating to the exercise known as the “EmegenSea Detour” involving: an outbreak of pandemic influenza on a cruise ship coming into Sydney; and an outbreak of an unknown, but clinically severe disease on a cruise ship coming into Hobart.

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Information in relation to the Ruby Princess

5. In relation to the voyage of the Ruby Princess between 8 March and 19 March 2020, including: (a) its departure on 8 March 2020; (b) the docking and disembarkation of the ship on 19 March 2020; and (c) subsequent efforts to diagnose and treat Ruby Princess passengers, all records of communications with:
- a. Princess Cruises Ltd and Carnival plc;
 - b. the Port Authority of New South Wales;
 - c. the Australian Border Force;
 - d. the Commonwealth Department of Health;
 - e. the NSW Police Force; and
 - f. NSW Health.

Public Health measures

6. Any documents, records, communications or other information in relation to the disembarkation of the Ruby Princess on both the 8 March 2020 and the 19 March 2020, including:
- a. Notices, correspondence or communications with passengers who were aboard the Ruby Princess since 24 February 2020; and
 - b. Tracing the contact Ruby Princess passengers have had with other persons since leaving the vessel.

Schedule C - Documents requested from Australian Border Force

Policies and Procedures

1. In relation to any policies, procedures, guidelines, public health orders or protocols used, developed or implemented by the Australian Border Force from 1 January 2020 in respect of:
 - a. An epidemic or a pandemic;
 - b. Control of infectious disease (including an epidemic or pandemic) in the community;
 - c. the entry into Australia of cruise ships and other commercial vessels;
 - d. overseas travellers returning to Australia; and
 - e. COVID-19;

please provide:

- a. A copy of the document;
 - b. Any record of the process of creation of the document; and
 - c. Any record of the author of the document.
2. In relation to the documents described in (1), all records of communication with other Commonwealth government agencies and NSW government agencies relating to those documents.
3. To the extent that they are not covered by (1) and (2), all documents and communications relating to the "bespoke arrangements" put in place directly under the command of the Australian Border Force, as referred to by the Prime Minister during a press conference on 15 March 2020.

Coordination with other agencies

4. Any delegations, authorisations or appointments (including under the *Biosecurity Act 2015* (Cth) or the *Customs Act 1901* (Cth)), protocols, policies, manuals, memoranda of understanding or other arrangements in place since 1 January 2020 between the Australian Border Force and the NSW government (including any of its agencies) concerning the management of human biosecurity and health risks in relation to cruise ships arriving in Australia.

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Pandemic planning

5. All documents relating to the exercise known as the "EmegenSea Detour" involving: an outbreak of pandemic influenza on a cruise ship coming into Sydney; and an outbreak of an unknown, but clinically severe disease on a cruise ship coming into Hobart.

Information in relation to the Ruby Princess

6. In relation to the voyage of the Ruby Princess between 8 March and 19 March 2020, including: (a) its departure on 8 March 2020; (b) the docking and disembarkation of the ship on 19 March 2020; and (c) subsequent efforts to diagnose and treat Ruby Princess passengers, all records of communications with:
 - a. Princess Cruises Ltd and Carnival plc;
 - b. the Port Authority of New South Wales;
 - c. the Department of Agriculture, Water and the Environment;
 - d. the Commonwealth Department of Health;
 - e. the NSW Police Force; and
 - f. NSW Health.
7. Records of all telephone calls and other communication between the Australian Border Force and the Port Authority of NSW on 18 and 19 March 2020 and the names and details of any officers of the Australian Border Force involved in those communications.
8. Any documents, records, communications or other information in relation to the disembarkation of the Ruby Princess on both the 8 March 2020 and the 19 March 2020, including:
 - a. Information relating to the procedures employed for the disembarkation of passengers and crew and the checking of their passports;
 - b. Notices, correspondence or communications with passengers who were aboard the Ruby Princess since 24 February 2020; and
 - c. Tracing the contact Ruby Princess passengers have had with other persons since leaving the vessel.
9. Any notices, messaging or correspondence used, developed or implemented by the Australian Border Force since 1 January 2020 that has been provided to cruise ship passengers and operators.

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Title

**Biosecurity Act 2015 - Instrument of appointment (authorisation of
biosecurity officers)**



Australian Government
Department of Agriculture,
Water and the Environment

INSTRUMENT OF AUTHORISATION
made under section 545 of the *Biosecurity Act 2015*

I, MARION HEALY, Delegate of the Director of Biosecurity, acting under subsection 545(4) of the *Biosecurity Act 2015* (**Biosecurity Act**),

1. **REVOKE** all previous instruments which authorised an officer or employee of a Commonwealth body to be a biosecurity officer under the Biosecurity Act;

AND acting pursuant to subsection 545(1)(a)(i) of the Biosecurity Act,

2. **AUTHORISE** each person named in the attached schedule to be a biosecurity officer under the Biosecurity Act.

Date 1/2/20

Signed .



MARION HEALY
A/g Deputy Secretary
Department of Agriculture, Water and the Environment
Delegate of the Director of Biosecurity



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SCHEDULE TO INSTRUMENT OF AUTHORISATION

made under section 545 of the Biosecurity Act 2015

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STANDARD OPERATING PROCEDURE

Appointing and Revoking of Chief Human Biosecurity Officers and Human Biosecurity Officers

Department of Health
Office of Health Protection

August 2019



Australian Government
Department of Health

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Appointing a Human Biosecurity Officer

1. REQUEST TO APPOINT A NEW HUMAN BIOSECURITY OFFICER

1.1. Request received via the Human Biosecurity inbox (Humanbiosecurity@health.gov.au) from the respective Chief Human Biosecurity Officer (CHBO).

The new Human Biosecurity Officer (HBO) request for appointment should contain the following information/documentation:

- Full name and title of the appointee
- Current photo of the appointee
- Postage details and contact person to receive the Authorised HBO ID card.

On receipt of the request to appoint a HBO, Border Health will email the *Biosecurity Act 2015* Training Module to the respective CHBO and/or requesting officer, as well as the pending HBO. The module is to be reviewed and completed by the pending HBO and written confirmation provided to Border Health that the module has been completed.

1.1.1 Frequently asked Questions (FAQ)

FAQ: Where should an appointment request be directed?

ANSWER: Humanbiosecurity@health.gov.au

FAQ: What is the process if a different official makes the request? i.e. not by the CHBO.

ANSWER: The official is required to email the request to the Humanbiosecurity@health.gov.au inbox and ensure that the CHBO is cc'd into the request, at minimum.

FAQ: What other officials can make a request?

ANSWER: Requests for appointment is only ever made by state and territory colleagues, and typically their CHBO.

FAQ: What are the training and qualification requirements for HBOs?

ANSWER: HBOs are required to review and complete the *Biosecurity Act 2015* Training Module. HBOs may also be required to complete jurisdictional training requirements.

2. DEPARTMENT OF HEALTH ACKNOWLEDGEMENT

2.1 Border Health Section issues email acknowledgement

The Border Health Section will issue an email acknowledgement following receipt of the request, the acknowledgement will be sent to the CHBO and/or the requesting official, as well as the newly requested HBO, if their details are provided.

The acknowledgment will contain the approximate service turnaround period (approximately 3-4 weeks), and, if the required information has not been provided (as set out in step 1), the acknowledgment will also outline what additional information is required.

2.1.1 Frequently asked Questions (FAQ)

FAQ: What if the incoming request does not attach a photo and is unsure what format the photo should be?

ANSWER: In the acknowledgment email, the requesting party will receive a photo requirements information sheet. A copy of the information sheet is at [Attachment A](#).

Revoking CHBO and HBO (within PH17-44432 Guidance and Reference Material)

3. PREPARE MINUTE TO CHIEF MEDICAL OFFICER

3.1 Border Health Section prepares a Minute

The Border Health Section will draft a Minute to the Australian Government Chief Medical Officer (CMO), in his/her capacity as the Director of Human Biosecurity (DHB), with the inclusion of two attachments:

Attachment A: The **updated** Biosecurity (Human Biosecurity Officials) Authorisation (No. X) YYYY which requires approval and signature (hard copy) from the CMO/DHB.

Attachment B – Background (the same background document is used for each appointment or revocation.

Attachment C: The **previous** Biosecurity (Human Biosecurity Officials) Authorisation (No. X) YYYY.

Border Health Section will check the availability and propose preferred timeframes with the CMO's Executive Assistant. This will ensure that the Minute is signed within the desired timeframe. Standard turnaround time for an appointment is 3-4 weeks.

ISSUES FIELD

The issues field of the Minute will need to be updated to reflect the new appointment. The date of the request and details of the new appointee are to be included.

Biosecurity (Human Biosecurity Officials) Authorisation (No. X) YYYY

The Authorisation is updated to reflect the new appointee for the particular jurisdiction. Border Health Section will maintain the list of appointees, in alphabetical order.

The series number (No.X) is also updated in sequence. For example, updated from No. 4 to No. 5.

Once the Authorisation is approved and signed the appointee or contact point should be notified via email. All notifications are sent via the Humanbiosecurity@health.gov.au inbox with other relevant parties cc'd in.

3.1.1 Frequently asked Questions (FAQ)

FAQ: Can multiple appointments and revocations can be included in a single Authorisation?

ANSWER: Yes

Once the Authorisation has been approved and signed by the CMO, check to ensure that all ID documentation/information has been received. The notifying email to the jurisdiction is an opportunity to verify that all the information has been received OR is an opportunity to request any outstanding information/documentation.

TRIM location: Draft Minute and Signed Instruments - **E17-137450** - HEALTH PROTECTION – Policy – Appointment Instruments (within PH17/35415 Appointments)

4. PRODUCTION OF ID CARD

Once the appointment Authorisation has been approved and signed, Border Health Section will contact the Security Desk to organise an ID card for the appointee. This is achieved by sending the new appointees details, including photograph, state or territory and expiry date of HBO ID (two years from date of request), by email to: security@health.gov.au

The ID card can be collected from the Security Desk in Scarborough House or via internal mail to Border Health Section. Security's preference is to dispatch the card via internal mail.

4.1 Frequently asked Questions (FAQ)

FAQ: How long is the card valid?

ANSWER: The card validity period is for a period of five (5) years and the effective date is aligned to/effective from the date that the minute is approved and signed by the DHB.

5. MAILING OF ID CARD

The ID card is sent to the jurisdiction to either the appointee or contact point using registered express post. An email should be sent to notify the jurisdiction that the appointment has occurred and the ID card has been issued. The email will also contain the express post tracking reference number.

Once the appointee or contact point has received the ID card they should acknowledge via email to Humanbiosecurity@health.gov.au.

Email correspondence and record keeping: all emails can be saved in the Humanbiosecurity inbox under CHBO Appointments/revocation or HBO Appointments/revocation

6. Register and Govdex

The Register of Appointed CHBOs and HBOs needs to be updated to reflect either a new appointment or removal/revoking of an existing appointment. Each appointment contains eight (8) fields that require updating.

Border Health Section will organise access to the Border Health GovTEAMS community for the appointed officer. Border Health Section will follow this process:

- Log into GovTEAMS
- From the GovTEAMS dashboard select 'Australian Border Health Homepage'
- Go to Community tools – 'invite members' and sent invite
- The newly appointed officer will receive an email from GovTEAMS prompting them to sign into GovTEAMS

Revoking a Human BioSecurity Officer

1. REVOKING OF A HUMAN BIOSECURITY OFFICER APPOINTMENT

The jurisdiction will contact Border Health Section requesting the removal of an appointment. The request should be made directly from the Chief Human Biosecurity Officer (CHBO) or the CHBO can be cc'd into the written request.

2. THE MINUTE

The Minute and appointment Authorisation template should be used to revoke an appointment. The Minute needs to include the details of the individual who is having their appointment revoked.

Along with the Minute the following documents/attachments need to be included:

Attachment A – The updated Biosecurity (Human Biosecurity Officials) Authorisation (No. X) YYYY which requires signature from the CMO.

Attachment B – Background (the same background document is used for each appointment or revocation.

Attachment C – The previous Biosecurity Biosecurity (Human Biosecurity Officials) Authorisation (No. X) YYYY.

TRIM location: Draft Minute and Signed Instruments - **E17-137450** - HEALTH PROTECTION – Policy – Appointment Instruments (within PH17/35415 Appointments)

3. RETURN OF ID CARD

The ID card of the revoked HBO appointment must be sent to Border Health Section. Mail to: Department of Health, Office of Health Protection, Border Health Section – GPO Box 9848, Canberra ACT 2601, Australia. Mail Drop Point: 140

Once received Border Health can cut and place the card in the recycle bin (the plastic is recyclable).

3.1 Frequently Asked Questions (FAQ)

FAQ: What if the ID card is not returned?

ANSWER: Civil Penalty of 1 penalty unit may apply for failure to return the card.

4. BIOSECURITY (HUMAN BIOSECURITY OFFICIALS) AUTHORISATION (No.X) YYYY

The **Authorisation** is updated to reflect the removal of the appointment for the particular jurisdiction. The list of appointees should be maintained in alphabetical order.

The series number (No.X) is to be updated in sequence. For example, updated from No. 4 to No. 5.

TRIM location: Draft Minute and Signed Instruments - **E17-137450** - HEALTH PROTECTION – Policy – Appointment Instruments (within PH17/35415 Appointments)

5. REGISTER

The Register of Appointed CHBOs and HBOs needs to be updated to reflect either a new appointment or removal/revoking of an existing appointment. The row for the revoked appointment should be deleted.

GovTEAMS access for the revoked individual should be removed. Border Health Section will follow this process:

- Log into GovTEAMS
- From the GovTEAMS dashboard select 'Australian Border Health Homepage'
- Under Joining activity members can be removed by clicking the red-cross to cancel invitation.

APPOINTING A NEW CHIEF HUMAN BIOSECURITY OFFICER

1. REQUEST TO APPOINT A NEW CHIEF HUMAN BIOSECURITY OFFICER

Request may be received via the Human Biosecurity [mailbox](#) or in hard copy from the respective Chief Health Officer (CHO).

The request should contain the following information and documentation:

- Full name of the outgoing CHBO
- The ID card of the outgoing incumbent is returned to Border Health Section (to be destroyed)
- Full name of the new CHBO appointee
- Current photo of the new CHBO appointee

1.1 Frequently asked Questions (FAQ)

FAQ: What qualifications does a CHBO need to hold?

ANSWER: The newly appointed CHBO should be a Registered Medical Practitioner.

FAQ: What are the training requirements of a newly appointed CHBO?

ANSWER: Each jurisdiction has its own state based training requirements delivered through the states/territories. The Commonwealth also has its own training modules and guidance materials that are provided to the new CHBO once appointed.

2. HEALTH'S ACKNOWLEDGEMENT

Border Health Section issues an email acknowledgement following receipt of the request. The acknowledgment will contain the approximate service turnaround period (approximately 3-4 weeks), and, if the required information has not been provided (as set out in step 1) the acknowledgment will also outline what additional information is required.

3. PREPARE MINUTE TO CHIEF MEDICAL OFFICER

Border Health Section prepares a Minute to the Australian Government Chief Medical Officer (CMO) Director of Human Biosecurity (DHB), with the inclusion of three attachments.

Three attachments included with the Minute are:

Attachment A – The updated Biosecurity (Human Biosecurity Officials) Authorisation (No. X) YYYY which requires signature from the DHB.

Attachment B – Background (the same background document is used for each appointment or revocation).

Attachment C – The previous Biosecurity Biosecurity (Human Biosecurity Officials) Authorisation (No. X) YYYY.

Border Health Section will check the availability and propose preferred timeframes with the CMO's Executive Assistant. This will ensure that the Minute is signed within the desired timeframe. Standard turnaround time for an appointment is 3-4 weeks.

3.1 Issues Field

The Issues component of the Minute needs to be updated to reflect the new appointment.

The date of the request and details of the new appointee are to be included.

3.2 Biosecurity (Human Biosecurity Officials) Authorisation (No. X) YYYY

The **Authorisation** is updated to reflect the new appointee for the particular jurisdiction.

The series number (No.X) should be updated in sequence. For example, updated from No. 4 to No. 5.

TRIM location: Draft Minute and Signed Instruments - **E17-137450** - HEALTH PROTECTION – Policy – Appointment Instruments (within PH17/35415 Appointments)

4. PRODUCTION OF ID CARD

Once the DHB has signed the appointment Authorisation, Border Health Section will contact the Security Desk to organise an ID card for the new appointee. This is achieved by sending the new appointees details, including photograph and any other relevant information, by email to: security@health.gov.au

The ID card can be collected from the Security Desk in the Sirius building and/or Scarborough House or via internal mail to Border Health Section.

The card for the revoke should be returned to Border Health Section who can cut the card and place in a recycle bin (cards are recyclable).

5. MAILING OF ID CARD

The ID card is sent directly to the office of the CHBO using registered post.

An accompanying email is sent to the office of the CHBO. The email is to notify the jurisdiction that the appointment has occurred and the ID card has been issued. The email will also contain the tracking reference number.

6. REGISTER AND GOVTEAMS

The Register of Appointed CHBOs and HBOs needs to be updated to reflect either a new appointment or removal/revoking of an existing appointment. Each appointment contains eight (8) fields that require updating.

Border Health Section will organise access to the Border Health Govdex community for the appointed officer. Border Health Section will follow this process:

- Log into GovTEAMS
- From the GovTEAMS dashboard select 'Australian Border Health Homepage'
- Go to Community tools – 'invite members' and sent invite

- The newly appointed officer will receive an email from GovTEAMS prompting them to sign into GovTEAMS

Govdex access for the revoked individual should be removed. Border Health Section will follow this process:

- Log into GovTEAMS
- From the GovTEAMS dashboard select 'Australian Border Health Homepage'
- Under Joining activity members can be removed by clicking the red-cross to cancel invitation.



Biosecurity (Human Biosecurity Officials) Authorisation (No. 6) 2020

I, Professor Brendan Murphy, Director of Human Biosecurity, make the following authorisation.

2nd

March 2020



Professor Brendan Murphy
Director of Human Biosecurity

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Part 1—Preliminary

1 Name

This instrument is the *Biosecurity (Human Biosecurity Officials) Authorisation (No. 6) 2020*.

2 Commencement

- (1) Each provision of this instrument specified in column 1 of the table commences, or is taken to have commenced, in accordance with column 2 of the table. Any other statement in column 2 has effect according to its terms.

Commencement information		
Column 1	Column 2	Column 3
Provisions	Commencement	Date/Details
1. The whole of this instrument	The day this instrument is made.	

Note: This table relates only to the provisions of this instrument as originally made. It will not be amended to deal with any later amendments of this instrument.

- (2) Any information in column 3 of the table is not part of this instrument. Information may be inserted in this column, or information in it may be edited, in any published version of this instrument.

3 Authority

This instrument is made under subsections 562(1) and 563(1) of the *Biosecurity Act 2015*.

4 Revocation of previous instruments

The following instrument is revoked:

- (a) *Biosecurity (Human Biosecurity Officers) Authorisation (No. 5) 2020*.

Part 2—Authorisation of chief human biosecurity officers

5 Medical practitioners employed by State and Territory health services administration bodies

A person specified in column 2 of an item of the following table is authorised to be a chief human biosecurity officer for the State or Territory specified in column 1 of the item.

Chief human biosecurity officers		
Item	Column 1 State or Territory	Column 2 Person
1	New South Wales	Sean Tobin
2	Victoria	Brett Sutton
3	Queensland	Sonya Bennett
4	Western Australia	Paul Armstrong
5	South Australia	Louise Flood
6	Tasmania	Mark Veitch
7	Australian Capital Territory	Kerryn Coleman
8	Northern Territory	Vicki Krause

Part 3—Authorisation of human biosecurity officers

Division 1—Australian Government Health Department officers and employees

6 Health Department officers and employees

Each person specified in the following table is authorised to be a human biosecurity officer.

Officers and employees of the Health Department	
Item	Name
1	Catherine Kelaher
2	Gary Lum
3	Anthony Moore
4	Andrew Singer
5	Bernie Towler

Division 2—State and Territory officers and employees

7 Officers and employees of New South Wales health services administration body

Each person specified in the following table is authorised to be a human biosecurity officer.

Officers and employees of New South Wales health services administration body	
Item	Name
1	Patrick Anastassiadis
2	Catherine Bateman-Steel
3	Christopher Bourne
4	Karen Chee
5	Ming Chen
6	Laura Collie
7	Craig Dalton
8	Shireen Durrani
9	David Durrheim
10	Elizabeth Ellis
11	Mark J Ferson
12	Catherine Francis
13	Laksmi Govindasamy
14	Leena Gupta
15	Isabel Hess
16	Sheena Kakar
17	Sarah Khanlari
18	Jeremy McAnulty
19	Tony Merritt
20	Satish Mitter
21	Zeina Najjar
22	Christine Selvey
23	Vicky Sheppeard
24	Caitlin Swift
25	Tara Smith
26	Kathryn Taylor
27	Anthony Zheng

8 Officers and employees of Victorian health services administration body

Each person specified in the following table is authorised to be a human biosecurity officer.

Officers and employees of Victorian health services administration body	
Item	Name
1	
2	
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19	

9 Officers and employees of Queensland health services administration body

Each person specified in the following table is authorised to be a human biosecurity officer.

Officers and employees of Queensland health services administration body	
Item	Name
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Officers and employees of Queensland health services administration body

Item	Name
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	

10 Officers and employees of Western Australian health services administration body

Each person specified in the following table is authorised to be a human biosecurity officer.

Officers and employees of Western Australian health services administration body

Item	Name
1	
2	
3	
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9	
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11	
12	

11 Officers and employees of South Australian health services administration body

Each person specified in the following table is authorised to be a human biosecurity officer.

Officers and employees of South Australian health services administration body	
Item	Name
1	
2	
3	
4	

12 Officers and employees of Tasmanian health services administration body

Each person specified in the following table is authorised to be a human biosecurity officer.

Officers and employees of Tasmanian health services administration body	
Item	Name
1	

13 Officers and employees of Australian Capital Territory health services administration body

Each person specified in the following table is authorised to be a human biosecurity officer.

Officers and employees of Australian Capital Territory health services administration body	
Item	Name
1	
2	
3	
4	

14 Officers and employees of Northern Territory health services administration body

Each person specified in the following table is authorised to be a human biosecurity officer.

Officers and employees of name of Northern Territory health services administration body	
Item	Name
1	
2	
3	
4	
5	

Division 3—Members of the Australian Defence Force

15 Members of the Australian Defence Force

Each person specified in the following table is authorised to be a human biosecurity officer.

NB: There are currently no members of the Australian Defence Force

Members of the Australian Defence Force	
Item	Name
1	
2	
3	
4	



THE HON SUSSAN LEY MP
MINISTER FOR HEALTH
MINISTER FOR AGED CARE
MINISTER FOR SPORT

Ref No: MS16-001133

Dr Vicky Sheppeard
 Chief Human Quarantine Officer
 Director
 Communicable Diseases
 New South Wales Health Department
 [REDACTED]@doh.health.nsw.gov.au

Dear Dr Sheppeard

Authorisation of New South Wales officers and employees as Chief Human Biosecurity Officers and Human Biosecurity Officers under the *Biosecurity Act 2015*

I am writing to you to seek your ongoing support and collaboration in the protection of public health at Australia's international borders.

Section 564 of the *Biosecurity Act 2015* (the Act) requires that I, in my role as the Minister for Health, enter into an arrangement with the state or territory body responsible for the administration of health services in that state or territory for its officers or employees to be authorised as Chief Human Biosecurity Officers and Human Biosecurity Officers.

I acknowledge the crucial work that Human Quarantine Officers do at international borders in the interest of protecting the health of Australians, under the existing *Quarantine Act 1908*, and commend the continued efforts that Human Biosecurity Officers will undertake under the new legislation.

Given the importance of the work that your officers and employees undertake, such as screening ill travellers at the border and providing appropriate medical direction, I seek to formalise the arrangement between our respective bodies.

It is understood that relevant health officials from your state will nominate and make available suitable persons to be authorised as a Chief Human Biosecurity Officer or a Human Biosecurity Officer. As required by the Act, a Chief Human Biosecurity Officer must be an employee of the body in your state responsible for the administration of health services and a Human Biosecurity Officer must be an officer or employee of that body. Chief Human Biosecurity Officers and Human Biosecurity Officers must also be capable of meeting training and qualification requirements relevant to their role. These are currently outlined in the *Biosecurity (Training and Qualifications Requirements for Human Biosecurity Officials) Determination 2016* made for Sections 562 and 563 of the Act.

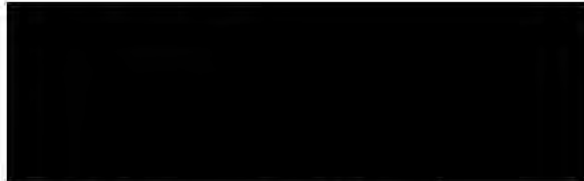
Authorised (Chief) Human Biosecurity Officers will comply with responsibilities and requirements set out in the Act and subordinate legislation, and abide by administrative requirements set by the Department of Health. Day-to-day business and functions expected of human biosecurity officials will be further detailed in funding agreements between your state and the Commonwealth Minister for Health.

The Department will continue to engage directly with (Chief) Human Biosecurity Officers to develop and maintain effective working relationships, supporting policies and other matters as relevant.

Given the commencement of the Act on 16 June 2016 it is essential that you respond to the Department via humanquarantine@health.gov.au by Thursday 9 June 2016 indicating your agreement to these arrangements.

This exchange of letters, once made, will constitute an arrangement under Section 564 of the Act.

Yours sincerely



The Hon Sussan Ley MP

cc: The Hon Jillian Skinner MP



31 MAY 2016



Health

D16/553569-1

The Hon Sussan Ley MP
Minister for Health, Minister for Aged Care, Minister for Sport
Parliament House
CANBERRA ACT 2600

Dear Minister

Thank you for correspondence on 31 May 2016 regarding authorisation of New South Wales officers and employees as Chief Human Biosecurity Officers and Human Biosecurity Officers under the *Biosecurity Act 2015*.

I am aware of the employment, training and qualification requirements for Chief Human Biosecurity Officers and Human Biosecurity Officers under the Act, and I agree to the arrangements described in your correspondence.

Yours sincerely



Dr Vicky Sheppeard
Chief Human Quarantine Officer (NSW)
Director, Communicable Diseases
Health Protection NSW

3 June 2016

NSW Ministry of Health

ABN 92 697 899 630

73 Miller St North Sydney NSW 2060
Locked Mail Bag 961 North Sydney NSW 2059
Tel. (02) 9391 9000 Fax. (02) 9391 9101
Website. www.health.nsw.gov.au

Standard Funding Agreement Schedule

SCHEDULE: Agreement with the States and Territories for the provision of Human Quarantine Services

Schedule Commencement Date: 01/07/2016

Schedule Completion Date: 15/08/2020

Agreement Id: 4-33F49S0

Schedule Id: 4-33F49S0

Item A DEPARTMENT'S PROGRAMME INFORMATION

- A.1 Programme Name:** Agreement with the States and Territories for the provision of Human Quarantine Services
- A.2 Programme Description and Objectives:**
Provision of human biosecurity services by state and territory health departments to monitor and implement health arrangements within facilities at international points of entry under the *Biosecurity Act 2015* (the Act), on behalf of the Commonwealth.

Item B YOUR ORGANISATION'S ACTIVITY INFORMATION (see also clause 11.4 [Definitions] of the Terms & Conditions)

- B.1 Name of Your Organisation:** Health System Support Group
- B.2 ABN:** 95 885 087 830
- B.3 Activity Name:** Human Biosecurity Services
- Activity Start Date:** 01/07/2016
- Activity End Date:** 30/06/2020

Activity Details:

This Schedule must be read and interpreted in conjunction with the *Terms and Conditions For Standard Funding Agreement March 2015*. The Schedule and the Terms and Conditions should not be read separately from each other.

The Project is supporting the Department of Agriculture and Water Resources (DAWR) (via the State's health department and Human Biosecurity Officers) by providing the Services. The Activity is pursuant to section 564 of the Act.

Human Biosecurity Officials

The State will ensure that it has the following Human Biosecurity officials appointed in accordance with the Act:

- (a) a Chief Human Biosecurity Officer (CHBO), who will be a qualified medical practitioner that can direct the activities of the State's HBOs. The CHBO's activities will be subject to the direction of the Director of Human Biosecurity (DHB); and
- (b) Human Biosecurity Officers (HBOs) will be qualified medical practitioners who can undertake human biosecurity activities (the Services) on behalf of the Commonwealth. The HBOs' activities will be subject to the direction of the State's CHBO.

Words or phrases defined in the Terms and Conditions carry the same meaning in this Schedule

Standard Funding Agreement Schedule

Services

The Services are as follows:

- (a) routine, day-to-day human biosecurity services at the Australian border, including by:
 - (i) screening travellers at Australia's international border for listed human diseases; and
 - (ii) managing the treatment of travellers at Australia's international border for listed human diseases; and
- (b) resourcing for human biosecurity emergencies (if required, based on an assessment according to the individual circumstances of each incident)

CHBOs and HBOs will perform the following activities as part of the Services (not precluding the broader powers available under the Act being exercised by the CHBOs and HBOs, when required);

- i) provide medical advice to Biosecurity Officers assessing ill travellers at Australia's international points of entry;
- ii) arrange integration into state/territory public health systems of travellers identified at an First Point of Entry as requiring treatment for a listed human disease under relevant sections of the Act;
- iii) impose Human Biosecurity Control Orders (HBCOs) on individuals who may have a listed human disease, as appropriate;
- iv) ensure that individuals being managed under a HBCO receive appropriate treatment for the duration that the order is imposed;
- v) report to the DHB as soon as practicable when a HBCO is imposed on an individual;
- vi) provide advice to DAWR Biosecurity Officers concerning measures to be taken to treat a vessel or other biosecurity measures to be performed if a vessel is suspected to have a communicable disease on board;
- vii) provide input into the development of new biosecurity arrangements;
- viii) act as a conduit between the Commonwealth and the State on human biosecurity matters;
- ix) support the assessment of travellers who are at higher risk of developing a listed human disease, as appropriate;
- x) provide input into the development of risk profiles for listed human diseases, as appropriate;
- xi) maintain regular contact with First Points of Entry in the State to ensure that response procedures to health emergencies are documented in airport/seaport emergency planning, as required under the *International Health Regulations 2005*;
- xii) contribute to the training of HBOs, including undertaking Commonwealth-led training;
- xiii) accredit Yellow Fever vaccination providers in accordance with National Yellow Fever Accreditation Guidelines; and
- xiv) participate in activities designed to evaluate or improve human biosecurity-related capabilities, including regular attendance at CHBO meetings.

RECITALS

- (a) The Commonwealth has constitutional responsibility for quarantine

Words or phrases defined in the Terms and Conditions carry the same meaning in this Schedule

Standard Funding Agreement Schedule

(including biosecurity).

- (b) The Commonwealth's objective in relation to human biosecurity matters is to protect the Australian public from serious communicable diseases, particularly new, exotic and re-emerging infectious diseases through human biosecurity activities.
- (c) The Department is responsible for administering the human health aspects of the *Biosecurity Act 2015* which is a key element of the Commonwealth's biosecurity programme.
- (d) The Department does not have officials at Australia's First Points of Entry to perform human biosecurity services. These activities are performed by DAWR BOs, supported by state and territory health departments and the Department.
- (e) The Department has therefore agreed to fund the State for the Project on the terms of this Agreement.

Activity Performance Indicators:

	Performance Indicator Description	Target
1	None specified	

Additional Information:

Location Information:

Your Organisation has advised that all or part of the Activity will be delivered from the site location (s) specified below:

	Location Type	Subtype	Name	Address
1	Direct Funded	Admin Office	Health System Support Group	

Service Area:

Your Organisation has advised that the Activity will service the service area(s) specified below:

	Type	Service Area
1	State	NSW

Your Organisation must advise the Department of any change to the site location or service area information in writing within 30 days after that change.

If, however, the location or area is a Works Location for Capital Works or a site location for Real Property or information about the location or area was provided to the Department as part of a selection/agreement process, any such change must be agreed in advance in writing by the Department before Your Organisation may implement the change.

Standard Funding Agreement Schedule

Item C **FUNDING AND PAYMENT** (see also clause 3 [Financial provisions] of the Terms and Conditions)

C.1 Activity Name: Human Biosecurity Services

Financial Year	Funding amount (GST Exclusive)	GST component (if applicable)	Total (GST Inclusive)
2016-2017	\$75,737.79	\$0.00	\$75,737.79
2017-2018	\$77,252.55	\$0.00	\$77,252.55
2018-2019	\$78,797.60	\$0.00	\$78,797.60
2019-2020	\$80,373.55	\$0.00	\$80,373.55

Note: funding amounts increase by 2% per annum.

Bank Account Information:

Your Organisation must notify the Department in writing of any changes to these account details:

BSB Number:	
Financial Institution:	
Account Number:	
Account Name:	

Item D **BUDGET** (see also clause 3.5 [Budget] of the Terms and Conditions)

The Funds are calculated based on the following costs:

(a) "Sign on" costs

"Sign-on costs" cover the appointment and training of the CHBO and the HBOs, their attendance at three annual face to face meetings and an annual training course to update their legislative knowledge.

"Sign-on costs" for the State for 2016-2017 will be \$7,500.00 (GST out of scope) and increase thereafter at 2% per annum.

(b) Training and liaison costs

Training and liaison costs cover the costs of the CHBO providing up to 2 days of training (and 3 days of preparation for the training) and acting as a liaison with local authorities and state and territory authorities for an average of 5 days per year.

Training and liaison costs for the State for 2016-2017 will be \$8,335.00 (GST out of scope) and increase thereafter at 2% per annum.

(c) Costs for compliance with International Health Regulation (IHR) obligations

The Commonwealth has been appointed as a Competent Authority under the International Health Regulations 2005 (IHR) to monitor health arrangements within facilities at international points of entry (including disease control, Yellow Fever accreditation, and emergency management). The CHBO and the HBOs facilitate the linkage between the Commonwealth and the first points of entry. The major task the CHBO will pursue is to assist international airports and seaports in the development, maintenance and exercising of their communicable disease emergency planning. This workload is likely to vary

Standard Funding Agreement Schedule

from year to year, but will represent an average of 12 days per year.

IHR compliance costs for the State for 2016-2017 will be \$10,000.00 (GST out of scope) and increase thereafter at 2% per annum.

(d) On-call allowance

A CHBO or HBO must be available at all times to deal with calls, including from DAWR BOs. Most state or territory medical officers are paid on-call allowances.

The on-call allowance costs for the State for 2016-2017 will be \$15,478.78 (GST out of scope) and increase thereafter at 2% per annum.

(e) Workload costs

Workload costs are calculated on an estimated number of travellers arriving in the state, with labour costs of \$84/hour (Medical Officer Class 4).

The workload costs for the State for 2016-2017 will be \$34,424.01 (GST out of scope) and increase thereafter at 2% per annum.

Item E REPORTS (see also clause 2.3 [Reports] of the Terms and Conditions)

NOTE

Your Organisation's Reports must contain all the information specified below. All reports must be in English and in a form acceptable to the Department.

E.1 Performance Reports

Human Biosecurity Services

Progress reports provided on an annual basis in the form set out in Annexure B to this Agreement.

E.2 Activity Work Plan

Human Biosecurity Services

None specified

E.3 Annual Report

None specified

E.4 Financial Acquittal Reports

None specified

Human Biosecurity Services

None specified

Standard Funding Agreement Schedule

E.5 Other Reports

Human Biosecurity Services

Human Biosecurity Services Incident Report

An Incident Report will be provided in relation to any case of listed human disease detected in the states and territories within 24 hours of the CHBO becoming aware of the case. An Incident Report will contain the following information:

- a) Name of the person(s) suspected of having a listed human disease
- b) State/territory in which the person(s) was identified
- c) If a HBCO is to be given to the person(s), and what measures are included
- d) Suspected listed human disease
- e) Whether the disease has been confirmed
- f) Proposed action
- g) Name of the reporting officer
- h) Contact phone number for the reporting officer

E.6 Final Report

Human Biosecurity Services

None specified

Standard Funding Agreement Schedule

Item F MILESTONES / REPORTING REQUIREMENTS / PAYMENT SCHEDULE

The following table combines all of Your Organisation's Reporting and other Milestones for all Activities under this Agreement.

Milestones and Reports		Activity (if Applicable)	Information to be included and requirements	Due Date	Payment Amount (GST excl.)	GST
F.1	Payment	Human Biosecurity Services	Human Biosecurity Services Payment 2016-17	1 July 2016	\$75,737.79	\$0.00
F.2	Performance Report	Human Biosecurity Services	Human Biosecurity Service Annual Progress Report 2016-17	15 July 2017	\$0.00	\$0.00
F.3	Payment	Human Biosecurity Services	Human Biosecurity Services Payment 2017-18	1 July 2017	\$77,252.55	\$0.00
F.4	Performance Report	Human Biosecurity Services	Human Biosecurity Service Annual Progress Report 2017-18	15 July 2018	\$0.00	\$0.00
F.5	Payment	Human Biosecurity Services	Human Biosecurity Services Payment 2018-19	1 July 2018	\$78,797.60	\$0.00
F.6	Performance Report	Human Biosecurity Services	Human Biosecurity Service Annual Progress Report 2018-19	15 July 2019	\$0.00	\$0.00
F.7	Payment	Human Biosecurity Services	Human Biosecurity Services Payment 2019-20	1 July 2019	\$80,373.55	\$0.00
F.8	Performance Report	Human Biosecurity Services	Human Biosecurity Service Annual Progress Report 2019-20	15 July 2020	\$0.00	\$0.00

Words or phrases defined in the Terms and Conditions carry the same meaning in this Schedule

Standard Funding Agreement Schedule

Item G **INSURANCE REQUIREMENTS** (see also clause 9.3 [Insurance] of the Terms & Conditions)

Your Organisation must have the following Activity specific insurance/s:

Human Biosecurity Services

None specified

Item H **ASSETS** (see also clause 5 [Assets] of the Terms & Conditions)

Human Biosecurity Services

None specified

Item I **SUBCONTRACTORS** (see also clause 4.2 [Subcontractors to be approved] of the Terms & Conditions)

The following subcontractors are required to undertake the Activity/ies as indicated:

Human Biosecurity Services

None specified

Item J **SPECIFIED PERSONNEL** (see also clause 4.3 [Your Organisation's Personnel and Specified Personnel] of the Terms & Conditions)

The following Specified Personnel are required to undertake the Activity/ies as indicated:

Human Biosecurity Services

None specified

Item K **CONFIDENTIAL INFORMATION** (see also Clause 8 [Confidentiality] of the Terms & Conditions)

Human Biosecurity Services

The Commonwealth's Confidential Information is:

None specified

Your Organisation's Confidential Information is:

None specified

Standard Funding Agreement Schedule

Item L NOTICES (see also Clause 4.5 [Notices] of the Terms & Conditions)

The Commonwealth's contact details and address for notices:

Name or Position	Anne Somasundaram Grant Officer
Phone	(02) [REDACTED]
Email	[REDACTED]
Postal Address	[REDACTED]
Facsimile	None specified

Your Organisation's contact details and address for notices:

Name or Position	Dr Vicky Sheppeard Director, Communicable Diseases Branch
Phone	(02) [REDACTED]
Email	[REDACTED]
Postal Address	Health Protection NSW [REDACTED] [REDACTED] [REDACTED]
Facsimile	(02) [REDACTED]

Item M VULNERABLE PERSONS, POLICE CHECKS AND CRIMINAL RECORDS (see also clause 4.1 [Working with Vulnerable Persons] of the Terms & Conditions)

Human Biosecurity Services

Applies in full

Words or phrases defined in the Terms and Conditions carry the same meaning in this Schedule

Standard Funding Agreement Schedule

ANNEXURE A - Supplementary Conditions

Human Biosecurity Services

G2.3. No GST for payments to government related entities

G2.3.1. This Supplementary Condition G2.3 [No GST for payments to government related entities] amends clause 3.9 [Taxes, duties and government charges] of the Terms and Conditions by deleting the words 'or RCTI' in clauses 3.9.3, clause 3.9.7.a and clauses 3.9.8 to 3.9.11 inclusive of the Terms and Conditions.

G2.3.2. The Parties have entered into this Agreement on the understanding that:

- a. they are both 'government related entities' as defined in the GST Act, and either:
- b. the payment of the Grant funds:
 - i. is covered by an appropriation under an Australian Law or the COAG National Health Reform Agreement; and
 - ii. is calculated on the basis that the sum of the Grant funds and anything else that Your Organisation receives from another entity in connection with, or in response to, or for the inducement of that supply under this Agreement or a related supply does not exceed Your Organisation's anticipated or actual costs of making those supplies; or
- c. the payment of the Grant funds for the Activity is a kind of payment specified in regulations made for the purposes of s 9-17 of the GST Act.

G2.3.3. On the basis of the matter described in Supplementary Condition G2.3.2, the Parties rely on s 9-17 of the GST Act for no GST being imposed in connection with a supply made under this Agreement.

G2.3.4. This Supplementary Condition G2.3 [No GST for payments to government related entities] survives the expiry or termination of an Activity or this Agreement.

G16. No Conflict requirement for government entities

G16.1.1. Clause 9.4 [Conflicts] of the Terms and Conditions does not apply to any Activity governed by this Agreement.

Standard Funding Agreement Schedule

ANNEXURE B – Progress Report

Project Agreement between the Commonwealth and the States and Territories for the provision of Human Biosecurity Services

Progress Report [Financial Year]

As Chief Human Quarantine Officer for[insert state or territory],
I certify that the following services have been made available as required during the period
[Day] [Month] [Year] to [Day] [Month] [Year].

No#	Activity	Response
1	Provide medical advice to Biosecurity Officers assessing ill travellers at Australia's first points of entry	
2	Arrange integration into state/territory public health systems of travellers identified at the border as requiring treatment for a listed human disease under relevant sections of the Act	
3	Ensure that individuals being managed under a Human Biosecurity Control Order receive appropriate treatment, for the duration that the order is imposed	
4	Provide advice to Biosecurity Officers concerning measures to be taken to treat a vessel or other biosecurity measures to be performed if a vessel is suspected to have a communicable disease on board	
5	Provide input into the development of new human biosecurity arrangements	
6	Support the assessment of travellers who are at higher risk of developing a listed human disease, as appropriate	
7	Provide input into the development of risk profiles for listed human diseases, as appropriate	
8	Contribute to the training of Human Biosecurity Officers, including undertaking Commonwealth-led training	
9	Act as a conduit between the Commonwealth and state authorities on human biosecurity matters	
10	Accredit Yellow Fever vaccination providers in accordance with National Yellow Fever Guidelines	
11	Maintain regular contact with First Points of Entry to ensure that response procedures to human biosecurity emergencies and risks are documented in emergency plans	
12	Participate in activities designed to improve or exercise human biosecurity related capabilities, including regular attendance at Chief Human Biosecurity Officer meetings	

* Please tick column to indicate that the activity has been undertaken

13. Approximate number of calls made to HBOs within the funding period _____
14. Number of times a HBO has had to attend a port in person _____
15. Number of Yellow Fever accredited vaccination centres _____
16. Estimated Full Time Equivalent staff required to deliver the Services _____

Words or phrases defined in the Terms and Conditions carry the same meaning in this Schedule

Standard Funding Agreement Schedule

I also certify that all funds provided under this agreement have been/will be expended in the performance of these duties.

Name: _____ Signature: _____ Date: _____

Progress Reports should be submitted by post or email to:

Director

Health Sport Grants Section (MDP 410)

Grant Services Division

Department of Health

GPO Box 9848

CANBERRA ACT 2601

Email: [REDACTED]@health.gov.au

Standard Funding Agreement Schedule

Signatories to this Agreement

Parties **Commonwealth of Australia** ("Commonwealth"), as represented by and acting through **The Department of Health ABN 83 605 426 759**, Sirius Building, Cnr Furzer and Worgan St, Phillip ACT 2606 ("Department")

Health System Support Group ABN 95 885 087 830 of 73 Miller Street, NORTH SYDNEY, NSW, 2060 ("Your Organisation")

Executed by the Parties as a DEED on the day of Year

The Parties agree that by signing this Schedule they enter into the Agreement, which comprises this Schedule (including its Annexures and any Supplementary Conditions), the attached Cover Letter, the enclosed document entitled 'Terms and Conditions Standard Funding Agreement March 2015' and any other documents incorporated by reference.

This Agreement is deemed to have commenced on 01/07/2016

Signed, Sealed and Delivered for and on behalf of the **Commonwealth of Australia** by the relevant Delegate, represented by and acting through the **Department of Health ABN 83 605 426 759** in the presence of:



(Signature of Departmental Representative) 13/12/16

Sussan Ley

(Name of Departmental Representative)



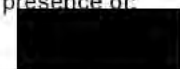
(Signature of Witness) 13/12/16



(Name of Witness in full)

Other

Signed, Sealed and Delivered by **Health System Support Group ABN 95 885 087 830**, in the presence of:



(Signature of Party) 28/11/15

Vicky Sheppard

(Name of Party)



(Signature of Witness) 28/11/2016



(Name of Witness in full)

Words or phrases defined in the Terms and Conditions carry the same meaning in this Schedule



Australian Government
Department of Agriculture
and Water Resources



Australian Government
Department of Health

Head Memorandum of Understanding for the collaborative
working relationship between

Department of Agriculture and Water Resources (**Agriculture**)
(ABN 2411 308 5695)

and

Department of Health (**Health**)
(ABN 83 605 426 759)

MOU Information

Parties

Name	The Commonwealth of Australia as represented by the Department of Agriculture and Water Resources.
Short form name	Agriculture

Name	The Commonwealth of Australia as represented by the Department of Health and/or its portfolio agencies.
Short form name	Health

Overview

As a principles-based document, the Memorandum sets out the overall framework within which the Parties work together to provide a high level of collaboration, support and service to each other and the Australian Government.

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Terms

Part 1 – General

1. Glossary and interpretation

1.1 Glossary

In this MOU, except where the contrary intention is expressed, the following explanations are used:

Activity	the activity or activities described in Schedule(s).
Agriculture	the Department of Agriculture and Water Resources.
Biosecurity Act	the <i>Biosecurity Act 2015</i> as amended from time to time.
Commencement Date	the date on which this MOU commences, as specified in clause 1.4.
Health	the Department of Health and includes any department, agency or authority within that portfolio.
Imported Food Control Act	the <i>Imported Food Control Act 1992</i> as amended from time to time.
MOU	this Memorandum of Understanding between Agriculture and Health, as amended from time to time, and includes its schedules and any attachments.
National Health Security Act	the <i>National Health Security Act 2007</i> as amended from time to time.
Notice	a notice, demand, consent, approval or communication issued under this MOU.
Privacy Act	the <i>Privacy Act 1988</i> as amended from time to time.
Schedule	any schedule made under this MOU which details an Activity.
Term	the period of time between the Commencement Date as identified at clause 1.4 and any such time that this agreement is terminated under clause 5.1.

1.2 Purpose

- (a) The Parties have agreed to work together to provide a high level of collaboration, support and service to each other and to the Australian Government.
- (b) The Parties recognise that they are instruments of the Australian Government and as such strive to achieve the Australian Government's objectives efficiently and effectively. The cooperative intent outlined in this MOU reflects the desire to achieve a joint approach between the Parties for areas of cross-portfolio interest, including border operations, food standards, and antimicrobial resistance.
- (c) The purpose of this MOU is to document the understanding between the Parties for delivery of the Activity and includes:

- (i) the roles of the Parties; and
- (ii) the consultation and management responsibilities.

1.3 Scope of MOU

This MOU:

- (a) Identifies the Parties key roles;
- (b) establishes arrangements for the delivery of the Activity in a Schedule; and
- (c) establishes a flexible approach to variations to this MOU.

1.4 Commencement Date

- (a) the date on which both Parties sign this MOU; or
- (b) if the Parties do not sign this MOU on the same day, the date the last Party to sign this MOU.

1.5 Relationship between the Parties

- (a) The Parties will work closely together to facilitate the successful delivery of the Activity under this MOU.
- (b) Each Party will:
 - (i) act in the spirit of cooperation and good faith in the performance of this MOU;
 - (ii) liaise with the other Party as necessary;
 - (iii) provide all information as specified under the MOU and in a timely manner; and
 - (iv) immediately or as soon as practicable notify each other Party of any matter which will impact the other, relating directly or indirectly to this MOU or anything which this MOU may contemplate;

to ensure that the Parties are able to perform their roles and responsibilities as set out in this MOU.

1.6 Roles of the Parties

- (a) Subject to the requirements of the relevant legislation, the role of Agriculture is as follows:
 - (i) the performance of functions and the exercise of powers in relation to plants and animals in relation to the management of biosecurity risk under the Biosecurity Act;
 - (ii) delivery of human biosecurity services at the border in accordance with the Biosecurity Act;
 - (iii) delivery of human biosecurity emergency response services at the border as needed in accordance with the Biosecurity Act;
 - (iv) undertake activities, including through appropriate steering/working groups to jointly implement the national strategy to respond to antimicrobial resistance;
 - (v) national support for the animal health aspects of emerging and zoonotic disease management, and involvement as required;
 - (vi) management of imported food under the Imported Food Control Act;

- (vii) risk assessments of goods (including Biosecurity Import Risk Analyses), and the granting of import permits for goods to be brought or imported into Australian territory (including biological products); and
 - (viii) regulation of imports of genetically modified organisms under the Biosecurity Act.
- (b) Subject to the requirements of the relevant legislation, the role of Health is as follows:
- (i) the performance of functions and the exercise of powers in relation to human health under the Biosecurity Act;
 - (ii) development of biosecurity policy in relation to human health in accordance with the Biosecurity Act;
 - (iii) support delivery of human biosecurity emergency response services at the border as needed in accordance with the Biosecurity Act;
 - (iv) regulation of food and development of food standards in accordance with the *Food Standards Australia New Zealand Act 1991*;
 - (v) undertake activities, including through appropriate steering/working groups to jointly implement the national strategy to respond to antimicrobial resistance;
 - (vi) national support for the human health aspects of emerging and zoonotic disease management, and involvement as required;
 - (vii) regulation of Security Sensitive Biological agents under the *National Health Security Act 2007*;
 - (viii) regulatory and biosecurity risk assessment advice in relation to management of human health risks associated with goods brought or imported into Australian territory, including biological products;
 - (ix) national coordination of surveillance for and response to outbreaks of communicable diseases in humans, including food borne diseases and food contamination issues;
 - (x) regulation of dealings with genetically modified organisms, including import, in relation to risks to human health and safety and the environment under the *Gene Technology Act 2000*.

1.7 Schedules

- (a) The Parties may develop Schedules to support this MOU.
- (b) Each Schedule will:
 - (i) relate to a mutually agreed issue; and
 - (ii) set out an approach for the most effective working relationship required to manage each issue.
- (c) In accordance with this MOU, a Schedule:
 - (i) is made under this MOU if it is signed by the Parties; and
 - (ii) commences, unless otherwise specified, on:
 - i. the date it is signed by both Parties; or
 - ii. the date the last Party signs, where the Parties do not sign the Schedule on the same day.

- (d) Once a Schedule has been made, it may be varied or terminated by a written agreement signed by the Parties. Unless otherwise specified, a variation or termination:
 - (i) takes effect from the date the last Party signs the variation or termination; and
 - (ii) has no effect unless endorsed in accordance with this MOU.

Part 2 – Administration

2. Representatives

2.1 Party's representatives

The Party's representatives, as set out below, are responsible for the operational coordination and management between the Parties of the performance of its respective obligations under this MOU:

- (a) Agriculture's representative
 First Assistant Secretary
 Compliance Division
 Department of Agriculture and Water Resources
 arrivals@agriculture.gov.au
- (b) Health's representative
 First Assistant Secretary
 Office of Health Protection
 Department of Health
 humanbiosecurity@health.gov.au

2.2 Representative authority

The Parties may deal with the other Party's representative in clause 2.1 above on all matters relating to this MOU and those representatives may exercise all rights of the Party under or in connection with this MOU.

3. Dispute Resolution

3.1 Cooperation

The Parties agree to work cooperatively and in accordance with clause 3.2 to resolve any disputes arising under this MOU.

3.2 Dispute resolution process

- (a) If a dispute arises under this MOU, the Parties will deal with the dispute as follows:
 - (i) the Party claiming that there is a dispute will give the other Party reasonable notice setting out the nature of the dispute;
 - (ii) the Parties will use their best endeavours to resolve the dispute at an operational level through direct negotiations between the representatives in clause 2.1

- (b) Failing settlement within a reasonable period, having regard to the circumstances, the Parties will continue to escalate the dispute to more senior employees of each of the Parties until a resolution can be reached.
- (c) Despite the existence of a dispute the Parties agree to perform their roles and responsibilities under this MOU unless requested in writing not to do so by the other Party.

4. Variation

- (a) Changes may be made to this MOU by written agreement of both Parties at any time.
- (b) Where the Parties mutually determine to vary this MOU, any variation will:
 - (i) be made jointly by the Party's representatives mentioned in Part 2.1 or their delegates;
 - (ii) be made in writing, in the form of either an exchange of letters or electronic communication confirmed between the Parties; and
 - (iii) will commence on the date it is signed by both Parties or the date the last Party signs, where the Parties do not sign on the same day.

5. Termination

5.1 Termination and reduction in scope

- (a) Either Party may terminate this MOU or reduce the scope by providing three months written notice.
- (b) Upon a Notice of termination or reduction of scope being given, each Party will:
 - (i) comply with the terms of the Notice;
 - (ii) do everything it reasonably can to minimise any loss it suffers (or may suffer) as a consequence; and
 - (iii) continue to perform their respective roles and responsibilities under this MOU, if any, that remain after it complies with the Notice.
- (c) Neither Party is liable for any costs incurred by the other Party, including by way of staff or contractual arrangements through the termination of this MOU in accordance with this clause 5.1.

6. Notices

Any notification or other communication under or in connection with this MOU will be deemed to be given or made to the representative in clause 2:

- (a) in the case of email, when the sender receives a delivery confirmation receipt email;
- (b) in the case of facsimile, on receipt of a transmission report confirming successful transmission; and
- (c) in the case of delivery by hand, on delivery.

7. Not Legally Binding

This MOU does not create any legally binding obligations on either Party, confer any rights or supersede any laws.

8. Intellectual Property

- (a) Nothing in the MOU is intended to change or affect the ownership of intellectual property of either of the Parties; and
- (b) If at any time, either of the Parties seeks to enter into a contractual or other agreement with a third party which could affect the intellectual property rights of either or both Parties, the Party seeking to enter into the arrangement will consult the other Party before doing so.

9. Disclosure of information

- (a) The Parties agree to:
 - (i) share any relevant information in areas of mutual interest; and
 - (ii) consider any requests for relevant information and consult the other Party where necessary.
- (b) The Parties agree that any information shared under this MOU will be used, disclosed and stored in accordance with the Biosecurity Act, the Privacy Act, any other statutory requirements and any other policy requirements of each Party.

10. Review

- (a) The Parties will consider the need to review this MOU every three years from the date of commencement or as otherwise necessary.

11. Inconsistency

- (a) In the event of a conflict between any of the terms of this MOU and any Schedule made under this MOU, the Schedule will prevail to the extent of the inconsistency.

Signing page



Signature of Department of Agriculture and Water
Resources delegate

LYN O'CONNELL

Name of Department of Agriculture and Water Resources
delegate (print)

DEPUTY SECRETARY

Position of Department of Agriculture and Water Resources
delegate (print)

Date Signed 19/10/17



Signature of Department of Health delegate

BRENDAN MURPHY

Name of Department of Health delegate (print)

CHIEF MEDICAL OFFICER

Position of Department of Health delegate (print)

Date Signed 19/10/2017

Schedule 3 – Human Biosecurity Services

The purpose of this Schedule is to manage human biosecurity arrangements at Australia's international borders and within Australian territory while:

- (a) supporting the relationship between the Parties in their joint administration of biosecurity services;
- (b) developing and strengthening practical cooperation in the implementation of biosecurity services relating to human health; and
- (c) clarifying roles and responsibilities while still allowing flexibility to respond to specific issues that may arise.

1. Parties

The Parties to this Schedule are:

- (a) Department of Agriculture and Water Resources (Agriculture) and/or their portfolio agencies;
- (b) Department of Health (Health) and/or their portfolio agencies.

2. Parties in Schedule who are not a Party to the MOU

- (a) In the event that a party in this Schedule is not a party to the MOU, references to "Parties" in the MOU will be read to include the Party in this Schedule who is not a party to the MOU; and
- (b) that Party acknowledges that it has been provided with a copy of the MOU.

3. Glossary

Agriculture	the Department of Agriculture and Water Resources and includes any department, agency or authority within that portfolio.
Australian territory	has the meaning given by the <i>Biosecurity Act 2015</i> .
Commonwealth Human Biosecurity Officer (Commonwealth HBO)	a person who is authorised under the Act to be a Human Biosecurity Officer (HBO) and who is an employee of Health.
Emergency	an international disease outbreak (in one or more countries) requiring implementation of additional border measure/s to manage the potential human biosecurity risks.
Health	the Department of Health and includes any department, agency or authority within that portfolio.
Jurisdictional Chief Human Biosecurity Officer / Human Biosecurity Officer (jurisdictional CHBO / HBO)	a person who is authorised under the Act to be a Chief Human Biosecurity Officer (CHBO) or HBO for the State or Territory and who is an employee of the health authority in that jurisdiction.
Listed Human Disease	has the meaning given by section 42 of the <i>Biosecurity Act 2015</i> .

MOU	the Memorandum of Understanding between Agriculture and Health, as amended from time to time, and includes its schedules and any attachments.
National Focal Point	Is the individual or individuals within Health authorised under the <i>National Health Security Act 2007</i> for communications under the <i>International Health Regulations (2005)</i>

4. Scope

- 4.1 Biosecurity services will be delivered by the Parties to manage the following pathways for human biosecurity risks:
- (a) the entry of travellers into Australian territory;
 - (b) the entry of goods into Australian territory;
 - (c) the entry of conveyances, including disease vectors carried on vessels and aircraft, into Australian territory; and
 - (d) the entry of human remains.
- 4.2 Health will:
- (a) undertake risk assessments and provide policy advice to Agriculture for the delivery of human biosecurity services to manage the risk pathways referred to in clause 4.1; and
 - (b) provide Agriculture with written policy advice to effectively manage the risk pathways referred to in clause 4.1.
- 4.3 Agriculture will:
- (a) seek advice from Health on human biosecurity risks;
 - (b) develop instructional material (consistent with Health policy and advice) for the implementation of human biosecurity services to manage the risk pathways referred to in clause 4.1; and
 - (c) implement the operational arrangements consistent with Health policy advice to effectively manage the risk pathways referred to in clause 4.1.
- 4.4 The Parties will endeavour to:
- (a) provide timely policy and operational advice;
 - (b) perform services outlined at Attachment A of this Schedule;
 - (c) review policies and instructional material to ensure that they remain relevant, responsive and appropriate to manage human biosecurity risks and the risk pathways referred to in clause 4.1; and
 - (d) always consult on any changes to human biosecurity policy or implementation by one of the Parties that impacts on the other, particularly in terms of operational achievability, resourcing and legislative authority.
- 4.5 Out of Scope:
- (a) human biosecurity emergency response services at the border (this will be covered in a separate schedule).

5. Objectives

Working together, the Parties seek to protect the Australian community from human biosecurity risks by:

- (a) regulating the entry of travellers and goods; and
- (b) managing the risk of entry and spread of vectors and vector-borne diseases through vector surveillance and control activities.

6. Responsibilities

6.1 The Parties' roles and responsibilities in this Schedule are consistent with the legislative requirements within the *Biosecurity Act 2015* and related subordinate legislation and the Administrative Arrangements Orders.

6.2 Health has responsibility and authority for the following matters relevant to this Schedule:

- (a) policy development and provision of advice in relation to the management of human biosecurity services under the *Biosecurity Act 2015*;
- (b) implementation of Australia's obligations under the *International Health Regulations (2005)* (IHR);
- (c) engagement with the World Health Organization (WHO) and other countries' National Focal Points (NFP) on human biosecurity matters;
- (d) provision of regulatory and risk assessment advice in relation to management of human biosecurity risks associated with imported goods (including human biological materials);
- (e) development of policy for surveillance and control at first points of entry for exotic mosquitoes;
- (f) facilitation and coordination of availability of HBOs for the provision of technical medical advice;
- (g) provision of risk assessment advice in relation to the bringing of human remains into Australian territory;
- (h) provision of risk assessment advice in relation to the importation of human hair, teeth or bones; and
- (i) joint management, with Agriculture and state and territory health departments as relevant, of suspected cases of non-compliance with human biosecurity measures.

6.3 Agriculture has responsibility and authority for the following matters relevant to this Schedule:

- (a) the performance of functions and the exercise of powers in relation to the management of plants and animals and its associated biosecurity risk under the *Biosecurity Act 2015*;
- (b) delivery of human biosecurity services at the border under the *Biosecurity Act 2015*;
- (c) management of import conditions for goods to be brought into Australian territory, in consultation with Health;
- (d) release of, or issuance of interim permission, for human remains to be brought into Australian territory, and referral to Health for risk assessment and permission as appropriate;
- (e) clearance of human hair, teeth or bones for importation into Australian territory, and referral to Health for risk assessment and permission as appropriate;

- (f) implementation of surveillance and facilitation of treatment activities at first points of entry and approved arrangements for exotic mosquitoes;
- (g) engagement with other country port health authorities about Australian ship sanitation certificate acceptance and validity, for example through Agriculture international posts or other embassy officials; and
- (h) identification and reporting of suspected cases of non-compliance with human biosecurity measures, and jointly manage with Health and state and territory health departments.

6.4 Detailed roles and responsibilities of Health and Agriculture are further outlined in **Attachment A**.

7. Risk management

The Parties agree that each is responsible for managing their own risks related to their commitments under this Schedule, in accordance with legislative and agreed requirements and other relevant policies and procedures.

8. Costs

The Parties agree that each will bear their own costs in fulfilling their commitments under this Schedule except where a prior written agreement has been reached by both Parties as to their sharing or appointment.

9. Procedural material

The Parties may develop standard operating procedures, instructions and guidelines or business practice statements or any procedural material consistent with this Schedule.

10. Nominated contacts

Each Party may raise matters relevant to this Schedule with the following nominated contacts:

- (a) For Agriculture, the person holding the position of Assistant Secretary, Compliance Controls Branch, Compliance Division.
- (b) For Health, the person holding the position of Assistant Secretary, Health Emergency Management Branch, Office of Health Protection.

11. Governance

Human Biosecurity Forum

In administering the Schedule, Assistant Secretaries and Directors of relevant functional areas of Agriculture and Health will meet at a minimum every three months commencing from the execution of this Schedule.

Meetings will be chaired by Agriculture or Health on a rotating basis.

The purpose of the meetings is to:

- (a) oversee the collaborative development of human biosecurity operational policies and their implementation;
- (b) provide a forum for the discussion of new and proposed human biosecurity policy;
- (c) provide a forum for the discussion of new and emerging human biosecurity risks;

- (d) provide a forum to discuss changes to human biosecurity policy that impact on the implementation of human biosecurity services, including those relating to resourcing and legislative change;
- (e) discuss and where appropriate develop strategic direction for human biosecurity policy and implementation for the coming 12 months;
- (f) provide an avenue for dispute resolution; and
- (g) provide performance feedback.

12. Review of Schedule

The Parties will review the operation of this Schedule three (3) years after commencement or at such other time as mutually determined by the Parties to assess the suitability of arrangements under this Schedule.

Signing page



Signature

Peta Lane
First Assistant Secretary
Compliance Division
Department of Agriculture and Water Resources

Date Signed 28/11/18



Signature

Sharon Appleyard
First Assistant Secretary
Office of Health Protection
Department of Health

Date Signed 1 November 2018

ATTACHMENT A

Article I. First Points of Entry

OBJECTIVE	ACTIVITY	PARTY	GIVEN EFFECT BY	RELEVANT POLICIES, INSTRUCTIONAL MATERIAL AND OTHER OUTPUTS
Determination of a first point of entry.	Making, varying or revoking a determination of a first point of entry.	Agriculture and Health	Under the <i>Biosecurity Act 2015</i> , the Director of Biosecurity or the Director of Human Biosecurity may make, vary or revoke a First Point of Entry Determination for a port or landing place. It has been agreed that these instruments will be made, varied or revoked by the Director of Biosecurity, in consultation with the First Assistant Secretary of the Office of Health Protection on behalf of the Director of Human Biosecurity.	This Human Biosecurity Services schedule Standards for First Points of Entry IHR annex 1b

Article II. Human biosecurity permissions

OBJECTIVE	ACTIVITY	PARTY	GIVEN EFFECT BY	RELEVANT POLICIES, INSTRUCTIONAL MATERIAL AND OTHER OUTPUTS
Goods (including human biological materials and human hair, teeth or bones), and human remains brought into Australian territory are adequately assessed for human biosecurity risks prior to being granted entry.	Health provides human biosecurity advice for assessment processes, both regulated and non-regulated.	Agriculture	<p>Agriculture manages import requirements including permit conditions for all goods brought into Australian territory.</p> <p>Agriculture consults with Health on health related goods (including scope and timeframes in relation to requests).</p> <p>Agriculture consults with Health on any changes to import conditions that may impact on human biosecurity.</p> <p>Agriculture determines whether to request a Human Biosecurity Impact Statement (HBIS) for a Biosecurity Import Risk Analysis (BIRA) in relation to goods. The Director of Biosecurity requests a HBIS from the Director of Human Biosecurity.</p>	Reference to Health involvement outlined in BIRA Guidelines
		Health	<p>Health undertakes a risk assessment and provides human biosecurity advice within the required timeframe, or requests an appropriate extension of time through Agriculture if required.</p> <p>Health provides input into proposed amendments to import conditions that may impact human biosecurity.</p> <p>The Director of Human Biosecurity provides a HBIS in response to a request from the Director of Biosecurity (prior to the release of a draft BIRA report).</p>	<p>BIRA Guidelines</p> <p>Health standard operating procedure for biological risk assessments (currently being drafted)</p>
	Delegation and appointment of Biosecurity Officers,	Agriculture	Agriculture to ensure Biosecurity Officers have completed all relevant training and have appropriate skills.	Agriculture delegations and training framework

	CHBOs, jurisdictional HBOs and Commonwealth HBOs.	Health	Health to ensure qualifications, credentials and training for CHBOs, jurisdictional HBOs and Commonwealth HBOs are up to date and in place.	Health appointments and training framework
	Human remains are assessed for human biosecurity risks prior to being released into Australian territory.	Agriculture	<p>Biosecurity Officers review documentation in relation to bringing in of human remains and either:</p> <ul style="list-style-type: none"> • Confirms the human remains meet biosecurity requirements and releases them from biosecurity control; or • Grants interim permission for the entry of the remains into Australian territory and contacts the Commonwealth HBO for permission, if remains have arrived but do not meet the biosecurity documentary requirements; or • Contacts Health where a Listed Human Disease (LHD) is suspected or known. Health will request advice or directions from the jurisdictional HBO, and the remains will not be handled until advice or directions are received. • Ensures Agriculture work instructions are consistent with Health's Human Remains and Deaths in Transit policy. 	Agriculture's work instruction - Human remains brought into Australian territory
		Health	When a request for permission to bring human remains into Australian territory is received from a Biosecurity Officer, Health facilitates obtaining Commonwealth HBO advice and notifies the person responsible for the remains and Agriculture of the outcome. Health facilitates permission from a Commonwealth HBO as a matter of urgency and grants within 24 hours, if interim permission has been granted by a Biosecurity Officer.	Health's - Managing Human Remains and Deaths in Transit Policy

			<p>Health facilitates the provision of jurisdictional HBO advice or directions when an LHD is suspected or known.</p> <p>Health notifies Agriculture of the granting of permission and any directions issued for the handling of human remains.</p> <p>Health maintains and regularly review human remains policy.</p>	
	<p>Health undertakes a risk assessment and provides human biosecurity advice for the importation of goods, biological material or human derived material containing infectious agents that pose a risk to human health.</p>	Agriculture (Animal Division)	<p>Agriculture requests Health advice during business hours, if necessary, including timeframes and scope.</p> <p>Agriculture provides Health with completed '<i>Importer Questionnaire for Referrals to Department of Health</i>' (only if necessary).</p>	Biosecurity Import Conditions System (BICON)
		Health	<p>Health acknowledges Agriculture requests for advice during business hours. This will be done within twenty-four (24) hours of receiving the request.</p> <p>Health undertakes risk assessment and seeks approval from a Commonwealth HBO. Health provides human biosecurity advice to Agriculture within the requested timeframe. If this timeframe cannot be met, Agriculture will be notified not less than twelve (12) hours prior to the due date.</p>	

Article III. Pre-arrival reporting, pratique and assessment of ill travellers

OBJECTIVE	ACTIVITY	PARTY	GIVEN EFFECT BY	RELEVANT POLICIES, INSTRUCTIONAL MATERIAL AND OTHER OUTPUTS
Information on the state of health on board incoming conveyances is available for risk assessment and response.	Incoming conveyances report the state of health on board to Agriculture prior to arrival in line with legislated requirements.	Agriculture	Agriculture records human biosecurity compliance measures through pre-arrival reporting and provides information to Health when needed. Agriculture provides information to operators about pre-arrival reporting obligations.	Health's business policies – Ship Sanitation; Pratique; Assessing ill travellers at Australia's international border.
		Health	Health develops business policies for pre-arrival reporting of ill travellers, including signs and symptoms of LHDs.	
Disembarkation from incoming conveyances where health risks are identified is managed to minimise further risk.	Granting of pratique to incoming conveyances which have fallen into a class of negative pratique	Agriculture	Agriculture grants pratique to incoming conveyances in a timely manner, with the least disruption to passengers/services, once the human biosecurity risk is addressed. Agriculture ensures Biosecurity Officer work instructions are consistent with Health's policies related to pratique.	Health's business policies – Ship Sanitation; Pratique; Assessing ill travellers at Australia's international border; Aircraft disinsection; Managing Human Remains and Deaths in Transit
		Health	Health maintains and regularly reviews policies related to pratique.	

Assessment of ill travellers identified through pre-arrival reporting, self-declaration at the primary line, or referral from another government agency or an NFP.	Administration of the Traveller with Illness Checklist (TIC) and referral to a jurisdictional HBO as required.	Agriculture	<p>Agriculture Biosecurity Officers administer the TIC to ill travellers.</p> <p>Agriculture ensures Biosecurity Officer work instructions for assessing ill travellers at the border are consistent with <i>Health's Assessing Ill Travellers at Australia's International Border Policy</i>.</p> <p>Agriculture provides any completed TICs, resulting in action, to Health via email.</p> <p>Agriculture Biosecurity Officers contact jurisdictional HBOs for advice and direction if prompted to do so by TIC instructions.</p>	<p>Agriculture's Guideline – Ill Traveller Assessment Air Pathway</p> <p>Health's business policy - Assessing ill travellers at Australia's international border</p>
		Health	<p>Health provides Agriculture with current TIC.</p> <p>Health maintains secure records of TICs.</p> <p>Health consults with CHBOs and Agriculture on any revisions or amendments to the TIC.</p> <p>Health maintains and regularly reviews ill traveller assessment policy.</p>	<p>Health's business policy - Assessing ill travellers at Australia's international border</p>
Minimise the likelihood of the introduction and spread of yellow fever into Australian territory, in alignment with requirements under the IHR.	Screening of ill travellers and issuance of Yellow Fever Action Cards (YFAC) to travellers not carrying a Yellow Fever vaccination certificate, who have been referred by an Australian Border Force (ABF) officer.	Agriculture	<p>Agriculture Biosecurity Officers issue YFAC to travellers who are not carrying a valid Yellow Fever vaccination certificate, who have been referred by an ABF officer at the primary line.</p> <p>Agriculture ensures Biosecurity Officer work instructions for assessing yellow fever vaccination requirements at the border are consistent with Health's yellow fever policy.</p> <p>Agriculture requests new stocks of YFAC from Health (Humanbiosecurity@health.gov.au) as required.</p>	<p>Agriculture's Guideline – Yellow fever action cards Air Pathway.</p>

		Health	<p>Health develops yellow fever policy for assessment at the border.</p> <p>Health coordinates the printing and distribution of YFAC to Agriculture.</p> <p>Health ensure Health policy aligns with requirements for yellow fever under the IHR.</p>	<p>Health's business policy on Yellow Fever</p> <p>IHR</p>
Minimise disruption to passengers/ services by timely response from jurisdictional HBOs to requests for assistance.	Jurisdictional HBOs to provide a timely response to requests from Biosecurity Officers.	Agriculture	Agriculture advises Health of any issues relating to responses from jurisdictional HBOs.	<p>Health's business policies – Pratique;</p> <p>Assessing ill travellers at Australia's international border</p> <p>HBO Contact list</p>
		Health	<p>Health provides suitable training and information to jurisdictional HBOs to encourage jurisdictional HBOs to respond to requests from Biosecurity Officers within a suitable time to allow pratique to be granted with the least disruption to passengers/ services.</p> <p>Health to inform jurisdictional HBOs of the importance of timely responses to human biosecurity requests from Biosecurity Officers.</p> <p>Jurisdictional HBOs to provide timely responses relevant to the individual circumstances.</p>	
Current list of jurisdictional HBO.	Agriculture has a current list of points of contact for HBOs in each jurisdiction who can respond to human health requests.	Agriculture	Agriculture to inform Health of any problems encountered with the contact details.	Contact details for HBOs
		Health	Health to review and provide routine updates to Agriculture for a current list of jurisdictional HBO contact details.	

Article IV. Conveyances

OBJECTIVE	ACTIVITY	PARTY	GIVEN EFFECT BY	RELEVANT POLICIES, INSTRUCTIONAL MATERIAL AND OTHER OUTPUTS
Australia complies with the requirements of the IHR regarding the Ship Sanitation Certification Scheme.	Agriculture issues Ship Sanitation Certificates to eligible vessels for which a Ship Sanitation Certificate is not in force, or where the operator of the vessel has requested one, or a Biosecurity Officer finds evidence of a sanitation health risk associated with the vessel.	Agriculture	Agriculture ensures ship sanitation certification scheme inspections and issuance of certificates under the scheme are consistent with Health Policy. Agriculture seeks Director of Human Biosecurity approval for any revisions to the format of Ship Sanitation Certificates.	Instructional material on the granting of ship sanitation certification; Health's Business Policy on Ship Sanitation Certification Scheme
		Health	Health develops/revises policy for Australia's Ship Sanitation Certification Scheme and consults with Agriculture. Health ensures the policy is consistent with requirements of the IHR. Health represents Agriculture's border strategies for management of ship sanitation certification with the WHO and its Member States.	Policy on the granting of Ship Sanitation Certificates, including where, when, in what form and to whom certificates are granted; Health's Business Policy on Ship Sanitation Certification Scheme
Exotic vector risks posed by international aircraft entering Australian territory are identified and managed.	Management of exotic vector risks posed by international commercial aircraft entering Australian territory.	Agriculture	Agriculture ensures all required aircraft entering into Australian territory are disinfected in line with Health policies. Agriculture liaises with airlines with regards to any changes around aircraft disinsection policy, including the introduction of additional requirements. Agriculture manages disinsection related approved arrangements under the <i>Biosecurity Act 2015</i> .	Application rates and frequencies; Health's business policy on Aircraft Disinsection

OBJECTIVE	ACTIVITY	PARTY	GIVEN EFFECT BY	RELEVANT POLICIES, INSTRUCTIONAL MATERIAL AND OTHER OUTPUTS
		Health	<p>Health develops policies to address the risks posed by exotic vectors imported via international aircraft entering Australian territory, and advises Agriculture accordingly.</p> <p>Health seeks advice from CHBOs and the National Arbovirus and Malaria Advisory Committee (NAMAC) on exotic mosquito risks.</p>	Health's business policy on Aircraft Disinsection
	Management of exotic vector risks posed by specified aircraft entering Australian territory eg. military aircraft, Guest of Government aircrafts etc.	Agriculture	<p>Agriculture ensures all specified aircraft are disinfected unless exemption is requested and approved.</p> <p>Agriculture coordinates requests and liaises with foreign authorities making enquiries regarding specified aircraft exemption from disinsection.</p> <p>Agriculture refers requests to Health for risk assessment in the format set out in Health's Aircraft Disinsection Policy.</p>	Health's business policy on Aircraft Disinsection
		Health	<p>Health undertakes risk assessments based on the WHO decision framework for specified aircraft.</p> <p>Health seeks approval from Commonwealth HBO to grant exemption.</p> <p>Health grants/does not grant exemption and provides this advice to Agriculture.</p>	Health's business policy on Aircraft Disinsection

Article V. Surveillance

OBJECTIVE	ACTIVITY	PARTY	GIVEN EFFECT BY	RELEVANT POLICIES, INSTRUCTIONAL MATERIAL AND OTHER OUTPUTS
Incursions of exotic mosquitoes are detected at points of entry and are prevented from establishing or spreading, as per the IHR.	A program of surveillance for exotic mosquitoes is in place at first points of entry.	Agriculture	<p>Agriculture reports detections of exotic mosquitoes to Health within 24 hours.</p> <p>Agriculture conducts enhanced surveillance measures as per the <i>Response Guide for Exotic Mosquito Detections at Australian First Points of Entry</i>.</p> <p>Agriculture re-assesses surveillance regimes for new and emerging diseases.</p> <p>Agriculture undertakes pathway analysis to identify the likely source of detected exotic mosquitoes.</p>	<p>Instructional material on vector surveillance</p> <p>Response Guide for Exotic Mosquito Detections at Australian First Points of Entry</p>
		Health	<p>Health enters Agreements with State/Territory authorities for the management or control of incursions.</p> <p>Health undertakes regular reviews of vector risk assessments and surveillance policy to ensure they continue to meet its objectives and advises Agriculture of outcomes of these reviews as soon as possible.</p> <p>Health maintains and updates (as necessary) the <i>Response Guide for Exotic Mosquito Detections at Australian First Points of Entry</i>.</p>	<p>Health's Business Policies -</p> <p>Risk assessment of vectors at first points of entry;</p> <p>Policy on vector surveillance</p> <p>Response Guide for Exotic Mosquito Detections at Australian First Points of Entry</p>
	Direction to operator of a first point of entry to carry out activities to control exotic mosquitoes	Agriculture	Agriculture provides advice, as required, on detection of exotic vectors and appropriate control measures.	Response Guide for Exotic Mosquito Detections at Australian First Points of Entry
		Health	The Director of Human Biosecurity or a CHBO may, in writing, direct the operator of a first point of entry to carry	Health Policy on Vector Monitoring and Control (to be drafted)

			out specified activities within the area of a first point of entry to control exotic mosquitoes.	
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Article VI. Training

OBJECTIVE	ACTIVITY	PARTY	GIVEN EFFECT BY	RELEVANT POLICIES, INSTRUCTIONAL MATERIAL AND OTHER OUTPUTS
An appropriately trained and skilled workforce is available to provide human biosecurity services at the border.	Training of Biosecurity Officers, CHBOs, jurisdictional HBOs and Commonwealth HBOs in human biosecurity operations, as required.	Agriculture	<p>Agriculture ensures Biosecurity Officers have completed all relevant training and have appropriate skills.</p> <p>Agriculture develops and implements a sustainable training program, including refresher training, for Biosecurity Officers on public health aspects at first points of entry, with input from Health as appropriate.</p>	Agriculture delegations and training framework
		Health	<p>Health provides clear instructions to jurisdictional and Commonwealth HBOs regarding their responsibilities and powers under the <i>Biosecurity Act 2015</i>.</p> <p>This includes operational processes for the involvement of HBOs, the prompt response times required to manage ill travellers at the border, the issuing of human biosecurity control orders, and permission to bring into Australian territory deceased individuals and human remains.</p>	Health training material for HBOs

Article VII. Compliance and Enforcement

OBJECTIVE	ACTIVITY	PARTY	GIVEN EFFECT BY	RELEVANT POLICIES, INSTRUCTIONAL MATERIAL AND OTHER OUTPUTS
Individuals are compliant with requirements under Chapter Two of the Act (Managing Biosecurity Risks: Human Health)	Use of the compliance and enforcement mechanisms available under the Act as required.	Agriculture	<p>Agriculture reports to Health any suspected contraventions of the provisions dealing with human health in the <i>Biosecurity Act 2015</i>.</p> <p>Agriculture undertakes compliance and enforcement activity consistent with policy and procedures, with guidance from Health.</p> <p>Agriculture ensures Biosecurity Officers have completed all relevant training and have appropriate skills.</p>	Human Biosecurity Compliance Policy
		Health	<p>Health, in consultation with Agriculture, to agree on the most appropriate course of compliance action to be taken by Agriculture to manage any suspected contraventions of the provisions dealing with human biosecurity in the <i>Biosecurity Act 2015</i>.</p> <p>Health provides evidence to support Agriculture's enforcement activity as appropriate.</p> <p>Health to cover costs associated with Agriculture pursuing civil compliance activities.</p>	Human Biosecurity Compliance Policy

Article VIII. Communications

OBJECTIVE	ACTIVITY	PARTY	GIVEN EFFECT BY	RELEVANT POLICIES, INSTRUCTIONAL MATERIAL AND OTHER OUTPUTS
Inform and engage travellers about the risks of infectious disease, in order to minimise and control the importation and spread of disease across international borders.	Public health communications implemented at air and sea ports to target travellers.	Agriculture	<p>Agriculture liaises with Australian air and sea ports on behalf of Health to facilitate display of communications. Agriculture promptly notifies Health of any issues with display of communications at any air or sea port.</p> <p>Agriculture takes receipt of Health's communications materials and displays on Agriculture screens in passenger terminals if available, in accordance with Health guidance at air and sea ports.</p> <p>Agriculture appropriately stores health communication materials or prepares for return to Health as required.</p>	Communication material as guided by Health
		Health	<p>Health liaises with Agriculture on proposed health communication campaigns.</p> <p>Health assists Agriculture, if required, with liaison with air and sea port authorities.</p> <p>Health provides Agriculture with communications materials and guidance for display at air or sea ports.</p>	Communication materials

AHMPPI

Australian Health Management Plan for Pandemic Influenza



Australian Government
Department of Health

August 2019

Table of Amendments

Version	Amendments
April 2014	Original version
August 2019	• Administrative amendments—entire document
	• Attachment E, Menu of Actions—P1: Antivirals for treatment of cases
	• Attachment H, Evidence Compendium—new literature added

Australian Health Management Plan for Pandemic Influenza

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Acknowledgements

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National collaboration with state and territories and the health sector in development of the plan.

Ministerial foreword for the AHMPPI



The Australian Government is committed to keeping Australia secure against potential threats. The Government continues to fund initiatives such as the National Medical Stockpile, the World Health Organization Collaborating Centre for Influenza Research and Reference, and contracts for supply of pandemic vaccine to protect Australians.

However, it is inevitable that the world will face another influenza pandemic. While there is no certainty about where or when the next one will occur, Australia must be prepared. An influenza pandemic represents a significant risk to Australia. It has the potential to cause high levels of disease and death and disrupt our community socially and economically.

This plan—the Australian Health Management Plan for Pandemic Influenza (AHMPPI)—outlines Australia’s strategy to manage an influenza pandemic and minimise its impact on the health of Australians and our health system. The new and improved AHMPPI takes a significantly different approach

to the previous plan and outlines the measures that the health sector as a whole would consider taking in response to an influenza pandemic. Continuous and extensive consultation with states and territories and other relevant stakeholders has enabled feedback to shape the development of the document.

In 2009, the earlier revision of the AHMPPI was used to guide Australia’s response to the Influenza A (H1N1) pandemic. This latest version of the AHMPPI draws on lessons learned in 2009 and developments in the approach to pandemic response within the international community.

Key aspects of the new approach include:

- wherever possible, using existing systems and governance mechanisms, leveraging seasonal influenza response mechanisms to respond to a pandemic;
- applying a flexible approach, which can be scaled and varied to meet the needs at the time;
- making decisions based on available evidence;
- linking with emergency response arrangements;
- emphasising communication activities as a key tool in managing the response; and
- providing detailed guidance on collecting national surveillance data.

The AHMPPI will continue to be updated as new clinical evidence is developed. While there has been significant work in Australia to prepare for an influenza pandemic, we cannot afford to be complacent. This plan provides the guidance and a framework for leadership so we can make sure we are as prepared as possible to deal with an influenza pandemic.

A stylized handwritten signature in blue ink, appearing to read 'Peter Dutton'.

The Hon Peter Dutton MP
Minister for Health

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How to use this document

This plan is presented in three parts. Part one comprises the chapters of the Australian Health Management Plan for Pandemic Influenza (AHMPPI). Part two is the Operational Plan. Part three contains documents that provide additional detail to support decision making or operations.

The chapters of the AHMPPI provide a high level overview of the national approach to the management of an influenza pandemic in key areas. They are divided into:

Escalation:

An explanation of when arrangements under the AHMPPI will be used and how escalation through the stages will occur.

Governance:

An outline of the roles and responsibilities of key stakeholders and committees, and description of decision making and consultation processes.

Implementation:

An outline of the recommended overall approach to management of an influenza pandemic and discussion of the measures which could be implemented in each of the AHMPPI stages.

Communications:

A strategy for communicating with the public, the media and those involved in implementing the pandemic response.

The Operational Plan provides an operational checklist for planners (for use prior to or during a pandemic) of activities that could be considered for implementation in each of the AHMPPI stages. The Operational Plan is closely linked with the Implementation chapter.

The support documents are divided into:

Attachment A:	Glossary An explanation of terms and acronyms; acknowledgements and details of key committees.
Attachment B:	Decision making committees A description of the key government, health sector, health advisory and consultative committees involved in influenza pandemic decision making.
Attachment C:	Communications materials A template to support high level decision makers (such as AHPPC) in the development of consistent, comprehensive messages, and a table exploring methods of sharing information with the public, the media and those involved in implementing the pandemic response. Supports the Communications chapter.
Attachment D:	Decision Support Map A map, for high level decision makers (such as AHPPC) and planners, of the key decisions to be made in each stage of the AHMPPI. Includes general background and triggers for each decision.
Attachment E:	Menu of Actions A list of the public health measures that could be implemented during a pandemic and the key factors relevant to determining suitability for implementation.
Attachment F:	Guide to Implementation A quick reference tool for decision makers, showing which measures from the Menu of Actions are relevant to each stage of the AHMPPI.
Attachment G:	Surveillance Plan A guide to national surveillance activities for pandemic influenza.
Attachment H:	Evidence compendium A collection of literature reviews and modelling undertaken to provide evidence of the effectiveness of public health measures that might be applied to an influenza pandemic.
Attachment I:	Governance Table A detailed breakdown of roles and responsibilities across the AHMPPI stages and who will undertake them. Supports the Governance chapter.

PART 1

Overview of the National Approach

1 Executive Summary

The Australian Health Management Plan for Pandemic Influenza (AHMPPI), the national government health sector pandemic influenza plan, outlines the agreed arrangements between the Australian Government and State and Territory Governments for the management of an influenza pandemic. To support an integrated and coordinated response, it also gives a broad indication of the roles and responsibilities of the other key health sector stakeholders that would be involved in this process. It is written for government decision makers and will be used to inform operational planning in state and territory governments and the broader Australian Government.

In 2009 the *AHMPPI 2008* was used to guide Australia's response to the H1N1 pandemic. Drawing on the lessons learned in 2009 and developments in the approach to pandemics within the international community, a new version of the AHMPPI has been developed, which takes a substantially different approach.

The key factors in this plan's approach include:

- the use of **existing systems** and governance mechanisms as the basis of the response, particularly those for seasonal influenza;
- stronger linkages with **emergency response** arrangements, to capitalize on existing systems and avoid duplication;
- recognition of the potential to apply this plan to **seasonal influenza** when it threatens to overwhelm our health systems;
- the adoption of a **flexible** approach that can be scaled and varied to be proportionate to the needs experienced at the time;
- incorporation of an analysis of risks and benefits of the main public health measures which could be applied during a pandemic, to support **evidence-based decision making**;
- clear and detailed guidance on the collection of national **surveillance** data; and
- an emphasis on **communications** activities as a key tool in management of the response, including an exploration of the key principles and mechanisms to facilitate this.

Pandemic stages

An influenza pandemic represents a significant risk to Australia. It has the potential to cause high levels of morbidity and mortality and to disrupt our community socially and economically. Like any other hazard, Australia will approach this risk by undertaking activities to:

- prevent, where possible, the development of a pandemic overseas or in Australia;
- ensure we are prepared to meet the health needs of our community should a pandemic occur;
- respond promptly and effectively to minimise the pandemic's impact; and
- contribute to the rapid and confident recovery of individuals, communities and services.

The activities required to support our community during a pandemic will involve state and territory governments, the Australian Government and many other health sector parties. Coordination and communication at national level will be particularly important during the active response, when a pandemic is currently circulating in our community. The AHMPPI therefore focuses primarily on response activities and the activities required to be prepared to respond.

To clearly show how the approach will change over the course of responding to a pandemic the AHMPPI is divided into several stages.

Preparedness		<ul style="list-style-type: none"> Establish pre-agreed arrangements by developing and maintaining plans; research pandemic specific influenza management strategies; ensure resources are available and ready for rapid response; monitor the emergence of diseases with pandemic potential, and investigate outbreaks if they occur.
Response	Standby	<ul style="list-style-type: none"> Prepare to commence enhanced arrangements; identify and characterise the nature of the disease (commenced in Preparedness); and communicate to raise awareness and confirm governance arrangements.
	Action	<p>Action is divided into two groups of activities:</p> <p>Initial (when information about the disease is scarce)</p> <ul style="list-style-type: none"> prepare and support health system needs; manage initial cases; identify and characterise the nature of the disease within the Australian context; provide information to support best practice health care and to empower the community and responders to manage their own risk of exposure; and support effective governance. <p>Targeted (when enough is known about the disease to tailor measures to specific needs.)</p> <ul style="list-style-type: none"> support and maintain quality care; ensure a proportionate response; communicate to engage, empower and build confidence in the community; and provide a coordinated and consistent approach.
	Standdown	<ul style="list-style-type: none"> Support and maintain quality care; cease activities that are no longer needed, and transition activities to seasonal or interim arrangements; monitor for a second wave of the outbreak; monitor for the development of antiviral resistance; communicate to support the return from pandemic to normal business services; and evaluate systems and revise plans and procedures.

When no pandemic is occurring (the inter-pandemic period) preparedness activities will be undertaken on an ongoing basis to ensure our readiness to respond promptly, should a pandemic emerge. As part of preparedness activities monitoring for the emergence of new viruses with pandemic potential and liaison with international colleagues will be routinely carried out. The activities undertaken during preparedness will be based on existing arrangements for seasonal influenza and the monitoring of communicable diseases.

Should a virus of concern emerge, surveillance systems will monitor the situation and advise on the need to enhance our existing arrangements for managing influenza by escalating to the response stages in the AHMPPI. The decision to formally escalate the AHMPPI through each of its stages will be made by the Chair of the Australian Health Protection Principal Committee (AHPPC), in consultation with AHPPC members and with advice from advisory bodies.

Once response activities are completed arrangements will return to the Preparedness stage, to monitor for any future pandemics.

Objectives and activities

The objectives in all stages will be to:

- Minimise transmissibility, morbidity and mortality;
- Minimise the burden on/ support health systems; and
- Inform, engage and empower the public.

The activities which should be implemented will be selected by AHPPC, in consultation with relevant parties and on advice from advisory bodies. A comprehensive evidence compendium and an analysis of the key public health measures is available to support this plan to inform these decisions. As our understanding of the management of communicable diseases, immunisation and technology is constantly evolving, these support documents will be periodically revised to ensure they are providing decision makers with up-to-date and comprehensive information.

Reflecting a flexible approach, choices on implementation of public health measures may vary across states and territories to reflect the jurisdictional context, particularly in relation to timing of implementation and stand down, however negotiation within AHPPC will ensure a coordinated and consistent approach.

Proportionate response

In the past all pandemic planning was aimed at responding to a worst case scenario, similar to the influenza pandemic of 1918-19. The 2009 pandemic showed clearly the need for the flexibility to scale the response to be proportionate to the risk associated with the current disease. Although it will only be possible to quantify the overall impact of the pandemic once it has run its course, to assist planners, an estimate of the anticipated level of impact will be developed early in the response, and updated as new data becomes available. This estimate will be used to:

- guide the allocation of resources (including anticipation of when they are needed, as this will change over time);
- put in place strategies to supplement likely shortfalls (e.g. innovative options);
- reduce the risk to vulnerable people.

The level of impact that the pandemic has on the Australian community will depend on a number of factors. The most influential will be the clinical severity and transmissibility of the disease, and the capacity of the health system to cope with the demand and the need for specialist services. Three scenarios have been developed and used in this plan to assist planners interpret the influence of these factors. The scenarios look at three different pandemics: one where clinical severity is low, one medium and one high, and in each explore changes in transmissibility and health system capacity, and how this will affect the community, and therefore require different approaches and levels of resources.

Communication and consultation

The management of an influenza pandemic will require governments, health sector industry and the community to work together. Communication will be a priority under this plan, to ensure responders are provided with timely, accurate and comprehensive clinical information and advice in order to effectively manage patients; implement pandemic control measures and minimise their own risk of exposure. Consultation with responders and with the public will be essential to inform decision making.

Public communication will be used to provide an opportunity both to address any public concern caused by the pandemic and to engage the public in strategies to manage the impact of the disease. By giving the public up to date, consistent and accurate information about the status of the disease overseas and in Australia they can participate in managing the pandemic by taking steps to reduce the risk to themselves and their families. They can also make more informed decisions about work and travel, taking up health recommendations and planning for people in at-risk groups. Information about the implementation of activities and arrangements will be used to build public confidence in the capacity of health services to manage the response.

Structure of the AHMPPI

The four chapters that comprise the body of this plan (Part I) set out the broad policy approach to the management of a pandemic. Acknowledging the importance of exploring and agreeing how this policy could be implemented, the AHMPPI also includes considerable operational detail. The Operational Plan at Part II provides an operational checklist for planners, for use prior to or during a pandemic. The support documents at Part III examine activities at an individual task level and provide information to support decision making processes.

2 Introduction

This section outlines the aims of this plan, key factors in the approach taken, the context within which it has been developed and methods of achieving a response proportionate to the risk posed by the current pandemic.

Pandemics are unpredictable. When the next pandemic will occur, how rapidly it will emerge and how severe the illness will be are all unknown. What we do know is that even when the clinical severity of the disease is low, such as experienced in 2009, a pandemic can cause significant morbidity and mortality. It can overwhelm our health systems and in more severe scenarios, cause significant disruption to our economy and to society.

2.1 Aims of a national pandemic response

Australia's whole-of-government pandemic frameworks, at Australian, state and territory government levels, aim to protect Australia's social function and economy.

During an influenza pandemic, the health sector will aim to minimise the pandemic's impact on the health of Australians and our health systems. This, the Australian Health Management Plan for Pandemic Influenza (AHMPPI), is the Australian national health sector pandemic influenza plan, and contributes to these aims by:

- clarifying the roles and responsibilities within the health sector of the Australian Government and state and territory governments;
- identifying areas where national guidance and coordination will be provided, and how this will be achieved; and
- supporting decision makers to respond in a manner that is flexible, informed and proportionate to the circumstances at the time.

Across all activities the **Strategic Objectives** of this plan will be to:

- Minimise transmissibility, morbidity and mortality;
- Minimise the burden on/ support health systems; and
- Inform, engage and empower the public.

2.2 Key aspects of this plan

Since 1999 state and territory governments and the Australian Government have developed and refined a series of pandemic plans to guide how we might respond to an influenza pandemic.

Through these preparations we aim to increase the speed and efficiency of our response and to make our systems more robust in the face of increased demand. The H1N1 pandemic in 2009 gave us the opportunity to test these arrangements. This plan builds on the lessons identified and learnt in the 2009 response.

The key factors in this plan's approach include:

- the use of **existing systems** and governance mechanisms, particularly those for seasonal influenza;
- a **flexible** approach that can be scaled and varied to meet the needs experienced at the time;
- **evidence-based decision making**;
- strong linkages with **emergency response** arrangements;
- the potential to apply this plan to **seasonal influenza**, when it threatens to overwhelm our health systems;
- clear guidance on the collection of national **surveillance** data; and
- an emphasis on **communications** activities as a key tool in management of the response.

2.3 Comprehensive approach

This plan takes an emergency response approach as its framework. This approach will allow it to be readily integrated into broader emergency arrangements. It will also assist those who are implementing activities during a health emergency to communicate more easily with others outside the health sector.

Consistent with Australia's strategic approach to emergency management, the AHMPPI acknowledges the importance of seeing the management of an influenza pandemic, like any hazard, within an ongoing cycle of activities in the four areas of:

- **P**revention;
- **P**reparedness;
- **R**esponse; and
- **R**ecovery.

(Use of these terms with the initial letter in bold will indicate these areas of the emergency management cycle in this plan.)

To meet the greater need for coordination and guidance at a national level in **P**reparedness and **R**esponse, this plan will focus primarily on these two areas. To reflect the changes in priorities as the pandemic progresses and facilitate the more detailed planning required, **R**esponse activities will be further divided into three stages:

- Standby;
- Initial Action and Targeted Action; and
- Standdown.

Table 1 indicates the general focus of activities in each stage of the AHMPPI. The current status of the virus in each stage is noted in *italics*. To ensure that flexibility is maintained, these stages are deliberately broad. To make it easier to relate activities to these stages colours have been allocated to each and used as markers in this plan.

Table 1: Key activities in each stage of the AHMPPI

Preparedness <i>No novel strain detected (or emerging strain under initial investigation)</i>		<ul style="list-style-type: none"> Establish pre-agreed arrangements by developing and maintaining plans; research pandemic specific influenza management strategies; ensure resources are available and ready for rapid response; monitor the emergence of diseases with pandemic potential, and investigating outbreaks if they occur.
Response	Standby <i>Sustained community person to person transmission overseas</i>	<ul style="list-style-type: none"> Prepare to commence enhanced arrangements; identify and characterise the nature of the disease (commenced in Preparedness); and communicate to raise awareness and confirm governance arrangements.
	Action <i>Cases detected in Australia</i>	<p>Action is divided into two groups of activities:</p> <p>Initial (when information about the disease is scarce)</p> <ul style="list-style-type: none"> prepare and support health system needs; manage initial cases; identify and characterise the nature of the disease within the Australian context; provide information to support best practice health care and to empower the community and responders to manage their own risk of exposure; and support effective governance. <p>Targeted (when enough is known about the disease to tailor measures to specific needs.)</p> <ul style="list-style-type: none"> support and maintain quality care; ensure a proportionate response; communicate to engage, empower and build confidence in the community; and provide a coordinated and consistent approach.
	Standdown <i>The public health threat can be managed within normal arrangements and monitoring for change is in place</i>	<ul style="list-style-type: none"> Support and maintain quality care; cease activities that are no longer needed, and transitioning activities to seasonal or interim arrangements; monitor for a second wave of the outbreak; monitor for the development of antiviral resistance; communicate to support the return from pandemic to normal business services; and evaluate systems and revise plans and procedures.

2.4 Context of pandemic planning

This plan will sit under the Emergency Response Plan for Communicable Disease Incidents of National Significance (CDPLAN), one of the four plans under the Australian National Health Emergency Response Arrangements. It also supports the Emergency Response Plan for Communicable Disease Incidents of National Significance: National Arrangements (National CD Plan).

Guidance on the management of seasonal influenza is available in the Influenza Infection: Communicable Disease Network Australia (CDNA) National Guidelines for Public Health Units in the Series of National Guidelines (SoNGs). Much of this is also applicable to pandemic influenza and wherever possible the approach in the AHMPPI will be in line with these guidelines.

The AHMPPI acknowledges that the primary responsibility for managing the impact of a severe outbreak of influenza, or a pandemic, lies with the state and territory governments and that each jurisdiction will have its own plans and protocols. Therefore the majority of operational detail will be found in these plans.

2.5 Legal framework

Although Commonwealth biosecurity legislation and state and territory public health and emergency response laws provide a legislative framework to underpin actions that may be required, measures will rely on voluntary compliance rather than legal enforcement wherever possible. The principal areas of legislation available to support pandemic actions are described in the following subsections.

The Biosecurity Act 2015

The *Biosecurity Act 2015* authorises activities used to prevent the introduction and spread of target diseases into Australia. People reasonably suspected to have a listed human disease (LHD) specified under the Act are required to comply with a range of biosecurity measures and requests for information as directed by the Minister for Health, or a biosecurity official or human biosecurity officer as stipulated in the Act. The Governor-General also has the power to declare a human biosecurity emergency, which authorises the Health Minister to implement a broad range of actions in response. These could be applied to respond to an influenza pandemic. 'Human influenza with pandemic potential' is an LHD. Diseases can be added to the list of LHDs (as declared in the *Biosecurity (Listed Human Diseases) Determination 2016*) at any time by the Director of Human Biosecurity (DHB) at short notice. Australia's Chief Medical Officer is the DHB under the Act.

The National Health Security Act 2007

The *National Health Security Act 2007* (NHS Act) authorises the exchange of public health surveillance information (including personal information) between the Australian Government, states and territories and the World Health Organization (WHO). The National Health Security Agreement supporting the NHS Act formalises decision-making and coordinated response arrangements that have been refined in recent years to prepare for health emergencies.

State and territory government legislative powers

States and territories have legislative powers that enable them to implement biosecurity arrangements within their borders and that complement Australian Government biosecurity arrangements. They also have a broad range of public health and emergency response powers available under public and emergency legislation for responding to public health emergencies.

International legislative obligations

The International Health Regulations 2005 (IHR) is an international public health treaty that commits signatory countries to take action to prevent, protect against, control and provide a public health response to the international spread of disease. As a signatory, Australia has a range of obligations, including reporting and maintaining certain core capacities at designated points of entry.

Therapeutic Goods Act 1989

The *Therapeutic Goods Act 1989* establishes a framework for ensuring the timely availability of therapeutic goods (i.e. medicines, medical devices and biological products) that are of acceptable quality, safety and efficacy/performance. There are provisions within the legislation that operate at an individual patient level and at a program level (such as the maintenance of a National Medical Stockpile) to allow for the importation and supply of products that have not been approved for use in Australia. These products may be required to deal with an actual threat to individual and public health caused by an emergency that has occurred or to create a preparedness to deal with a potential threat to health that may be caused by a possible future emergency.

2.6 Ethical framework

In 2008 the Australian Health Protection Principal Committee (AHPPC) agreed on an ethical framework to guide health sector responses. These values will be taken into account when planning and implementing actions under this plan, and can be outlined as:

Equity	Providing care in an equitable manner, recognising special needs, cultural values and religious beliefs of different members of the community. This is especially important when providing health services to vulnerable individuals, such as Aboriginal and Torres Strait Islander peoples and people who are culturally and linguistically diverse.
Individual liberty	Ensuring that the rights of the individual are upheld as much as possible.
Privacy and confidentiality of individuals	Is important and should be protected. Under extraordinary conditions during a pandemic, it may be necessary for some elements to be overridden to protect others.
Proportionality	Ensuring that measures taken are proportional to the threat.
Protection of the public	Ensuring that the protection of the entire population remains a primary focus.
Provision of care	Ensuring that health care workers (HCWs) are able to deliver care appropriate to the situation, commensurate with good practice, and their profession's code of ethics.
Reciprocity	Ensuring that when individuals are asked to take measures or perform duties for the benefit of society as a whole, their acts are appropriately recognised and legitimate need associated with these acts are met where possible.
Stewardship	That leaders strive to make good decisions based on best available evidence.
Trust	That health decision makers strive to communicate in a timely and transparent manner to the public and those within the health system

2.7 Proportionate response

A key goal of the decision making process is to achieve a response that is proportionate to the level of risk, acknowledging that the risk is not the same across population groups. A response that is appropriate to the level of impact the pandemic is likely to have on the community, and on vulnerable populations within the community, will make the best use of the resources available and minimise social disruption.

2.7.1 Pandemic Impact

The level of impact that the pandemic has on the Australian community will depend on a number of factors.

The **clinical severity** of the disease will affect the number of people that present to primary care, and who need to be hospitalized (and consequently the burden on the health system). The clinical severity also affects the number of deaths and the level of concern within the community. As clinical severity increases, the visibility of the disease (i.e. how easy it is to be aware of cases) is likely to increase. Greater visibility of cases to medical services makes them more amenable to measures to manage the disease's impact.

The **transmissibility** of the virus between humans will affect the breadth and speed of spread across the globe and the Australian community. The transmissibility of a pandemic influenza virus is usually estimated to have a basic reproduction number (R_0) of 1.2–2.5. For communicable diseases, this is not particularly high. However, the serial interval for influenza (the time taken between generations of infection) is short (around two days), with transmission from a primary case potentially occurring before symptom onset, allowing infection to spread relatively quickly.

The **capacity of the health system** will influence the way that healthcare is provided. Australia has an excellent health system. However, there is a limit to the services that are able to be provided, which may well be tested during a pandemic. In some areas the health system already reaches capacity at peak times, such as during severe influenza seasons. A pandemic will increase the demand on specialist expertise, particularly in acute care, such as intensive care nursing, emergency medicine and ambulance services. It may also increase the demand on specialist equipment, some of which requires specialist training to implement and is of limited availability, such as extracorporeal membrane oxygenation (ECMO). Demand on primary health care will also increase, exacerbated by the need to attend to patients affected by the changes in availability of services at hospitals.

The **effectiveness of interventions**, such as antivirals, will affect individual health and the levels of morbidity and mortality that need to be managed by the health system. Ultimately the availability of a customised pandemic vaccine will be the greatest tool in reducing the impact. Interventions that change behaviours, such as hand hygiene will also influence the impact of the disease.

The **vulnerability** of our population will influence the spread and clinical severity of the disease. Vulnerability is unique and will make comparisons with the experience of the pandemic overseas indicative only. As the pandemic will be caused by a novel virus, the relative lack of immunity in the population (compared to seasonal influenza) will make it more vulnerable than would be the case with seasonal influenza (where there is usually some cross-immunity from previous seasonal strains). It is also possible that parts of our population, such as the elderly, may have immunity conferred from previous exposure to a similar virus, while the broader population is vulnerable to the disease.

On the basis of seasonal influenza and experience from past pandemics, certain groups are expected to be at increased risk of complications of influenza infection (referred to in this plan as 'at-risk groups'). According to the *Australian Immunisation Handbook (10th Edition 2015)*, at-risk groups include pregnant women, people who are immunocompromised, people with chronic respiratory conditions, cardiac disease, Down syndrome, diabetes mellitus, chronic renal failure, chronic neurological conditions, alcoholism, haemoglobinopathies, chronic inherited metabolic diseases, people who are obese, children receiving long-term aspirin therapy, Aboriginal and Torres Strait Islander peoples, children under 5 and people aged over 65 years. At-risk groups will need to be confirmed when knowledge of the virus becomes available, but it is expected that the impact on vulnerable populations will be greater than that on the broader population. Mitigation of the risk to these populations will be a high priority. Many other factors can influence the vulnerability of individuals during a pandemic, including overall health, immunological response, cultural attitudes (e.g. to vaccination, mask wearing), access to healthcare, homelessness and mental health and resilience.

2.7.2 Application of pandemic impact levels to decision making

Although it will only be possible to quantify the overall impact of the pandemic once it has run its course, as part of surveillance activities, an estimate of the anticipated level of impact will be made early in the response, and continually updated as data availability allows, and used to help planners:

- allocate resources where they are needed (including anticipation of when they are needed, as this will change over time);
- put in place strategies to supplement likely shortfalls (e.g. innovative options);
- reduce the risk to vulnerable people;
- minimise the disruption to the community; and
- provide a response that is proportionate to the level of impact.

Characterisation of the virus will be undertaken as early as possible in the pandemic and revised regularly as more information becomes available. While all the factors mentioned above will be considered as part of the decision making process, they will have different degrees of influence.

Clinical severity is likely to be critically important in making an estimate of impact. It will strongly impact on the morbidity and mortality at an individual and population level, the burden on the health system and the concern within the community. Explanations of impact in terms of clinical severity are also easily understood at a personal and public health level. As clinical severity increases, the following will also increase:

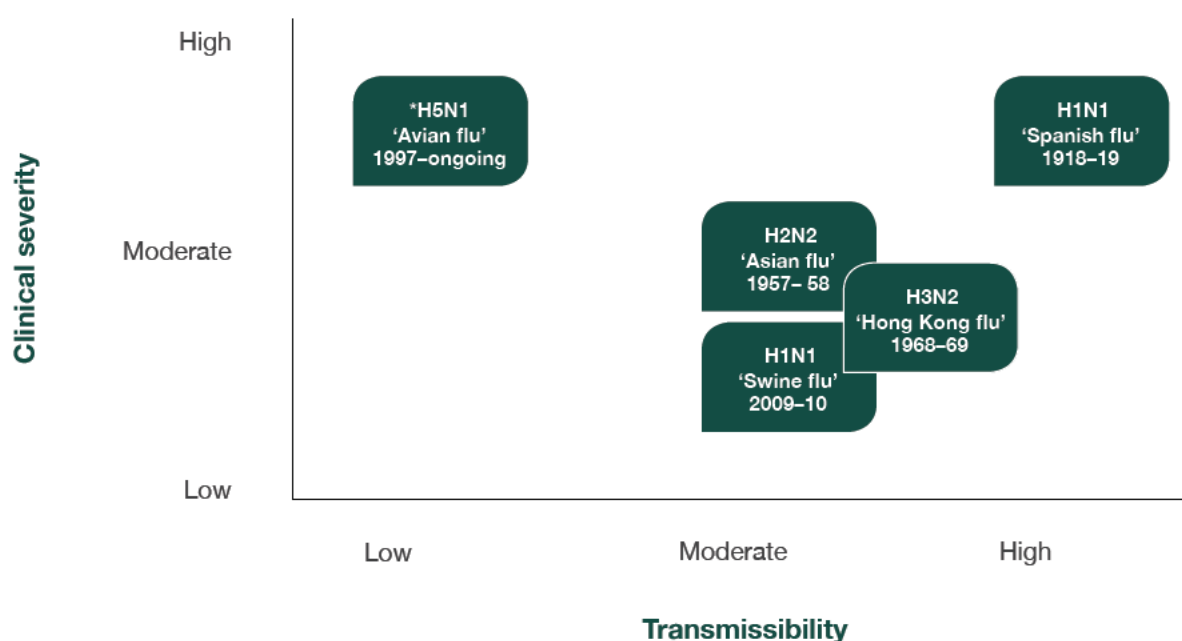
- the demand for high end services, such as Intensive Care Unit (ICU), paediatric and respiratory care (associated with this will be increased demand for specialised equipment and health care professionals, such as ECMO and ICU nurses). High end services are areas likely to increase the demand on support services, such as laboratories, much more than increased demand in general wards;
- the demand for services associated with management of the deceased;
- the importance of informing and supporting at-risk groups;
- the importance of measures to promote prompt presentation and diagnosis, while minimising opportunities for transmission;
- the importance of building confidence within the community;
- the proportion of infected individuals seeking treatment, which means the public health interventions to reduce ongoing transmission that rely on identification of cases will likely be more effective.

Following clinical severity, transmissibility will be considered, to help determine the likely speed of spread and the timing of the demand on health services, and further define the impact of the pandemic on the population as a whole. As transmissibility rises:

- the timeliness of measures to limit spread becomes more critical (as the window of opportunity is smaller);
- the demand for health services rises more quickly;
- health services and response measures need to be scaled up more quickly;
- the peak burden and final total burden on the health system will be higher;
- the overall duration of the pandemic will be shorter;
- assessments and decisions will need to be made more quickly (epidemiological and individual).

Figure 1 provides some examples of how previous pandemics could be characterised in terms of clinical severity and human to human transmissibility.

Figure 1: Contribution of transmissibility and severity on population impact of previous pandemics.



*H5N1 1997-ongoing is not a true pandemic but has been included for demonstration purposes.

The significance of transmissibility will vary depending on the stage of progress of the pandemic. It should also be considered that, as an influenza pandemic will be caused by a novel virus, there will be higher than usual vulnerability in the population to the virus. Community transmission is likely to become widespread quickly. The window of opportunity for measures aimed at controlling transmission may therefore be small.

The capacity of the health system will also be considered to determine the degree to which systems will be able to manage the increased demand and which measures would need to be put in place to best use available resources.

Indicators such as notifications, hospitalisations and availability of ICU beds may be used to determine the transmissibility, clinical severity and health system capacity respectively.

2.7.3 A qualitative description of three different levels of pandemic impact

Each pandemic is unique and the clinical severity and transmissibility is likely to vary each time. Health system capacity will vary between and within jurisdictions, according to the season and between different health services. To illustrate how differences in these three factors may impact differently on the community, and therefore require different approaches and levels of resources, three scenarios have been described in the following sections.

The Guide to Implementation at Attachment F provides suggestions of the types of public health measures that would be appropriate in these different situations.

Scenario one

If clinical severity is low

The majority of cases are likely to experience mild to moderate clinical features. People in at-risk groups may experience more severe illness. Strategies to support at-risk groups may be required (e.g. aged care, infants, Aboriginal and Torres Strait Islander peoples, remote communities). At the peak of the pandemic, and increasingly when transmissibility is higher, primary care and hospital services are likely to be stretched to coping capacity in areas associated with respiratory illness and acute care. Existing legislation is likely to be sufficient to support activities. The level of impact on the community may be similar to severe seasonal influenza or the H1N1 pandemic 2009.

Scenario two

If clinical severity is moderate

Young healthy people and people in at-risk groups may experience severe illness. The number of people presenting for medical care is likely to be higher than for severe seasonal influenza and primary care and hospital services will be under severe pressure, particularly in areas associated with respiratory illness and acute care. Non-urgent procedures and activities will need to be scaled back. Surge staffing and alternate models of clinical care, such as flu clinics may need to be employed to cope with increased demands for healthcare. Pressure on health services will be more intense, rise more quickly and peak earlier as the transmissibility of the disease increases. Healthcare staff may themselves be ill or have to care for ill family members, further exacerbating pressures on healthcare providers.

Additional strategies to support at-risk groups may be required (e.g. aged care, infants, Aboriginal and Torres Strait Islander peoples, remote communities). Pandemic emergency legislation may be needed to support pandemic specific activities. The level of impact may be similar to the 1957 H2N2 Asian flu.

Scenario three

If clinical severity is high

Widespread severe illness will cause concern and challenge the capacity of the health sector. Areas such as primary care, acute care, pharmacies, nurse practitioners and aged care facilities will be stretched to capacity to support essential care requirements. Heavy prioritisation will be essential within hospitals to maintain essential services and mortuary services will be under pressure. The demand for specialist equipment and personnel is likely to challenge capacity. Pressure on health services will be more intense, rise more quickly and peak earlier as the transmissibility of the disease increases. Healthcare staff may themselves be ill or have to care for ill family members, further exacerbating pressures on healthcare providers.

Secondary care services, such as blood services and diagnostic services will be challenged to maintain capacities and the community focus will be on maintaining essential services. Pandemic emergency legislation may be needed to support pandemic specific activities. The level of impact may be similar to that of the 1918 H1N1 Spanish flu.

These scenarios characterise the impact on the Australian community as a whole.

2.8 Planning assumptions

Planning for a pandemic is based on a set of assumptions defined using the best scientific and medical evidence. In the early stages, when little is known about the disease, these assumptions (along with relevant information from overseas) will be the basis for decision making. As the pandemic emerges these assumptions must be reassessed as quickly as possible and revisions used to decide if adjustments to **R**esponse activities are required or a more flexible, tailored use of resources could be implemented.

The planning assumptions supporting this document are provided in detail in the Evidence Compendium (Attachment H) of this plan. The Surveillance Plan at Attachment G details how and when these assumptions should be tested during the response.

2.9 Participating parties

This plan is written for government decision makers and will be used to inform operational planning in state and territory governments and the broader Australian Government. The primary parties to the AHMPPI will be the Australian Government Department of Health (Department of Health) and State and Territory Health Departments.

The participation of, or coordination with other government agencies at Australian Government and State and Territory Government level will also be necessary to implement many of the activities in this Plan. Commitment to this process is captured in the National CD Plan. The Australian Government Department of Agriculture will be particularly important in the implementation of border health measures. The Department of Home Affairs may also be involved.

Non-government parties, such as general practitioners (GPs), nurses and pharmacists will also be involved in responding to a pandemic. Recommendations concerning their roles have been included in the Governance Chapter of this plan to guide coordination and integration. It is acknowledged that healthcare practices will rely on the hard work of teams of individuals to implement pandemic measures and that these teams will be made up of people with a broad range of skills.

2.10 Review and amendment

The support documents in the AHMPPI are intended to be 'living' documents and will be regularly updated and refined to make sure they keep up with current ideas and evidence.

The Chief Medical Officer, after appropriate consultation, may approve amendment to the AHMPPI as needed to meet the current circumstances. Fundamental changes to the approach taken will be referred for endorsement to health ministers.

3 Escalation

This chapter explains when arrangements under the AHMPPI will be used and how escalation through the AHMPPI stages will occur.

3.1 Seasonal Influenza Arrangements

Influenza is a contagious disease of the respiratory tract which occurs seasonally each year. Due to some pre-existing immunity induced by exposure to previously circulating seasonal strains of influenza virus, most people only suffer a self-limiting illness, lasting from a few days to several weeks. Influenza can lead to complications and for some, such as older people, pregnant women, people with poor immune systems and people with pre-existing respiratory, cardiac and endocrine disease—influenza can be a significant disease and cause death. It can also cause the death of healthy adults and children.

GPs and other health providers, such as nurses, Aboriginal Community Controlled Health Services (ACCHSs), pharmacists and aged care providers manage the bulk of people with influenza within the community. Public health units and communicable disease control services in state and territory health departments manage outbreak response, collect public health surveillance data, administer vaccination programs, develop and implement health promotion and public communications, and provide significant support to clinical services and aged care facilities. Ambulance services, hospital emergency and respiratory wards, and intensive care units support people with complications. Laboratories provide testing processes, advise on management of resources and public health approaches, and participate in research. Surveillance systems and public health units investigate and support management of outbreaks and provide important public information on risk reducing strategies. States and territories work together with the Australian Government and primary healthcare providers under the National Immunisation Program to support access of vulnerable groups to influenza vaccinations.

These systems are well developed and processes are refined continuously as outbreaks are managed each year.

3.2 Escalation from existing arrangements

These existing arrangements form the basis for the clinical and public health management of pandemic influenza. Emergency management processes, in particular the Australian Government Crisis Management Framework (AGCMF), will be used as the basis of governance arrangements. Existing surveillance systems will be used to monitor the emergence of novel influenza viruses, and form the basis for gathering information to guide decision making throughout the pandemic.

While there are many similarities to seasonal influenza, there are also significant differences in managing a pandemic. Common objectives to minimise transmission, morbidity and mortality will remain, but there will also be a need to:

- **Rapidly gather, synthesise and share information** on the epidemiology, virology and severity of the disease to inform treatment and planning;
- **Mobilise, reallocate and coordinate resources**, as the low immunity to the virus within our population leads to greater numbers of people presenting for different levels of medical assistance; and
- **Communicate a consistent and timely message**, to engage the community effectively in pandemic response measures and to build trust and confidence when there is broader vulnerability.

Existing systems will need to be adapted and enhanced to support these new priorities. Some systems may be extended (such as through surge staffing) and, where outside the normal scope, some will be augmented (through methods such as recruitment of additional expertise). The greater complexity of systems required to respond to a pandemic will increase the need for national coordination.

The AHMPPI provides an agreed approach to provision of a coordinated and consistent response and a decision to escalate under the AHMPPI from existing arrangements will signal that participating parties should:

- commence use of agreed governance and communication arrangements to manage this type of threat;
- undertake their roles and responsibilities as detailed in this plan;
- advise stakeholders of the approach that will be taken by national, state and territory health departments to respond to the situation; and
- put in place a process to allocate resources and justify re-prioritisation of existing activities to support the pandemic response.

3.3 Escalation across stages

When no pandemic is occurring **P**reparedness activities will be undertaken on an ongoing basis to ensure our readiness to respond promptly should a pandemic emerge. As part of **P**reparedness activities monitoring for the emergence of new viruses with pandemic potential will be routinely carried out. Should a virus of concern occur, surveillance systems will be used to investigate whether it is advisable to enhance our existing arrangements for managing influenza, as agreed in the AHMPPI.

The escalation from existing arrangements will progress across the AHMPPI stages, reflecting the changes in priorities as the pandemic develops. A detailed discussion of the types of activities that may be considered in each stage is available in the Implementation chapter. The activities associated with each stage may be implemented as determined by the needs of the situation and may vary across jurisdictions.

The decision to formally escalate the AHMPPI through each of its stages will be made by the Chair of AHPPC, in consultation with AHPPC members. AHPPC will assess the need for enhanced arrangements and determine the appropriate AHMPPI stage by considering advice from the CDNA, the Public Health Laboratory Network (PHLN), the Department of Health, state and territory government health departments (S/T HD) and/or other advisory bodies. (This process is described in the Governance Chapter.) The plan may be escalated directly from **P**reparedness to the Initial Action or Targeted Action stage if AHPPC considers this warranted by the circumstances.

Triggers

Examples of events that might warrant escalation include:

- declaration of a pandemic by the WHO;
- advice from a credible source that sustained community transmission of a novel virus with pandemic potential has occurred; and
- notification from a jurisdiction that assistance in responding to severe seasonal influenza may be required, including an explanation of why the need cannot be met from state/territory resources. AHPPC will determine whether this is an appropriate basis for escalation.

The National Incident Room (NIR) in the Department of Health will function as the National Health Sector Emergency Operations Centre.

3.4 Activation of other plans

The AHMPPI stages will be independent of activation of whole-of-government or jurisdictional plans. It is also independent of the WHO Pandemic Phases, as these are informative in giving an overview of the global progress of the pandemic, but not for guiding response management at an individual country level.

3.5 Enhanced arrangements

While the AHMPPI remains in Standby, Initial/Targeted Action or Standdown stages:

- the National Focal Point in the Department of Health will liaise with the WHO;
- the NIR will provide agencies with regular Situation Reports;
- the NIR will advise relevant Australian Government and state and territory health services of any change of stage;
- the NIR will coordinate communications;
- The Department of Health will coordinate liaison with other Australian Government agencies;
- The Department of Health will advise the Minister for Health of progress under the Plan;
- S/T HD will coordinate liaison with other government parties and response stakeholders in their jurisdiction;
- Surveillance activities will be conducted as outlined in the Surveillance Plan at Attachment G;
- Communications will be conducted as outlined in the Communications Chapter.

4 Governance

This chapter outlines the roles and responsibilities of stakeholders and key committees, and describes decision making and consultation processes.

4.1 Roles and responsibilities

A clear understanding of the roles and responsibilities between parties responding to an influenza pandemic will support quick decision making and efficient, coordinated use of resources. This section summarises the roles and responsibilities of the Australian Government in key aspects of managing a pandemic, the roles and responsibilities of the state and territory governments, and where roles and responsibilities are jointly shared by these two parties. To reinforce important linkages with these stakeholders, this chapter also outlines the broad roles of other health sector parties. Detailed guidance on roles and responsibilities is provided in the table at Attachment I.

4.1.1 Planning

Minimising the impact of a pandemic on Australian communities and on the health system requires coordinated and careful planning of measures to control the spread of an influenza pandemic. The Australian Government maintains the AHMPPI to prepare for and respond to an influenza pandemic, with input from states and territories, and other health sector stakeholders. This plan is regularly reviewed.

States and territories also develop consistent and comprehensive operational plans for the public health response, and the health service response within their jurisdictions.

Other health sector stakeholders are responsible for developing their own pandemic plans in accordance with national and jurisdictional arrangements and for incorporating pandemic influenza into overall business continuity plans.

At all levels, planning will consider what is needed to protect the most vulnerable members of our communities, and address the needs of special groups, such as the aged care sector and Aboriginal and Torres Strait Islander peoples.

4.1.2 Pandemic influenza surveillance

Australian Government is responsible for developing and maintaining systems to monitor communicable disease activity domestically and internationally and for communicating relevant information. Once a pandemic has arrived in Australia, these systems will be used for monitoring and analysis. Working together with state and territory representatives, the Australian Government will assess the risk of any potential pandemic threats to inform decision making about appropriate actions.

State and territory governments are responsible for collecting influenza surveillance data to contribute to the national picture and to inform the jurisdictional public health response. They will also monitor surveillance data to identify when seasonal or pandemic influenza has the potential to overwhelm the capacity of jurisdictional systems to manage the response.

Other health sector stakeholders will play a key role in surveillance activities such as sentinel surveillance and influenza virus subtyping and characterisation.

4.1.3 Provision of Clinical Services

The Australian Government will coordinate allocation of available national resources required for clinical care.

The Australian Government and state and territory governments will work together to develop new models of care to manage patients and agree on influenza triage criteria (if required); tailor infection control guidelines to the risks relevant to the pandemic virus as required; ensure provision of primary health care is adapted to any changes in the needs of vulnerable groups during the pandemic; and consider and respond to requests for health assistance.

State and territory governments have primary responsibility for establishing and maintaining public health services, public hospitals and laboratories. They are responsible for the operational aspects of clinical care responses and have primary responsibility for the management of cases. They will collaborate with relevant organisations to fill identified service provision gaps; support hospitals in coping with increased demand by considering opening more beds, changing staff to patient ratios; cancelling elective procedures or working in partnership with local private hospitals to manage urgent cases where appropriate; implement new models of care as required; coordinate allocation within their jurisdiction of available resources required for clinical care; and where possible, share clinical resources where and when needed.

Other health care stakeholders are responsible for service provision and linking with and participating in the clinical care network by sharing resources; implementing national care guidelines (including triage protocols if required) and delivering pandemic control measures where required. They will implement patient triage, manage patients and provide after-hours care as required; coordinate locally between services; collaborate with state and territory health authorities to identify and fill local gaps in services, particularly where there are vulnerable populations and implement new models of care according to pandemic influenza policy.

4.1.4 Implementation of public health measures

The Australian Government is responsible for ensuring the resources and systems required to mount an effective national response are readily available; for international border activities; and for ensuring that Australia meets its international obligations. This includes maintaining the NIR; the National Medical Stockpile (NMS) and IHR core capacities including maintenance of the National Focal Point (NFP).

The Australian Government will also be responsible for residential aged care facilities; working with other healthcare providers to set standards to promote the safety and security of people in aged care and other institutional settings; and establishing and maintaining infection control guidelines; healthcare safety and quality standards. The Australian Government will fast-track assessment and approval of the customised pandemic vaccine; procure vaccines; develop a national pandemic vaccination policy and a national pandemic immunisation program; and communicate immunisation information on the program to the general public and health professionals.

The Australian Government and state and territory governments will work together to provide advice and leadership on the appropriate methods and timing for implementing public health measures. They will develop communication strategies and resources for influenza immunisation and coordinate implementation of pandemic influenza immunisation programs. They will also contribute to building linkages between human and animal health resources and activities.

State and territory governments are responsible for the operational aspects of public health responses. They will undertake contact tracing; coordinate distribution of antiviral drugs and disseminate protocols on the use of antivirals; implement social distancing measures as per national recommendations and local risk assessment; and implement infection control guidelines and healthcare safety and quality standards. They will establish systems to promote the safety and security of people in aged care and other institutional settings and support outbreak investigation and management in residential aged care facilities, schools, prisons and other institutions.

State and territory governments will develop and validate specific pandemic influenza virus tests; undertake pandemic influenza laboratory testing as required to monitor the pandemic and for individual patient care; implement testing protocols to support case management, surveillance needs and to preserve laboratory capacity; support and undertake pandemic influenza point of care testing if recommended, and coordinate point of care testing data management and reporting.

State and territory governments will maintain IHR core capacities and communicate public health events of national significance to the NFP; support implementation of border measures by providing of disease control expertise and health care services to ill travellers; implement the national pandemic immunisation program; manage jurisdictional distribution of the NMS and assess the need for a jurisdictional medical stockpile and, if relevant, establish and maintain it.

Other health sector stakeholders will contribute to IHR core capacities; provide input on needs related to national stockpile items; maintain stocks and use of, personal protective equipment as appropriate for infection control requirements; and report adverse events following immunisation or following the administration of influenza antiviral drugs to the state health authority and/or the Therapeutic Goods Administration (TGA).

Other health sector stakeholders will implement infection control guidelines and healthcare safety and quality standards; and implement protocols and procedures to promote the safety and security of people in aged care and other institutional settings according to national standards. They will also administer influenza vaccine according to national guidelines; and provide community education on influenza vaccination programs including education with hard-to-reach groups and at-risk populations.

4.1.5 Researching, planning and building specific pandemic influenza control strategies

The Australian Government will commission research on the effectiveness and impact of public health measures. National, state and territory governments will use this information to inform their plans. Other health sector stakeholders will provide advice on the feasibility and impact of pandemic control measures; and support dissemination and implementation of national advice on the measures, such as the use of antiviral drugs and influenza vaccines.

4.1.6 Communication

The Australian Government is responsible for national communications to the public and the health care sector at a national level, with direct responsibility for communications with the primary care sector. It is also responsible for reporting to and liaison with the WHO as required under the IHR and sharing information from the WHO, from surveillance and other sources with relevant stakeholders. The Australian Government will also disseminate relevant tailored information to aged care and other residential facilities through approved providers and regulatory processes and liaise with Australian Government education authorities concerning public health measures related to schools.

The Australian Government will coordinate the National Health Emergency Media Response Network (NHEMRN), through which they will work with state and territory governments to ensure comprehensive sharing of information and consistent messaging. The Australian Government and state and territory governments are jointly responsible for the sharing information on resource availability and providing advice on case and contact management, chemoprophylaxis, vaccination, quarantine/isolation and pandemic risk assessment.

State and territory governments are responsible for jurisdictional and local communications to the public and the health care sector. They are also responsible for reporting issues to the NIR which might require a coordinated response and/or as required for reporting under the IHR.

Other health care stakeholders have a responsibility to provide input into decision making fora and to communicate pandemic information and key messages to the public.

The Communications Chapter contains more detail about communication during a pandemic.

4.1.7 Coordination

The Australian Government will coordinate national pandemic measures and allocate available national health resources across the country. It will support the health response in any jurisdiction if jurisdictional capacity becomes overwhelmed.

The Australian Government and state and territory governments will work together to consider surveillance, resource and political information to determine whether and when a national response is required; advise on thresholds for escalation; share information on resource availability and coordinate access to resources to maximise the effectiveness of the response.

State and territory governments will coordinate and provide influenza healthcare services including assessment and treatment centres as required.

Other health care stakeholders will deliver pandemic health measures as part of the coordinated response and maintain business continuity of essential services.

4.1.8 Standdown and evaluation

The Australian Government will coordinate the stand down of enhanced measures; manage the transition of pandemic specific processes into seasonal influenza arrangements; and undertake public communication regarding changing risk and the stand down of measures.

The Australian Government and state and territory governments will work together to determine when to cease or reduce measures and agree appropriate messaging for responders and the public concerning scaling down of measures.

State and territory governments will implement stand down of measures taken within the state or territory; manage the transition of pandemic specific processes into seasonal influenza arrangements; and undertake jurisdictional public communication regarding changing risk and stand down of pandemic measures.

Other health care stakeholders will advise on the timing and impact of reducing enhanced clinical influenza services; support stand down of measures and manage the transition of influenza specific processes into seasonal influenza arrangements; and participate in communicating public messages regarding changing risk and stand down of pandemic measures.

All parties will be responsible for evaluating pandemic processes and implementing changes as appropriate.

4.2 Decision making and consultation

Figure 2: Whole of Government, health sector, health advisory and consultative committees involved in decision making for an influenza pandemic.

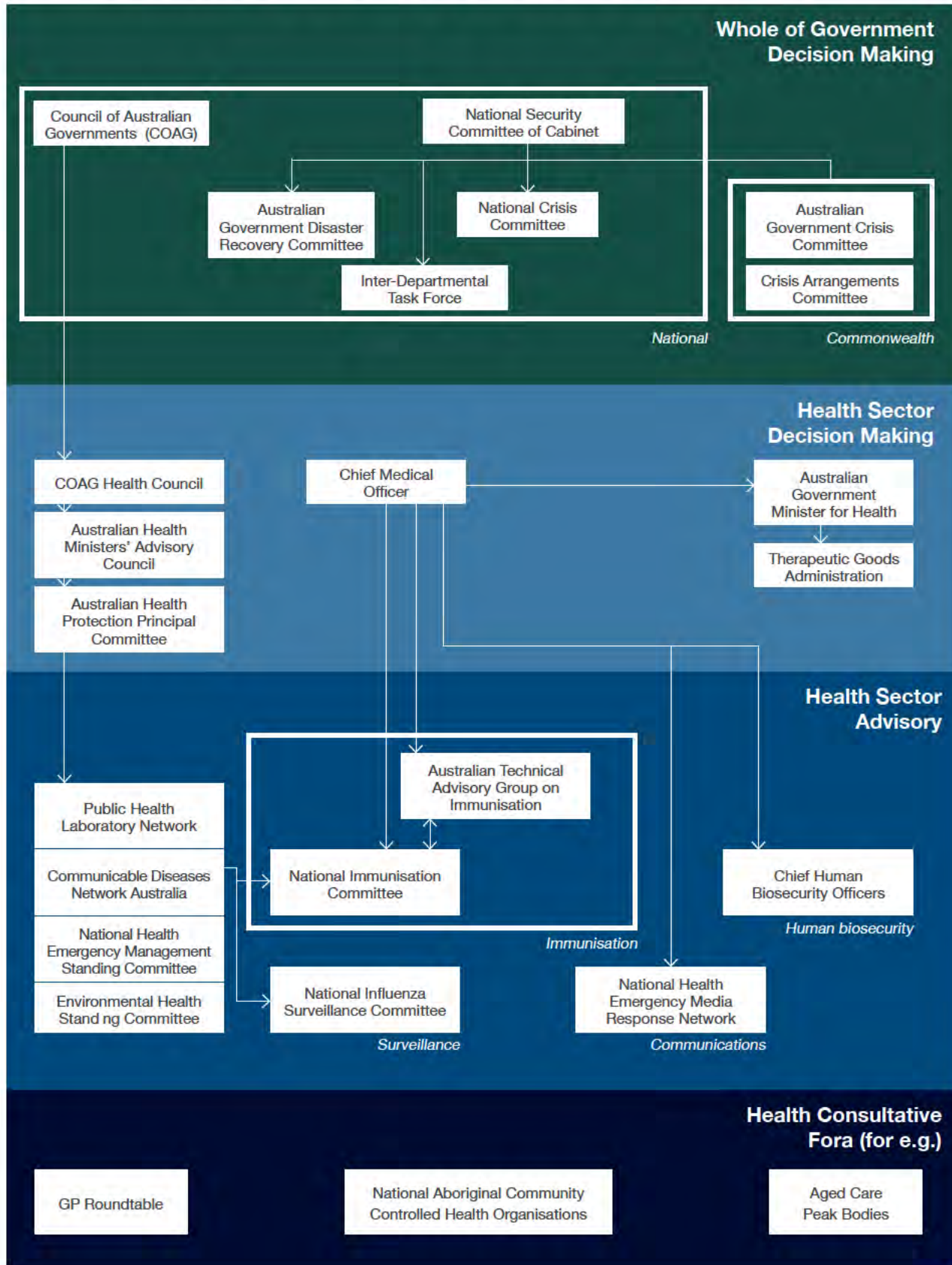
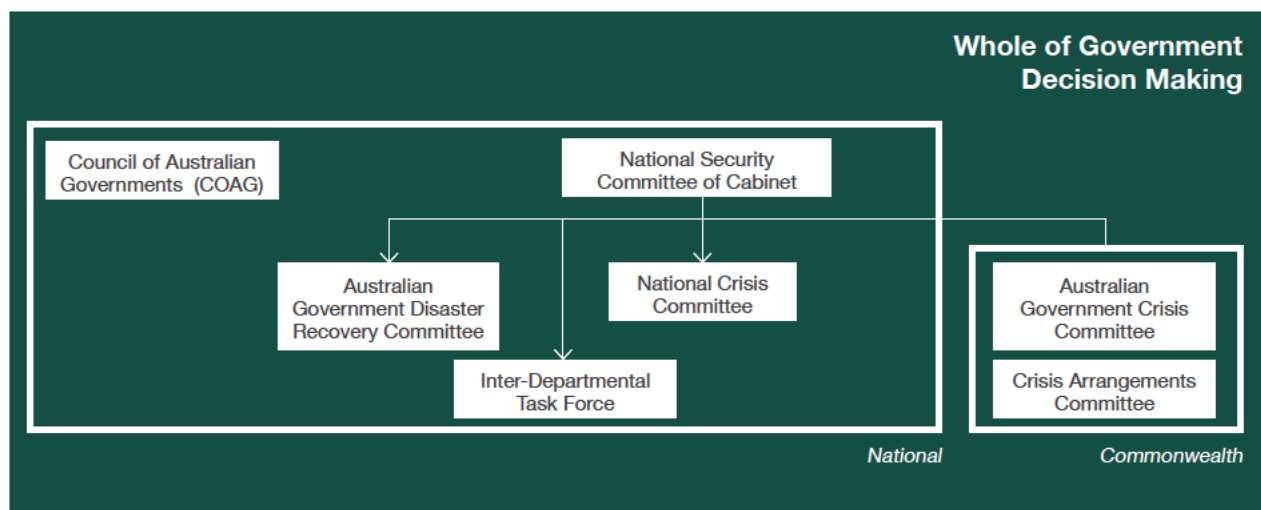


Figure 2 highlights the key WoG, health sector, health advisory and consultative committees involved in decision making for an influenza pandemic. A more detailed description is included in Attachment B of this plan.

The management of an influenza pandemic will require governments, health sector industry and the community to work together. Consultation will be essential to inform decision making, which will need to be rapid and coordinated.

4.2.1 Whole of government (WoG) decision making structure

Figure 3: Outline of whole of government decision making structure.



A severe pandemic will disrupt Australia's social and economic functioning. Maintaining essential services may require a whole-of-government response, incorporating agencies at the Australian Government and state and territory government level. For an influenza pandemic, decision making and consultation at this level in relation to an influenza pandemic will be in line with existing emergency arrangements described in the AGCMF. The primary forum for coordinating the cross-government response will be the National Crisis Committee (NCC). The NCC will consolidate information and coordinate information exchange and advice to ministers. It will also coordinate ministerial decisions across the Australian Government, State and Territory and local governments. The Australian Government Crisis Committee (AGCC) will coordinate the response across the Commonwealth.

The National CD Plan outlines the roles and responsibilities of the Australian Government, States and Territories and Local Governments. It also details agreed coordination arrangements for the management of communicable diseases of national significance and their consequences.

When information obtained and activities implemented under the AHMPPI may have implications outside the health sector, advice regarding this will be forwarded to the NCC for consideration.

4.2.2 Ministerial responsibilities

Under the AGCMF, the Australian Government Minister for Health is the lead minister for the Australian Government response to a human influenza pandemic. As a member of the COAG Health Council (CHC), the Minister for Health is also involved in the approval of Preparedness activities, through the endorsement of plans and arrangements.

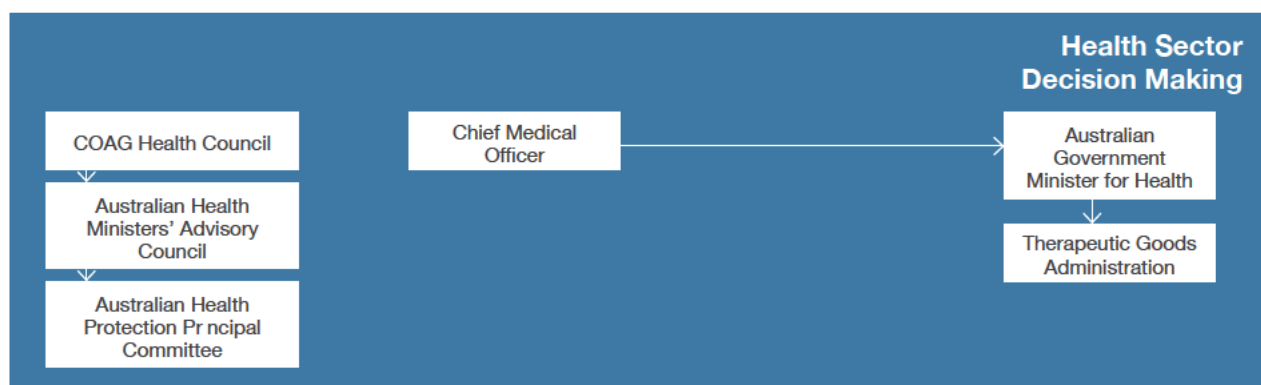
The Australian Government Minister for Health also has powers under the *Biosecurity Act 2015* to assist with managing the risk of an LHD entering, emerging or establishing itself in Australian territory. These include:

- Determining international entry requirements (and exit requirements)
- Determining preventative biosecurity measures
- Recommending the declaration of a human biosecurity emergency under the Act (and utilising the emergency powers once an emergency has been declared)

Should circumstances warrant it, the AGCMF notes that the Prime Minister may assume primary responsibility for leading the Government's response. Under these circumstances, the Prime Minister is also likely to consult with the leaders of affected states and territories to ensure a coordinated national response.

4.2.3 Health sector decision making structure

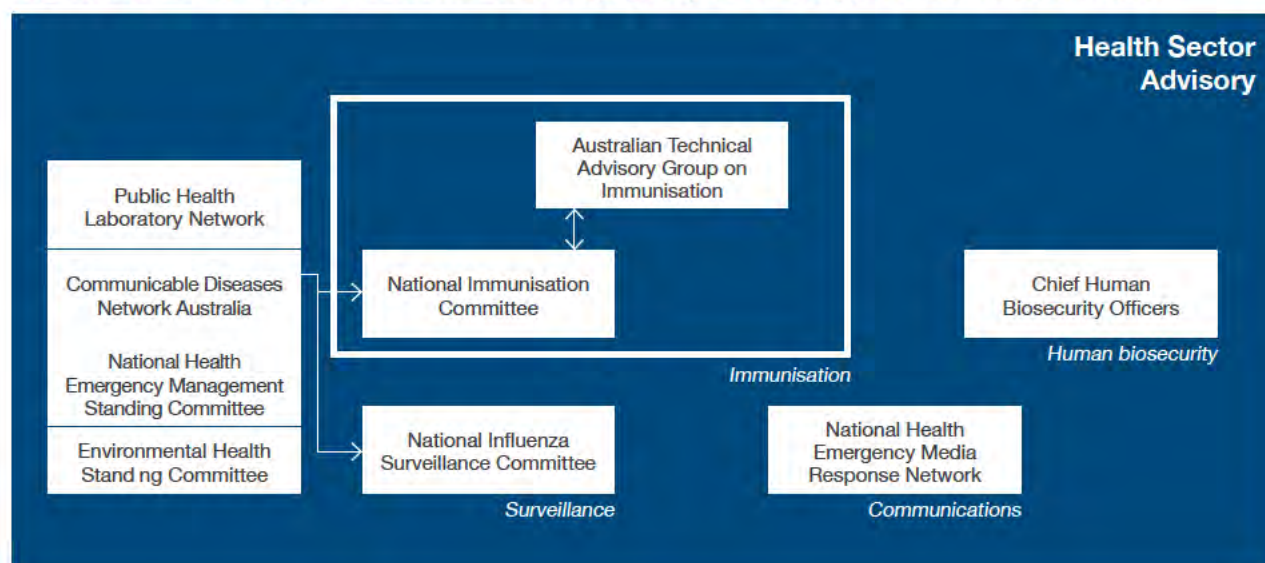
Figure 4: Outline of health sector decision making structure.



For the development of policy related to management of a pandemic, the CHC represents the highest decision making body. AHPPC will manage implementation of the national health sector response, in consultation with relevant stakeholders, and provide health sector advice to the AGCC and NCC as appropriate.

4.2.4 Health sector advisory groups

Figure 5: Outline of health sector advisory groups that support decision makers.



The following key committees will support decision making:

- PHLN will provide leadership in guiding human health microbiology and laboratory practice;
- CDNA will provide leadership in surveillance, the analysis of epidemiological information and strategies related to management of communicable disease;
- National Influenza Surveillance Committee (a standing committee under CDNA) will provide leadership in guiding the implementation of influenza specific surveillance activities and strategies;
- the National Immunisation Committee will provide leadership in guiding implementation of immunisation measures;
- Australian Technical Advisory Group on Immunisation will provide technical advice on immunisation issues; and
- Chief Human Biosecurity Officers (CHBOs) will provide advice to the Chief Medical Officer (as the DHB) on human biosecurity matters at the international border.

4.2.5 Health sector consultation

Figure 6: Outline of Health Consultative Fora



Consultation will be integral to decision making regarding the approach to managing an influenza pandemic. Wherever possible, this will be conducted through existing channels. Key advisory committees, in addition to providing expert advice will also be used as vehicles for consultation in their field of expertise.

Consultative fora and peak bodies, such as aged care peak bodies, key national primary care organisations, national nursing organisations, representatives of medical specialist colleges and pharmaceutical organisations will be used to reach key non-government health sector areas. Feedback from these organisations—which will reflect the on-the-ground experience of health sector and public concerns, and evidence of the effectiveness of approaches and specific interventions—will be input into decision making processes to better tailor the response to community needs. Communication strategies are further described in the Communications chapter.

4.2.6 Decision making processes under the AHMPPI

The AHMPPI will guide the management of an influenza pandemic at the national health sector level, representing an approach agreed between the Australian Government and state and territory governments.

Key decisions within the scope of the AHMPPI will primarily concern the following issues:

- the overall response approach;
- the appropriate stage for the AHMPPI, according to the current circumstances;
- the selection of measures appropriate for implementation at that stage (including standdown of existing activities);
- key messages for communications measures; and
- coordination of sharing of resources.

Reflecting a flexible approach, choices may vary to reflect the jurisdictional context, particularly in relation to timing of implementation and stand down, however negotiation within AHPPC will ensure a coordinated and consistent approach.

To support AHPPC in the management of these decisions a Decision Support Map (Attachment D) has been developed which provides a quick reference for noting:

- the key national level decisions likely to be required in each stage;
- the triggers prompting these decisions;
- some general background regarding each decision.

The Decision Support Map also includes a template for identifying key communications messages and an example of how this template might be applied.

4.2.7 Selection of public health measures

The selection of public health measures will be one of the most important functions of AHPPC. The following questions may be used to guide selection:

1. Will this action contribute to meeting the strategic objectives?
2. Will it be the best use of current resources?
3. Will this be proportionate to the likely impact of the pandemic?
4. When would it be most effective to implement this measure?

To ensure that the appropriate expertise is available to support AHPPC, relevant health advisory bodies such as CDNA, PHLN or the Department of Health, will provide a set of recommendations for consideration at key decision points. Only a broad recommendation will be made for question 2, as this will depend on the resources available at the time in the Australian Government or relevant jurisdiction.

The continuing appropriateness of measures will be regularly reviewed as more information becomes available across the progress of the pandemic. A regular set time for review (frequency will depend on the progress of the pandemic), such as weekly, will assist building awareness of changes made.

4.2.8 Formulating recommendations for AHPPC

To assist advisory groups to develop recommendations regarding selection of public health measures the AHMPPI provides two sets of tools: a Menu of Actions and a Guide to Implementation.

4.2.8.1 Menu of Actions

Based on the previous application of health measures to pandemics (in Australia and overseas); research and modelling; and application to seasonal influenza or other related diseases, a Menu of Actions has been developed. This Menu lists the main public health measures which could be applied to respond to an influenza pandemic (see Attachment E). This list is divided into the following broad categories:

- **pharmaceutical measures:**
antivirals, candidate pandemic vaccines (vaccines based on a strain of influenza virus considered to have pandemic potential) and customised pandemic vaccines (vaccines based on the actual pandemic virus);
- **social distancing;**
community level interventions to reduce normal physical and social population mixing, in order to slow the spread of a pandemic throughout society;
- **border measures:**
measures that can be taken at airports and seaports to delay the spread of illness to or from affected countries (or jurisdictions); and
- **infection control measures:**
measures to promote hand hygiene, cough/sneeze etiquette; the use of personal protective equipment (PPE).

Communications measures are used across the categories. Each category lists the key actions in this area (such as school closures, voluntary isolation or working from home, in the social distancing category) and for each of these actions a summary table is available which outlines suggested factors relevant to determining suitability for implementation.

These factors include:

- rationale and objective;
- evidence of effectiveness*;
- risks and benefits;
- direct and secondary costs;
- likely acceptability;
- practicalities; and
- timing.

**The evidence of effectiveness cited in these summaries is based on a series of commissioned reports and represents the best available information at the time. This section of the AHMPPI will be periodically revised to ensure the evidence presented is up to date. Links to these reports can be accessed through the summary tables or through the Evidence Compendium at Attachment H.*

The summary tables also include a recommendation on the use of each action, which weighs up the risks and benefits presented. If the Menu of Actions recommends that an action as a whole should not be used, it has not been included in the Guide to Implementation. These tables are not intended to be prescriptive, but to support evidence-based decision making, acting as a reminder to preserve previous experience and incorporate available research for consideration against the current environment.

4.2.8.2 Guide to Implementation

The Guide to Implementation shows which measures from the Menu of Actions are relevant for each stage of the AHMPPI (see Attachment F). These recommendations would need to be considered against the specific characteristics and circumstances of the current virus.

At the Targeted Action stage, when more information about the pandemic will be available, the Guide to Implementation also considers the appropriateness of each measure to different levels of pandemic impact.

5 Implementation

This chapter identifies the recommended approach to managing an influenza pandemic in the four emergency management areas of:

- **P**revention;
- **P**reparedness;
- **R**esponse; and
- **R**ecovery.

It also outlines the measures which could be implemented in each of the **R**esponse stages:

- Standby;
- Initial and Targeted Action; and
- Standdown.

Prevention	
Preparedness	
Response	Standby
	Action
	Standdown
Recovery	

Additional detail to support implementation at an operational level is provided in the Operational Plan at Part 2 of the AHMPPI.

Across all activities the **Strategic Objectives** will be to:

- Minimise transmissibility, morbidity and mortality;
- Minimise the burden on/ support health systems; and
- Inform, engage and empower the public.

5.1 Prevention Activities

Close collaboration with the animal health sector will be an important strategy in pre-pandemic surveillance—where a potential pandemic strain is circulating in animals. Animal disease prevention and surveillance programs are already in place in Australia. Close collaboration with regional neighbours in which the emergence of pandemic strains is more likely, through surveillance systems and early response to clusters of influenza viruses with pandemic potential are also key strategies.

As the nature of the influenza virus makes it difficult to control the transmission of this disease, it is unlikely it will be possible to prevent its entry into Australia once a pandemic is spreading globally. Unlike many other diseases, a comparatively high proportion of individuals will be asymptomatic but contagious, and therefore spreading influenza before it is possible to identify them. It will be difficult to detect as symptoms will be similar to many other common illnesses and without laboratory testing it will be difficult to confidently differentiate it from other diseases.

Implementation of an early and efficient response will be the key strategy for minimising transmission, morbidity and mortality within the community. To ensure the response is mobilised as quickly as possible, surveillance systems will routinely monitor emerging diseases.

5.2 Preparedness Activities

An influenza pandemic represents a significant risk to Australia. It has the potential to cause high levels of morbidity and mortality and to disrupt our community socially and economically. To mitigate this risk, the health sector will maintain an ongoing state of preparedness to respond to a pandemic.

Preparedness activities will focus on:

- establishing pre-agreed arrangements by developing and maintaining **plans**;
- **ensuring resources are available** and ready for rapid response;
- **researching** pandemic specific influenza management strategies; and
- **monitoring and investigating the emergence** of diseases with pandemic potential.

To be best prepared to respond rapidly and in a coordinated manner there should be broad agreement of arrangements in advance of a pandemic. This plan establishes these arrangements at a national health sector level. To develop and maintain preparedness to implement these arrangements, this plan will be regularly exercised and reviewed. At a jurisdictional level it will be important to support this by working with healthcare providers and communities to develop an understanding of arrangements and the capacity to implement them.

A key preparedness strategy will be to use existing systems wherever possible to implement the response, rather than creating pandemic specific procedures. This will allow them to be applied rapidly and efficiently. Familiarity with systems will also foster greater speed and confidence of use and minimise the need for specific

training. As capacity is built and refined in these systems through regular use, preparedness to respond to a pandemic will also be strengthened.

Research into alternative control strategies which may need to be employed to cope with the unique needs of a pandemic will be conducted as part of **Preparedness**, to determine the methods most likely to be effective. This research will be used to update plans and arrangements.

Individual agencies will be responsible for their preparedness to take part in the response. For key stakeholders it will be important to reflect this in preparedness plans. Of these roles and responsibilities, one of the most important **Preparedness** activities will be surveillance. Routine monitoring for the emergence of diseases of concern will occur through existing systems and continue throughout this stage. Should a disease of concern be identified a second tier of activities will commence to investigate the level of risk to the Australian community and determine whether arrangements will need to be escalated.

At the end of a pandemic, activities will be returned to preparedness, where they will continue in readiness for the next outbreak.

There is a strong relationship between **Preparedness** and **Response** activities. Some activities undertaken through existing ongoing preparedness systems, such as surveillance system identification and characterisation of the likely level of impact, are also the beginning of the response.

Activities which could be considered for the **Preparedness** Stage are outlined in the Operational Plan at Part 2 of the AHMPPI.

5.3 Response Activities

5.3.1 Standby Stage

There are a number of potential **triggers** for moving from **Preparedness** to **Standby** including:

- advice received under Surveillance Plan activities of an outbreak overseas of sustained community transmission of a novel virus; or
- a warning of a potential influenza pandemic received from WHO; or
- indications received from a jurisdiction that they may seek assistance under the AHMPPI to manage severe seasonal influenza; or
- an indication from CDNA of a trend in seasonal influenza which may overwhelm state and territory health systems.

The Standby stage may vary considerably in **duration** (an hour, weeks, months) depending on the progress of the pandemic. It is also possible that this stage may be skipped entirely, if progress moves rapidly into triggers for the Initial or Targeted Action stage.

Standby activities will focus on:

- **preparing** to commence **enhanced arrangements**;
- **identifying** and characterising the nature of the disease (commenced in Preparedness);
- communications measures to **raise awareness** and **confirm governance** arrangements; and
- **border** activities.

Most people will associate the Standby stage with the **preparations** to commence enhanced arrangements, such as checking stockpiles, pre-deploying items, planning use of resources and establishing essential priorities, which will be made by responsible agencies in order to be ready to mount a prompt response. However, Standby is not solely about preparations, and in the areas of disease characterisation, communications and border activities, it may be appropriate at this time to commence actively implementing measures.

It will be essential during Standby to continue the **identification and characterisation of the disease** commenced in the Preparedness stage, as a good understanding of the disease will help us to tailor our activities and increase their effectiveness. Activities in this area will continue in a pre-agreed manner described in the Surveillance Plan.

Communications measures should be commenced in order to mobilise responders and health services, and prepare the public for the impact of the disease, how it will be managed and how they can contribute to the response. Targeting of communication measures to vulnerable groups should be considered. More information about this is available in the Communications Chapter.

In the area of **border measures**, a decision will need to be made about whether to implement measures, and if so, which measures are appropriate to the current situation. The decision making process may include consultation with CHBOs and border agencies. If they are to be implemented with the goal of minimising transmission, they would need to commence during Standby to be most effective (as at this stage they could identify and manage the entry of individuals into Australia when community transmission here is still low.) A brief description of border measures is provided in the Menu of Actions.

Activities which could be considered for the Standby Stage are outlined in the Operational Plan at Part 2 of the AHMPPI.

5.3.2 Initial Action stage

There are a number of potential **triggers** for moving from **Standby** to **Initial Action** including:

- advice under Surveillance plan activities that the first case has been detected in Australia; or
- advice received under Surveillance Plan activities that there is sustained community transmission of a novel influenza virus which has emerged in Australia; or
- a declaration by WHO of an influenza pandemic; or
- a request for assistance with seasonal influenza from a jurisdiction.

Initial activities will focus on:

- **preparing and supporting health system needs;**
- **managing initial cases;**
- **identifying** and characterising the nature of the disease within the Australian context;
- providing **information to support best practice health care** and to **empower the community and responders** to manage their own risk of exposure; and
- supporting effective **governance**.

By definition, a novel virus, which is the most likely cause of a pandemic, would be associated with a relative lack of immunity within communities. Though the transmissibility of the disease will be a limiting factor, the combination of this lack of immunity with the rapid movement possible through modern international transport systems make it likely that once a novel influenza virus achieves efficient human to human transmission, it will spread across the globe and enter the Australian population quite rapidly.

Many of the measures which can be applied in response to a pandemic must be implemented early to be most effective. Therefore once there is sustained transmission of the pandemic disease within the Australian community, it will be important to commence measures as quickly as possible, even though, due to the novel nature of the virus, it is unlikely that we will yet have a good understanding of the epidemiology, clinical severity and virology of the disease.

Though information will initially be scarce, some predictions of the course of the disease and the demands it may make on our health systems and wider society can be made in comparison with seasonal influenza and past pandemics. Using this information a list has been developed (see the Operational Plan) of measures which would be likely to effectively meet the objectives of the AHMPPI in the absence of detailed knowledge of the disease.

As all pandemics are different, at the time of implementation, the appropriateness of these recommended measures should be examined in the light of what is known of the current pandemic virus, the vulnerability of the Australian population (particularly at-risk groups), and the current resource constraints. To support and maintain health system capacity, consideration of measures to protect the healthcare workforce will be of key importance.

5.3.2.1 Proportionate response: Initial measures

When initial measures are commenced, the likely lack of information about the disease will make it difficult to predict the level of impact. Evidence from overseas will give some indication, however this will not take into account the Australian context, and international reports of epidemiology, clinical severity and virology of the disease from overseas may be unreliable.

As the potential consequences of initially implementing measures aimed too low are more significant, the initial measures recommended below should be implemented at a level appropriate for a disease of moderately high impact. Measures will then be scaled up or down as more information becomes known. By reviewing measures regularly and early the consequences of aiming too high will be mitigated.

The risk of aiming at a pandemic of low impact and needing to scale up is that:

- the opportunity to manage the spread of the disease is lost; and
- death or severe morbidity (especially in at-risk groups) may be greater (as measures to reduce transmission, reduce clinical severity and raise awareness of symptoms by healthcare workers and the general public have not been fully employed).

The risk of aiming at a pandemic of high impact and needing to scale down is that:

- resources may be wasted (used without much gain, or diverted to pandemic activities where they could have been better used elsewhere);
- undue stress and concern may be imposed on Healthcare workers and the community; and
- perception of having over-reacted may make stakeholders less willing to participate in future.

Activities which could be considered for the Initial Action Stage are outlined in the Operational Plan at Part 2 of the AHMPPI.

5.3.2.2 Pandemic Vaccination

The most effective way of preventing infection with an influenza virus is vaccination. Access to immunisation is one of the main goals of the pandemic response.

By definition a pandemic will be caused by a novel virus, so it is likely to be some time before a customised vaccine, that is one based on the actual pandemic virus, becomes available. This could be up to six months. To ensure that a new customised vaccine can be accessed as quickly as possible if required, the Australian Government maintains contracts with vaccine manufacturers for their rapid development and supply.

Prior to the availability of a customised pandemic vaccine it may be appropriate to consider use of a candidate pandemic vaccine if one is available. Candidate vaccines may be developed and potentially stockpiled prior to a pandemic as a precautionary measure. They are based on a strain of influenza virus considered to have pandemic potential. Their effectiveness will depend on the similarity between the strain used to develop the vaccine and the strain causing the pandemic. They are most likely to be of value in protecting people at risk of complications from influenza and in protecting the health workforce in order to maintain the capacity of the health system (see Menu of Actions: Pharmaceutical measures for more information).

The early availability and uptake of vaccinations for seasonal influenza means that the capacity to manage the impact of seasonal influenza is likely to be greater than that for a pandemic. Uptake of immunisation programs, the efficacy of the vaccine and health system capacity may limit the effectiveness of both seasonal and pandemic programs. Cost may also influence uptake for families. Even though a customised vaccine is usually available early for seasonal influenza, a severe influenza season may still overwhelm health systems, where there are either large numbers of people with influenza, or large numbers of hospitalisations.

Australia's National Immunisation Program supports access to seasonal influenza vaccines and fosters safety and efficacy. Pandemic vaccination campaigns will build on these seasonal immunisation systems and the community attitudes established under these programs.

5.3.2.3 Planning Assumptions

The assumptions about the likely epidemiology, clinical severity and virology of the disease which underpin selection of these measures are provided in the Planning Assumptions Evidence Summary.

The following assumptions have also been made about the anticipated effect of the pandemic:

- lack of herd immunity (widespread community immunity) will cause elevated numbers presenting to some level of medical assistance;
- existing arrangements will therefore need to be augmented to cope with the changed and extended demands (this is a pre-requisite for the use of the AHMPPI);
- increased pressure will occur across the spectrum of health services, including hospitals, GPs, pharmacies/pharmacists, ambulance services, health air transport services, ACCHSs, nurse practitioners, Primary Health Networks and Residential Aged Care Facilities (RACF);
- the initial drive to identify cases will put pressure on laboratory capacity;
- at-risk groups (including vulnerable populations) will experience higher morbidity and mortality.

*From 1 July 2015 Primary Health Networks will replace and build upon the work of Medicare Locals.

5.3.3 Targeted Action stage

The Targeted Action stage will commence when there is sufficient information collected during the Initial Measures stage to inform refinement of the pandemic response measures already implemented. Measures will be regularly reviewed as more information becomes available.

Data on the clinical severity, transmissibility, epidemiology and antiviral resistance pattern of the virus will inform decisions on effective and proportionate pandemic response measures. CDNA/PHLN will provide advice to AHPPC on which individual measures should be:

- continued;
- modified (including scaled up or down);
- wound down and ceased.

CDNA/PHLN will also provide a recommendation of any new measures which should be commenced. Where measures are to be ceased, an exit strategy will be included. (The process and tools to support making these recommendations are described in the Decision Making section of the Governance Chapter.)

Targeted measures will focus on:

- supporting and maintaining **quality care**;
- ensuring a **proportionate response**;
- communications to **engage, empower and build confidence in the community**; and
- providing a **coordinated and consistent approach**.

The **flexible** approach of the AHMPPI means Targeted Action measures need not be adopted by all jurisdictions concurrently. Similarly, measures may be implemented differently within different geographic regions of jurisdictions. Each jurisdiction will consider the recommendations made by CDNA/PHLN and select measures which meet their own requirements, reflecting the differing progress of the pandemic, resource parameters and community needs in their jurisdiction.

As the pandemic becomes more widespread and the demands on resources increase, close tailoring of the selection of response measures to current needs and regular review of their effectiveness in contributing to the strategic objectives will be essential to promote the **efficient use of available resources**. Measures that fail to demonstrate this will be ceased.

Assessments of effectiveness will be based on available research, and on feedback from health sector stakeholders and the public (see Communications chapter). Review will be considered at key milestones, as noted in the Decision Support Map at Attachment D, or as indicated by feedback received.

Identification measures will move to collecting core data from established surveillance systems in order to detect any changes in the epidemiology of those getting sick, the clinical severity of the disease or characteristics of the virus. Jurisdictions will continue to collect enhanced data on up to 10 cases per week and for outbreaks in new settings.

Communications measures will continue to be important, following the same approach as outlined in the Initial Action section above. Key messages should be timely and consistent and reviewed regularly to ensure they reflect current information about the response, the disease itself and recommended management strategies (both for responders and the public) (see Communications Chapter for more detail).

Activities which could be considered for the Targeted Action Stage are outlined in the Operational Plan at Part 2 of the AHMPPI.

5.3.3.1 Proportionate response: Targeted measures

Regularly **reviewing** measures **and tailoring** their use during this stage as more becomes known about the disease in the Australian context will allow measures to be adjusted to be more **appropriate to the level of risk**. It will also be possible and important to better tailor measures to the specific needs of our most vulnerable populations.

As Initial measures are aimed at responding to a pandemic with a moderately high impact level, tailoring of measures in the Targeted Action stage is likely to involve scaling back.

5.3.4 Standdown Stage

Individual activities will be regularly assessed and stood down when they no longer contribute to the AHMPPI's goals. The **trigger** for the AHMPPI as a whole to move into the Standdown stage will occur when advice from CDNA indicates that the pandemic has reached a level where it can be managed under seasonal influenza arrangements. As the risk and impact experienced will not be homogenous across Australia enhanced activities may need to continue longer with some vulnerable populations.

Standdown activities will focus on:

- supporting and maintaining **quality care**;
- **ceasing** activities that are no longer needed, and **transitioning** activities to seasonal or interim arrangements;
- monitoring for a **second wave** of the outbreak, or the development of antiviral resistance;
- communications activities to support the **return** from **pandemic to normal** business services; and
- **evaluating** systems and **revising** plans and procedures.

Enhanced arrangements place an additional burden on health systems and individuals and should be scaled back when no longer necessary. The purpose of the Standdown stage will be to manage the smooth withdrawal of enhanced arrangements and transition to seasonal systems and procedures.

Communications measures will be important to:

- reassure stakeholders that they will still have access to the support they need;
- shape awareness of the possibility of further outbreaks and the continuity into the following two to three years of seasonal influenza; and
- ensure that the public understand the virus is still circulating and that they therefore need to continue to be aware of measures to protect themselves at an individual level.

The evaluation of the response, and updating of/adaptation of systems, which is part of this stage ensures that as much as possible, the lessons from the pandemic can be applied to future outbreaks. As subsequent waves of the pandemic are likely, rapid implementation of evaluation processes is essential to preparedness.

It is likely that the health sector will continue to require support to enable services to “catch up”. The community may also require additional services to enable full psychological, social, economic, environmental and physical recovery from the effects of the pandemic. At-risk groups may need additional support.

At some point the Department of Health will advise AHPPC that all enhanced measures have been transitioned to seasonal arrangements. While acknowledging that **Recovery** activities will be taking place within the health sector, this will be the **trigger** for AHPPC to consider returning the AHMPPI to the **Preparedness** stage, in which preparedness and monitoring activities will be ongoing until there is again a need to respond to a pandemic.

Activities which could be considered for the Standdown Stage are outlined in the Operational Plan at Part 2 of the AHMPPI.

5.4 Recovery Activities

Wherever possible during the pandemic, response activities will be selected and implemented in a manner most likely to promote robust recovery. Some communities and systems may be able to commence **Recovery** activities sooner than others.

The primary responsibility for managing the recovery process within the health sector will rest with state and territory governments. National coordination and support required during this stage will occur through existing emergency management channels.

The Australian Government Disaster Recovery Committee, chaired by the Attorney-General’s Department will coordinate **Recovery** efforts at a whole of government level. Governments will work together with affected individuals, community groups and industry to restore services and community wellbeing.

5.5 Resilience

Building preparedness within Australia’s health systems will contribute to the resilience and sustainability of our systems. The resilience of individuals will be promoted by empowering them to manage their own exposure to the disease through public messaging about:

- the status of the disease in Australia and internationally;
- hygiene and cough/sneeze etiquette;
- disease transmission;
- understanding of how to recognise the signs and symptoms of the disease and when to seek medical assistance; and
- access to support and advice, including mental health services.

To build resilience within our most vulnerable populations, communications within the health sector will be used to raise awareness of at-risk groups and their associated needs. Measures will also be implemented with consideration of necessary adaptations to meet the needs of these individuals and communities. The needs and challenges of communicating with low socio-economic communities, which may have reduced access to healthcare, will also be considered.

5.6 Emergence of the novel virus first in Australia

Though this plan focuses on activities in response to the emergence of a novel virus with pandemic potential overseas, it may also be applied should the novel virus emerge first in Australia. Variations to the plan would be required in the following areas:

Escalation:

- The timing of the **stages** may vary, as the pattern of community transmission may be different;

Implementation:

- If we are able to detect the new virus early, we may have more control over the application of measures to reduce transmission than if the disease is already circulating overseas. However, if it is not detected early, wide dispersion through the community may occur before we are able to put in place measures to reduce transmission and to protect at-risk groups;
- At our **international borders**, the emphasis will no longer be on managing incoming travellers, as a population with a higher risk of transmitting the disease. Instead we will be informing incoming travellers (including returning Australians) of the increased risk within Australia and helping them to integrate into our health system;
- We may be asked by the international community to implement **exit screening** measures. Though the effectiveness of such measures is not strong, decision makers will need to take into account the level of spread within our community and the likelihood that the disease has already spread outside Australia (if spread within Australia is still low it is more likely to be possible to limit the exit of the disease);

Communications:

- **Reporting to the international community**, in particular our reporting under the IHR and ongoing liaison with the WHO, will be both important and high profile;
- There will be great **demand from the international media** for reports about the Australian situation;
- The level of **uncertainty** around the information we share and use for planning may also be greater, as the early information from overseas will not be available. This should be openly acknowledged and regular revision of information provided as it becomes available;

Surveillance:

- Once the presence of a novel virus is identified there will be **pressure** on surveillance, domestically and internationally, to determine the existing spread and the characteristics of the disease. It may be necessary to prioritise allocation of resources in this area;

- Enhancement of surveillance systems would occur early. National coordination may be required to coordinate early data collection, analysis, reporting and **interpretation** so that disease characteristics can be identified as quickly as possible; and
- It is likely that the novel virus would be identified when an unidentifiable subtype emerged in routine testing. This sample would be forwarded to the World Health Organization Collaborating Centre for Reference and Research on Influenza (WHOCC), which would determine whether a novel virus had emerged. Investigation would also need to establish whether transmission occurred in Australia.

5.7 Application to seasonal influenza

In many ways the response to seasonal influenza and a pandemic would be the same, as wherever possible the AHMPPI uses existing arrangements. The key difference will be the capacity of a pandemic to overwhelm normal arrangements and the requirement to enhance our systems and approaches to cope with the increased demand.

When an outbreak of seasonal influenza is particularly severe, it has the capacity to overwhelm our normal systems in a similar way. It may therefore be appropriate to apply some of the measures or approaches in this plan. These are not unique, however the AHMPPI potentially provides:

- an agreed approach to mobilising, reallocating and coordinating resources at a national level;
- analysis of a range of options to reduce transmission, morbidity and mortality; and
- a method of communicating a consistent message, building trust and confidence when there may be public concern.

As the measures and approaches used in this plan are intended to be used flexibly, they can easily be used independently to address specific gaps in a response to severe seasonal influenza. Measures would be applied as though in the Targeted Action stage, as once awareness has developed of the presence of a severe influenza season, it is likely enough will be known about the epidemiology, clinical severity and transmissibility of the disease to target measures to specific needs.

6 Communications

This chapter provides a guide to communications activities across stakeholders.

Sharing information between those managing the response will enable the coordination of resources, better inform decision makers and provide access to expert guidance on the application of response measures.

Communication with the public, through the media and other sources, will shape the public perception of risk and the way in which the public is engaged in measures to address the pandemic.

A comprehensive communications strategy, implemented across all stages of the pandemic, is a key component of a successful response to an influenza pandemic. As the presentation of a pandemic in Australia will inevitably be complex and varied it will be a priority to put in place arrangements to support a consistent, informative message. The communications strategy described in this chapter is designed to reach the broad range of stakeholders involved in and affected by a pandemic, from health authorities and the medical profession, to the public and the media.

6.1 Key Principles

The following key principles will be applied across all our communications activities:

- openness and transparency;
- accurate risk communication, including where there is uncertainty;
- communications as a two-way process;
- use of existing communication channels and protocols, where possible;
- consistent, clear messages;
- regular, timely provision of tailored information;
- early release of public messages;
- timely response to queries;
- use of social media where appropriate;
- use of specific communication methods to facilitate communication with vulnerable populations;
- flexible selection of methods appropriate to the situation at the time; and
- use of a wide range of communications methods to reach a broad audience.

It should be noted that, while this chapter makes reference to communication activities in different stages of the pandemic response, it is the goal of the AHMPPI to maintain and enhance flexibility. Items from different stages may therefore be used concurrently or non-sequentially as their purpose demands.

6.2 Information gathering

Information about influenza viruses in Australia and in other countries is collected routinely every year by the Australian Government and State and Territory Governments. Sources of such information may include seasonal influenza surveillance systems, Australian embassies, other governments, Australian international disease experts and the WHO, which provides information about influenza viruses, or other viruses with pandemic potential, through communication systems such as the WHO Event Information Site.

As agreed under the IHR, Australia reports to the WHO any event of potential international public health concern, including specifically if there is a case of human influenza caused by an unusual subtype or where there is the potential for serious health impact.

The information gathered from these sources is used to advise Australians who may be travelling abroad, those considering overseas travel, and to inform surveillance and control of the disease in Australia. Should a disease which has the potential to cause a pandemic be detected, disease information will be shared with stakeholders.

During the pandemic, information will also be gathered about the health sector itself, such as current health service capacity; whether the management of acutely unwell people with influenza has meant that other routine services have been ceased temporarily; and absenteeism among HCWs and/or support staff due to illness, caring for family or fear of infection, where possible. The information gathered will be critical to informing decisions about pandemic response measures and for prioritising health services locally and at the state and national levels.

6.3 Sharing information between those involved in managing the response

Audience: This section is aimed at communication between Australian Government agencies, state and territory government agencies and other key stakeholders involved in providing a health sector response to an influenza pandemic.

Purpose: To support coordination of resources, better inform decision makers and provide access to expert guidance on the application of response measures.

Aims:

Preparedness	<ul style="list-style-type: none"> • Build a clear understanding by the parties that will be involved in a pandemic response of <ul style="list-style-type: none"> - roles and responsibilities; and - mechanisms for communications and governance; • ensure key responders are aware of the emergence of novel influenza viruses with pandemic potential, and any plans for responding; • build an understanding that there will be uncertainty and a need for flexibility (over time and geographically); • prepare HCWs to be conduits for information to the public; • ask responders to be prepared to participate in early data collection and to provide feedback throughout the pandemic response; • obtain buy-in for major strategies.
Standby	<ul style="list-style-type: none"> • Ensure responders are aware of available information about the epidemiology, virology and clinical severity of the disease (and the level of uncertainty associated with the information). This will allow responders to prepare resources and strategies for <ul style="list-style-type: none"> - treatment; - managing staff; - allocating resources; and - communicating and coordinating with other responders and patients. • ensure responders are aware of information about the progress of the pandemic overseas. This will allow them to consider planning aspects related to scale and timing; • responders to ensure they understand their role, they are connected to communications networks and plans are finalised; and • build trust and confidence.

Action (Initial & Targeted)	<ul style="list-style-type: none"> • Build awareness across the health sector of the most up-to-date and accurate information about the disease, to support effective diagnosis and treatment, and better informed management decisions; • promote a consistent approach by ensuring all key parties have the same information, though recognising that disease spread may be variable across the country; • support best practice by disseminating guidance in key areas developed by expert bodies, such as CDNA/PHLN; • share effective strategies, avoiding the need for them to be developed separately by all parties; • input feedback on the effectiveness of treatment options, side effects and other clinical/ public health information into decision making processes to support refining the approach; • input feedback on how well the health care system is coping; and • maintain trust and confidence.
Standdown	<ul style="list-style-type: none"> • Continue to support awareness of the most up-to-date and accurate information about the disease, to support more effective diagnosis and treatment, and better informed management decisions; and • clarify arrangements for transitioning to normal business.

6.3.1 Challenges:

- Sharing information in a timely manner;
- ensuring people are getting access to the information they need;
- ensuring a consistent message across media and authorities;
- consistent messaging within a flexible response where the response strategies are at different stages across the country;
- communication of initial decisions even though information about the virus may be sparse and/or unreliable;
- communication of the uncertainty of what the impact of the pandemic will be;
- initial information may be based on the behaviour of the disease in another country and not 100% relevant to the Australian context; and
- making sense of feedback, consolidating this and incorporating it into messaging.

6.3.2 Australian Government and state and territory governments

The Australian Government and state and territory governments will share information, via existing channels, about:

- the situation overseas;
- advice from international bodies, such as the WHO;
- the status and impact of the pandemic in Australia;
- the epidemiology, severity and virology of the disease; the implementation and impact of measures to manage the response to the pandemic; and
- deployment of the NMS.

Communication between Australian Government agencies relevant to the response will be coordinated by the Department of Health. Communication between relevant state and territory government agencies will be coordinated by state and territory health departments.

Cross government linkages are also supported by representation on the NCC, which would be convened by the Australian Government in the event of an influenza pandemic.

Specific information on the status of the pandemic and key response documents will be posted on the Department of Health homepage (www.health.gov.au).

6.3.3 National Incident Room

The Department of Health's NIR provides a point of communication with the Australian Government for health incidents.

During the Standby, Initial Action, Targeted Action and Standdown stages the NIR will provide timely situation reports to relevant Australian Government agencies, state and territory health authorities and other relevant stakeholders.

6.3.4 Other key health stakeholders (healthcare workers, health and social service providers)

Healthcare workers and providers need access to timely, accurate and comprehensive clinical information and advice in order to effectively manage patients; implement pandemic control measures and minimise their own risk of exposure. Such advice will be provided by CDNA and other clinical groups as appropriate and endorsed by AHPPC.

National communication with healthcare workers will primarily be through existing channels via their relevant peak body. Peak body websites will be particularly important vehicles for disseminating information. Additionally, S/T HD will consolidate communication with healthcare workers and providers (both government and non-government, such as private hospitals) and include state and local level information via their own communication channels. Communication may either target clinical and/or administrative aspects of health services, according to the nature of the information to be delivered.

Coordination of pandemic plans occurs in the Preparedness stage and will continue throughout the Standby, Initial and Targeted Action and Standdown stages.

Pandemic planning support and advice is available for GPs and other primary health care providers in: *Managing Emergencies and Pandemics in General Practice: a guide for Preparation, Response and Recovery*. (www.racgp.org.au/your-practice/guidelines/flukit).

Information from health service providers to the Department of Health and S/T HD about the impact of the pandemic on their service capacity is essential to inform pandemic response decision making. These perceptions and experiences will be input into decision making processes via surveys, consultation with peak bodies and broader consultative forums.

6.3.5 Information materials to support responders

Attachment C contains two documents. The first is a template which can be used to support high level decision makers (such as AHPPC) in the development of consistent, comprehensive messages (for either responders or the public). It is based on the WHO description of best practice for communicating with the public during an outbreak.

The second is a table exploring methods of sharing information with stakeholders.

6.4 Public communications

Audience: This section considers communication by governments with the general public, businesses, the non-government sector, industry groups, and a range of other relevant stakeholders and audiences.

Purpose: To provide information to the public to inform their understanding of the risk, engage them effectively in public health measures and guide their own management of their exposure to risk.

As the key communication channels to the public are via television, radio, print, online and social media outlets, effective media engagement strategies will be required to ensure the key public messages are conveyed to the public.

Aims:

Preparedness	<ul style="list-style-type: none"> • Improve awareness of potential health/societal implications of pandemic influenza, and what this could mean for individuals, the community and economy; • influence attitudes, minimise misconceptions, encourage positive behaviours especially, in line with seasonal influenza (e.g. respiratory hygiene, vaccination for at-risk groups); and • shape expectations of a pandemic (including uncertainty at the beginning), what individuals can do to prepare themselves and their households and the government role.
Standby	<ul style="list-style-type: none"> • Empower individuals and build public confidence by keeping people informed of the current situation; what is being done to address it; and what individuals can do to minimise their risk and to prepare themselves for the potential societal impacts; • encourage behaviours and attitudes that will contribute positively to reducing the spread of disease and minimise the psychological, social and economic impacts including the need to assist others in the community; • shape public expectations of governments' response activities; and • provide information to inform decisions about travel.

Initial & Targeted Action	<ul style="list-style-type: none"> • Build and maintain public trust and support by providing consistent, clear, informative public messaging; • encourage behaviours and attitudes that will contribute positively to reducing the spread of disease and minimise the psychological, social and economic impacts including assisting others (neighbours, family, friends etc.); • manage the disease threat by increasing uptake of recommended actions; • build public confidence by keeping people informed of the current situation and what is being done to address the impact of the pandemic; and • empower individuals by increasing their understanding of the seriousness of the disease; knowledge of what to do to avoid/minimise exposure; ability to recognise symptoms and knowledge of what to do if symptoms present. • ensure individuals, communities and specific stakeholders understand the reasons why interventions might be modified and tailored to best meet the needs of the situation and/or specific population groups; • support essential services; and • provide information to at-risk groups.
Standdown	<ul style="list-style-type: none"> • Support transition to business as usual services; and • shape expectations of services and circumstances, such as the possibility of further outbreaks and the continuity into the following two to three years of seasonal influenza.

6.4.1 Challenges

- Public concern may be high;
- experience of the 2009 milder pandemic may lead to apathy in some;
- scientific knowledge will be limited at the beginning of the pandemic, uncertainty will be high;
- early decisions concerning measures may rely in part on planning assumptions;
- communication of planning assumptions may be seen as a prediction of what will happen;
- balancing early release of public messages with accuracy of information;
- balancing public release of information with privacy/confidentiality for those involved;
- accurate communication of risk in a situation of uncertainty that is rapidly changing;
- consistent messaging within a flexible response where the response strategies are at different stages across the country;
- coordination and consistency of messaging where there are multiple spokespeople;
- ensuring two-way communication;
- meeting media requests in time to meet the needs of 24 hour news media; and
- media outlets are commercial agencies and their prime purpose is not necessarily to provide consistent public health information.

Public communication provides an opportunity both to address any public concern caused by the pandemic and to engage the public in strategies to manage the impact of the disease. The dissemination of up to date, consistent and accurate information about the status of the disease overseas and in Australia can help people understand the real risk and make more informed decisions about work and travel, taking up health recommendations and planning for people in at-risk groups. Information about the implementation of activities and arrangements can build public confidence in the capacity of health services to manage the response.

Providing the public with information about the nature of the disease can empower individuals to take steps to reduce the risk to themselves and their families. This will both alleviate concern and lead to more appropriate use of recommended measures. Increasing rapid presentation of appropriate cases to a medical practitioner will lead to reduced morbidity and mortality. Reducing presentation of the 'worried well' will decrease the burden on health systems. Information gathered from the public about concerns, issues with measures and information gaps is also important to inform decision making.

To take steps to manage their risk during an influenza pandemic people will need to:

- understand the seriousness of the disease;
- know what to do to avoid/minimise exposure;
- recognise symptoms; and
- know what to do if symptoms present.

6.4.2 Coordination: Developing a consistent message

A wide range of information will be available to the public should a pandemic occur. The Australian Government and State and Territory Governments will have to position themselves as authoritative sources from very early on in the pandemic. Enlisting the cooperation of key spokespeople in the non-government sector (e.g. university academics, the Australian Medical Association) will be important for building confidence in the response strategies.

A number of coordination mechanisms have been put in place to ensure consistency of public messaging. Guidelines and processes for the coordination of public information representing broad whole of government issues are outlined in the National CD Plan.

Key health sector pandemic messages and advice regarding requirements for changes of communication strategies to reflect the progress of the pandemic will primarily be determined by AHPPC. AHPPC will develop these messages using recommendations from CDNA, PHLN and other advisory bodies.

The dissemination of these messages and adaptation for specific audiences will be coordinated by NHEMRN. NHEMRN is made up of representatives of all Department of Health and S/T HD Media Units; relevant Australian Government agencies, national medical colleges and associations, the National Aboriginal Community Controlled Health Organisation (NACCHO) and select parts of the private sector directly involved in emergency health management. It is coordinated by the Media Unit of the Department of Health. Its role is to keep the public and the media informed during national health emergencies by providing consistent and coordinated media and public responses.

Communication regarding issues outside the health sector, such as school closures, will be managed by the NCC, as discussed in the Governance Chapter.

During a pandemic NHEMRN will:

- meet by teleconference daily to discuss public communication issues, including the approval of advertising and information materials;
- share information on media announcements, media releases and information sources;
- provide updates on current cases and deaths during the early stages of the pandemic;
- place current data within the context of seasonal influenza levels; and
- share information obtained from counterparts overseas, such as the WHO Communications Team and the United States of America's Centers for Disease Control and Prevention.

Messaging and strategies agreed at NHEMRN teleconferences will feed into the media communications that occur at state/territory level. The Media Unit within the NIR will be a further contact point for coordination with states and territories. Coordination of public communications within jurisdictions will be in accordance with jurisdictional arrangements.

Media communication regarding the Australian Government activities related to management of the pandemic will be coordinated by the Department of Health Media Unit, which will work with relevant Australian Government agencies to ensure a consistent, whole of government message.

6.4.3 Media engagement strategies

The media will be the main source of information for the public during a pandemic. Building strong relationships with media contacts is essential to foster positive representation of response efforts and accurate relay of public health messages.

Media contacts will be notified early in the pandemic of a 1800 media enquiry phone number managed by the NIR Media Unit, which will be available 24 hours a day, seven days a week. A shared email address will be established for quick response to media enquiries.

Key media engagement strategies that will be used in the various stages of the pandemic may include:

- during the **P**reparedness stage, consult with a representative media group to:
 - review the Australian Government Communications Strategy;
 - discuss media requirements;
 - negotiate and agree on availability of information during a health emergency such as daily updates at a specified time on cases and deaths; timing of regular press conferences; access to spokespeople; availability of web streaming, Twitter, Facebook, YouTube and web notifications; and
 - agree on arrangements for out of hours contact of key journalists.
- during standby stage review Media Unit staffing requirements and preparation of and agreement on likely key messages for media use;
- during the Initial Action and Targeted Action stages:
 - regularly update the Department of Health homepage (www.health.gov.au) with situational information, important health messages, updates of case numbers and deaths, media alerts, media releases, transcripts of media interviews, streaming of commercials, print resources, communications materials, questions and answers, information on relevant social media links etc.;
 - use the Department of Health's existing social media accounts (Facebook, Twitter and YouTube) to provide up to date notifications on health emergency media opportunities and pandemic information;

- make available appropriate spokespeople for media interview;
 - develop and disseminate via the Internet pre-recorded broadcast quality radio and TV grabs using existing media release audio mailbox; and
 - apply similar strategies within S/T HD.
- during stand down, provide advice to the media of the transition to normal media engagement arrangements.

To promote presentation of a consistent message between government statements and media commentary, information will be made available regularly to the media from government sources both at regular predictable intervals and upon request. Information tailored to key audiences will also be produced where priority needs are identified.

6.4.4 Spokespeople

A range of spokespeople will be available during the response to the pandemic, including all Health Ministers, the Chief Medical Officer, Chief Health Officers, media unit representatives and spokespeople identified at the local level.

The relevant spokesperson will depend on the stage of the pandemic and the aim of communications. When the focus of the message is related to events and activities in a specific jurisdiction, the spokesperson will be determined by that state/territory. When content is confined to Australian Government activities, the spokesperson will be identified by the NIR Media Unit. Where key groups are to be targeted, peak and representational bodies will be consulted, for example, NACCHO will assist in nominating appropriate spokespeople for Aboriginal and Torres Strait Islander communities.

Under the AGCMF, the Prime Minister may assume primary responsibility for leading the Government's response, including acting as primary Government spokesperson. Under these circumstances, the Prime Minister is also likely to consult with the leaders of affected states and territories to ensure a coordinated national response.

6.4.5 Ensuring two way communication

It is essential that public awareness and attitudes be monitored to inform refinement of public messaging. This is critical to achieving the right balance between motivating risk-mitigating behaviours by raising public awareness of potential risks, and reassurance that the situation is under control. It may be that different groups within the community are at opposite ends of this spectrum, and messages may then have to be targeted appropriately to manage this. Listening to the public also helps to identify community concerns, information gaps and misconceptions or misinformation, which can then be addressed within public communications. Communication with at-risk groups, such as Aboriginal and Torres Strait Islander or aged care communities, is particularly important to tailor measures to the needs of people with greater vulnerability.

Methods to gauge public awareness and attitudes that may be used include:

- market research during Preparedness and standby stages on knowledge and attitudes to a pandemic threat;
- comprehensive market research undertaken by the Department of Health at the outset and throughout the pandemic;
- feedback from peak bodies via usual communication channels in Preparedness and standby stages, such as the GP Roundtable, Clinical Stakeholders Forum, Aged Care providers' peak bodies, Primary Health Networks and NACCHO;
- monitoring of media sites by Media Units in NIR and S/T HD;
- monitoring of social media, including large, open social media sites;
- use of social media or an interactive health emergency website where members of the public can share content, comment and ask questions which will be answered online, based on an agreed "question and answer" formula; and
- feedback from a wide range of stakeholders regarding the impact and effectiveness of the pandemic response measures that have been undertaken obtained by the Department of Health and S/T HD.

6.4.6 Other communication methods

Information tailored to key audiences will be produced where priority needs are identified. Dissemination of this information will also be tailored to the specific audience, e.g. use of specialised Aboriginal and Torres Strait Islander media outlets to communicate key messages targeting people in remote Aboriginal and Torres Strait Islander communities.

Paid advertising may be used, particularly if there is a need to rapidly mobilise the community, such as for pandemic vaccination.

Print resources which can be distributed directly to stakeholders who interact with the public will also be used widely, including information for patients from HCWs; information for families distributed via schools; information for travellers made available at travel agencies and airports; information distributed through organisations associated with mass travel for specific purposes such as international sporting events and religious gatherings etc. Printed and electronic information may also be displayed at targeted places such as GP clinics, travel agencies and airports. Materials can also be made readily available for responders and the public at a centralised web location e.g. Australian Government and S/T HD websites.

Social media messages can be used to deliver key messages (e.g. disease information, behaviours to be promoted, situation changes) in a timely manner to responders and the public. Social media messages can be updated on a regular basis to ensure currency of information. The use of existing social media trending tags may be considered to maximise the reach of social media messages.

The Department of Health and the Australian Government Department of Foreign Affairs and Trade will work together to provide information for Australians considering overseas travel and for Australians overseas when considering whether to return home.

HCWs play an important role in explaining and reassuring their clients about the pandemic. Information provided to HCWs will include key messages for the public as well as provide greater detail about the rationale behind pandemic decisions to enable HCWs to appropriately counsel their clients.

6.4.7 Supporting at-risk groups

Communication will also be tailored to meet the needs ranging across our community, particularly those with a higher risk of complications from the disease. Support for mental health needs of vulnerable individuals and the community as a whole will also be considered. As important as tailoring of messages will be careful selection of channels of communication to ensure that messages are reaching as many groups across the population as possible. Engaging and supporting community leaders in relevant target groups will be a key strategy to promote implementation of desired practices and involvement in public health measures.

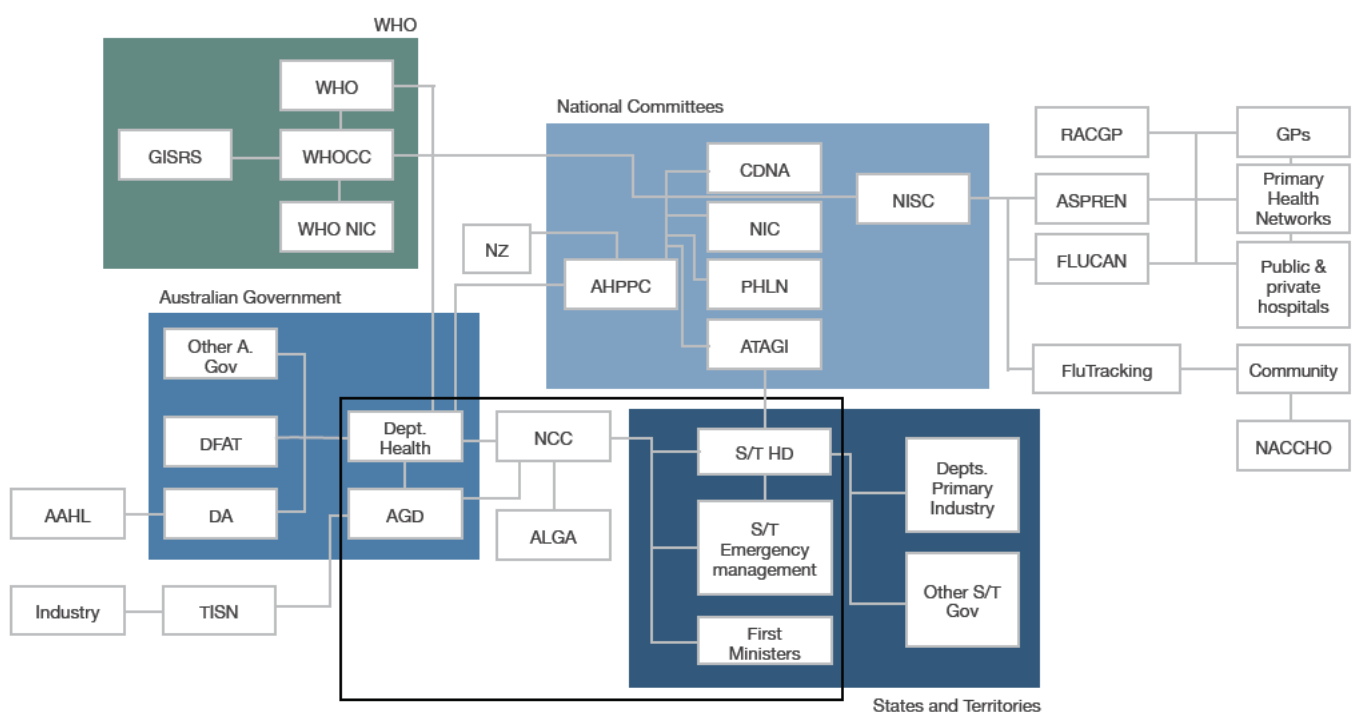
In the aged care sector the Department of Health will work closely with aged care providers. Aboriginal Medical Services and other services for Aboriginal and Torres Strait Islander peoples will support the needs of this vulnerable group. An Aboriginal and Torres Strait Islander clinical advisory group will be brought together and used to support communications to the Aboriginal and Torres Strait Islander community and to provide an avenue for feedback to inform decision making processes. The need for provision of advice in other languages, at the border, and domestically will also be considered. As infants are also likely to be a high risk group and a vector of disease, coordination with child care facilities is also important. Community outreach services, such as non-government organisations and churches will be used to support communication with vulnerable people who may not have access to mainstream health services.

6.4.8 Public Information Materials

The table at Attachment C gives detail on the information that will be provided to key stakeholders in the implementation of a pandemic response. The specific materials during the pandemic may vary, however all issues in the table will be covered.

The diagram below outlines the key communications channels used during pandemic preparedness and response activities.

Figure 7: Pandemic Preparedness and Response Communication Channels.



Pandemic Preparedness and Response Communication Channels Glossary

AAHL	Australian Animal Health Laboratory
AGD	Attorney General's Department
AHPPC	Australian Health Protection Principal Committee
ALGA	Australian Local Government Association
ASPEN	Australian Sentinel Practice Research Network
ATAGI	Australian Technical Advisory Group on Immunisation
CDNA	Communicable Diseases Network Australia
DA	Department of Agriculture
Dept. Health	Australian Government Department of Health
Depts. Primary Industry	State and territory departments of primary industry
DFAT	Department of Foreign Affairs and Trade
FLUCAN	The Influenza Complications Alert Network
FluTracking	FluTracking is an online health surveillance system to detect epidemics of influenza.
GISRS	Global Influenza Surveillance and Response System
GPs	General Practitioners
NACCHO	National Aboriginal Community Controlled Health Organisation
NCC	National Crisis Committee
NIC	National Immunisation Committee
NISC	National Influenza Surveillance Committee
NZ	New Zealand
Other A. Gov	Other Australian Government departments
PHLN	Public Health Laboratories Network
RACGP	Royal Australian College of General Practitioners
S/T	States and territories
S/T HD	State and territory health departments
TISN	Trusted Information Sharing Network

WHO	World Health Organization
WHO NIC	World Health Organization National Influenza Centres
WHOCC	World Health Organization Collaborating Centre

PART 2

Operational Plan

This Operational Plan provides additional detail to support the implementation of activities under the AHMPPI at an operational level. It relates particularly to the Implementation Chapter of the main body of the AHMPPI, in which an overview of the approach and priorities within each of the AHMPPI stages is provided. Information on the bodies responsible for undertaking these tasks is outlined in the Governance Table at Attachment I.

It can be used by planners prior to or during a pandemic as an operational checklist of activities.

Across all activities the **Strategic Objectives** will be to:

- Minimise transmissibility, morbidity and mortality;
- Minimise the burden on/ support health systems; and
- Inform, engage and empower the public.

Preparedness activities

Preparedness activities are conducted continuously, as part of business as usual operations, until there is a need to respond to a pandemic.

Preparedness activities will focus on:

- establishing pre-agreed arrangements by developing and maintaining **plans**;
- **researching** pandemic specific influenza management strategies;
- **ensuring resources are available** and ready for rapid response; and
- **monitoring the emergence** of diseases with pandemic potential, and **investigating** outbreaks if they occur.

The following **Preparedness** measures could be considered for implementation:

Planning

Influenza specific plans	<ul style="list-style-type: none"> • Develop and maintain (including exercising) a whole of government (WoG) plan; • develop and maintain a national health sector plan; • develop and maintain jurisdictional plans; and • develop and maintain a national surveillance plan for pandemic influenza.
Broader planning	<ul style="list-style-type: none"> • Ensure influenza pandemic arrangements can be incorporated into wider emergency plans and arrangements; and • incorporate planning for an influenza pandemic into overall business continuity plans.

Research

Pre-pandemic	<ul style="list-style-type: none"> • Commission and share research, including modelling, on the impact and effectiveness of public health measures which could be used to manage an influenza pandemic; • consider the effectiveness of antiviral drugs and candidate vaccines; and • commission and share research, such as population serosurveys to define susceptibility; improved diagnostic assays (such as point-of-care (POC) testing), markers of viral virulence and transmissibility, and better understanding of immune responses, particularly in relation to vaccines.
During a pandemic	<ul style="list-style-type: none"> • Develop a process for rapid, directed research funding, which can be used during a pandemic.

Ensuring resources are available and ready for rapid response

Resources (stockpile)	<ul style="list-style-type: none"> • Establish and maintain the NMS; • develop jurisdictional NMS distribution plans; • maintain awareness of current stockpile levels; and • regularly review deployment arrangements.
	<ul style="list-style-type: none"> • Implement measures to support strong supply chains; • maintain awareness of evidence of antiviral/ antibiotic resistance; and • determine state and territory delivery sites.
Resources (HR)	<ul style="list-style-type: none"> • Consider arrangements to ensure maintenance of human resource availability, particularly in highly skilled areas, such as ICU nursing.
Clinical care & Public health management	<ul style="list-style-type: none"> • Undertake seasonal influenza arrangements; • build the capacity in RACFs to manage outbreaks of influenza; and • sustain International Health Regulations (IHR) core capacities, including the National Focal Point (NFP).
Vaccination	<ul style="list-style-type: none"> • Implementation of seasonal influenza immunisation programs; • make arrangements with vaccine manufacturers to guarantee customised pandemic vaccine supply; • develop pandemic vaccine program delivery strategy; • develop communication strategies and resources for pandemic influenza immunisation; • assess immunogenicity and cross protection of candidate pandemic vaccines; and • purchase and store vaccination equipment (needles and syringes).
Infection control	<ul style="list-style-type: none"> • Establish and maintain infection control guidelines for healthcare, point of entry and aircraft/sea vessel environments; and • ensure the national system for monitoring adverse events following immunisation (AEFI) could rapidly incorporate monitoring of the pandemic vaccine.

Identification (see Surveillance Plan for more detail)

Routine Surveillance monitoring	<ul style="list-style-type: none"> • Establish and maintain systems to collect influenza surveillance data; • regularly monitor international data; • undertake routine domestic surveillance; and • liaise with animal surveillance sector.
Investigating outbreaks of diseases with pandemic potential	<p>If an outbreak occurs:</p> <ul style="list-style-type: none"> • collate epidemiological, clinical severity and virological data on the outbreak from international sources; • monitor for the emergence of the disease in Australia; • develop case definitions; and • identify at-risk groups.
Laboratory Capacity	<ul style="list-style-type: none"> • Establish and maintain laboratory testing capacity/capability; and • (if an outbreak occurs) develop and validate tests, establish quality assurance.

Communications (see Communications Chapter for more detail)

Sharing information between responders	<ul style="list-style-type: none"> • Establish and maintain health sector communications processes; • establish and maintain the NIR; • (jurisdictions) communicate public health events of national significance to the NFP; • share information broadly amongst the health sector on the emergence of influenza viruses with the pandemic potential; and • liaise with international counterparts.
Public Communications	<ul style="list-style-type: none"> • Provide advice to support management of seasonal influenza; • provide the media with information regarding the government approach to emerging influenza viruses; • make spokespeople available; and • respond to media requests.

(Communication measures related directly to infection control and border are included in those sections.)

Border activities

Arrangements	<ul style="list-style-type: none"> • Establish arrangements to provide pandemic border control and relevant health services by Australian Government border agencies and jurisdictional health departments; and • appoint biosecurity officials and human biosecurity officers to implement arrangements; and • develop and provide training and standard operating procedures for border workers to effectively implement border measures.
Communications	<ul style="list-style-type: none"> • develop communication materials appropriate for use at the border and directly with travellers.

Governance

AHPPC	<ul style="list-style-type: none"> • Establish governance arrangements for pandemic influenza and ensure they are consistent with broader emergency arrangements.
Legislation	<ul style="list-style-type: none"> • Prepare and action any legislative instruments required to support actions.

Standby Stage

Triggers for moving from **Preparedness** to **Standby** include:

- advice received under Surveillance Plan activities of an outbreak overseas of sustained community transmission of a novel virus; or
- a warning of a potential influenza pandemic received from WHO; or
- indications received from a jurisdiction that they may seek assistance under the AHMPPI to manage severe seasonal influenza; or
- an indication from CDNA of a trend in seasonal influenza which may overwhelm state and territory health systems.

Standby activities will focus on:

- **preparing** to commence **enhanced arrangements**;
- **identifying** and characterising the nature of the disease (commenced in **Preparedness**);
- communications measures to **raise awareness** and **confirm governance** arrangements; and
- **border** activities.

In the Standby stage, the following measures could be considered for implementation:

Preparing to commence enhanced arrangements

Resources (stockpile)	<ul style="list-style-type: none"> • check the status of the NMS, jurisdictional stockpiles and other equipment (antivirals, antibiotics, PPE); • raise awareness of protocols for access to stockpiles during pandemic; • contact warehouses and transport companies to ensure readiness; • Australian Government and state and territory governments to liaise concerning stockpiles; • assess pre-deployment across states and territories and move stock from the NMS as appropriate; • confirm state and territory delivery sites related to NMS deployment; and • pre-deploy PPE to Border Agencies (if undertaking border measures; responsibility of the border agency).
Resources (HR)	<ul style="list-style-type: none"> • Consider human resource availability, particularly in highly skilled areas, such as ICU nursing;

Clinical care & Public health management	<ul style="list-style-type: none"> • Prepare arrangements for triaging in primary care; • prepare arrangements for cohorting of patients; • prepare arrangements for reducing in non-urgent work—primary and secondary care; • prepare arrangements for providing additional support to at-risk groups; • raise awareness of potential at-risk groups; • prepare contingency support for home based care; • hospitals <ul style="list-style-type: none"> - prepare to review elective procedures; - prepare for surge capacity in ICU beds/respiratory care beds; • prepare pre-hospital emergency care (ambulance and other medical transport); • prepare and raise awareness of pandemic protocols in RACFs; • emergency departments prepare for increased demand.
Vaccination	<ul style="list-style-type: none"> • Seek advice on appropriateness of candidate vaccine (if held) to current strain; • if appropriate, pre-deploy vaccine and available vaccination equipment; • consider commencing candidate vaccination. • examine existing Deeds for customised pandemic vaccine supply and consider activating; • determine priority groups for vaccination; • liaise with suppliers to ensure readiness to commence manufacture; • assess need to pre-deploy vaccination equipment (needles and syringes); and • refine pandemic vaccine program delivery strategy.
Infection control	<ul style="list-style-type: none"> • Provide advice on: <ul style="list-style-type: none"> - respiratory hygiene and hand-washing; - how to find out more information; and - hotline details (if any).

Identification

Surveillance (see Surveillance Plan for more detail)	<ul style="list-style-type: none"> • Continue to monitor international data; • undertake enhanced domestic surveillance; • activate case notification system; • review sustainability of surveillance systems; • prepare/ refine case definition as required; • prepare to conduct contact tracing; • confirm likely at-risk groups; • ensure readiness to commence First Few 100 study (FF100—see Surveillance plan for description); and • prepare additional studies (to be activated under established arrangements).
Laboratory Capacity (HR)	<ul style="list-style-type: none"> • Develop/ensure access to laboratory test capacity/capability.

Communications (see Communications Chapter for more detail)

Sharing information between responders	<ul style="list-style-type: none"> Initiate contact between key stakeholders <ul style="list-style-type: none"> share information on the status of disease spread; confirm expectations; and confirm communications and governance mechanisms. share information broadly amongst the health sector on the status of disease spread and the current response; bring together Aboriginal and Torres Strait Islander clinical advisory group to consider communications needs for this group; prepare social media materials, particularly mobile phone and tablet based apps; liaise with international counterparts; provide public health management guidance; provide clinical health management guidance (primary care and hospital based); and confirm application of standard infection control strategies.
Public Communications	<ul style="list-style-type: none"> Coordinate public messaging by convening the National Health Emergency Media Response Network (NHEMRN); coordinate WoG public messaging; provide information on the status of disease spread and the current response; provide information to Australians concerning travel to at-risk areas; and provide information to prepare at-risk groups. monitor feedback and refine communications to address issues and concerns identified; provide media with access to regular updates on the status of disease spread and the current response; provide access to background information; make spokespeople available; and respond to media requests.

Standby

(Communication measures related directly to infection control and border are included in those sections.)

Border activities

Communications	<ul style="list-style-type: none"> Distribute/display any disease specific communication materials at airports/seaports and through relevant channels (e.g. travel agents, travel doctors, tour companies, cruise lines); confirm distribution instructions; provide information to travellers through In-flight announcements; implement signage (such as crawlers on customs screens, electronic displays or banners/posters); and provide infection control guidance for points of entry and airlines/shipping lines.
Liaison	<ul style="list-style-type: none"> Negotiate with airports/seaports/border agencies for placement of signage and printed materials; and liaise with airline/airport & seaport/shipping industries to advise them of proposed border measures and enlist participation if required (e.g. assistance with distribution of materials, provision of announcements).

Governance

AHPPC	<ul style="list-style-type: none"> Consider enhanced border measures supported by advice from the Chief Medical Officer (as the DHB) and the CHBO forum; identify key communications messages to raise awareness and confirm governance arrangements; consider support for repatriation of Australians from overseas, if required; and consider powers available under the <i>Biosecurity Act 2015</i> to support the pandemic response.
Legislation	<ul style="list-style-type: none"> Prepare and action any legislative instruments required to support actions.

Initial Action Stage

There are a number of potential **triggers** for moving from **Standby** to **Initial Action** including:

- advice under Surveillance plan activities that the first case has been detected in Australia; or
- advice received under Surveillance Plan activities that there is sustained community transmission of a novel influenza virus which has emerged in Australia; or
- a declaration by WHO of an influenza pandemic; or
- a request for assistance with seasonal influenza from a jurisdiction.

Initial activities will focus on:

- preparing and supporting health system needs;**
- managing initial cases;**
- identifying** and characterising the nature of the disease within the Australian context;
- providing **information to support best practice health care** and to **empower the community and responders** to manage their own risk of exposure; and
- supporting effective **governance**.

In the Initial Action stage, the following measures could be considered for implementation:

Preparing and supporting initial Health System needs & managing initial cases

Resources (HR & stockpile)	<ul style="list-style-type: none"> Monitor health system capacity; health system to prepare surge staff; consider prioritisation of resources; maintain the NIR (staff, equipment, management systems); provide PPE, candidate pandemic vaccines and/or antiviral PrEP as appropriate (healthcare workers/ border workers); organise delivery to points of use (states and territories); deploy stockpile items from storage sites to State and Territory delivery sites ready for use; consider needs for additional support to health systems in remote communities; maintain essential health system activities.
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Vaccination	<ul style="list-style-type: none"> • Refine pandemic specific immunisation program; • once virus is isolated, activate contracts for customised pandemic vaccine manufacturing and purchasing; • register customised pandemic vaccine, when available; • identify vulnerable groups to ensure access is available as early as possible; • if available, commence candidate vaccination to target groups as per vaccine policy; • if candidate vaccine is provided, include in national surveillance system for monitoring adverse events; and • transfer available vaccination equipment from stockpile to states and territories, if appropriate.
Clinical care & public health management	<ul style="list-style-type: none"> • Provide antivirals for cases; • provide antivirals as prophylaxis to agreed target groups; • monitor and support needs of at-risk groups; • encourage voluntary isolation of people with Influenza-Like-Illnesses (ILI); • manage contacts; • support outbreak investigation and management in residential care facilities, schools, prisons and other institutions; • encourage advance planning directives of nursing home residents; • prepare to surge staffing levels; • consider strategies to reduce routine hospital demand; • develop and disseminate triage algorithm; and • develop cohort strategy.
Infection control	<ul style="list-style-type: none"> • Confirm with responders the application of standard infection control strategies (or provide alternate advice if appropriate); • provide advice to the public on respiratory hygiene and hand-washing.

Identification

Surveillance (see Surveillance Plan for more detail)	<ul style="list-style-type: none"> • Identify and describe the epidemiology, clinical severity and virology of the disease in Australia through enhanced surveillance of confirmed cases (including FF100—see Surveillance Plan for description). (This will be commenced in the Preparedness or standby stages and will focus here on entry of the disease into Australia and early Australian cases); • compare any information about the overall pandemic with seasonal influenza to inform appropriate interventions; • refine case definitions as needed; • confirm identification of at-risk groups; • analyse and report Australian data; and • maintain case notification system; activate academic studies using enhanced data to test assumptions; monitor sustainability of surveillance systems.
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Laboratory Capacity	<ul style="list-style-type: none"> • Isolate the virus (if not already undertaken); • undertake laboratory testing as required to monitor the pandemic and for individual patient care; • develop POC testing to enable timely diagnosis with early discharge, use of antivirals and appropriate cohorting of admitted patients; • implement testing protocols to support case management, surveillance needs and to preserve laboratory capacity; and • maintain laboratory capacity/capability to detect/test for novel virus.
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Communications (see Communications Chapter for more detail) Information should be provided as early as possible and acknowledge any associated uncertainty.

Sharing information between responders	<ul style="list-style-type: none"> • Provide public health management guidance; • provide clinical health management guidance (primary care and hospital based); • provide advice on antiviral use; • share information on the status of disease spread and the current response; • raise awareness of at-risk groups; • provide any information to WHO required under IHR reporting arrangements; and • liaise with other international counterparts.
Public Communications	<ul style="list-style-type: none"> • Coordinate public messaging by convening NHEMRN; • coordinate WoG messaging to provide information on the status of disease spread and the current response; • provide specific information for groups at-risk or with specific needs (e.g. CALD, aged care or Aboriginal and Torres Strait Islander peoples); • monitor feedback and refine communications to address issues and concerns identified; • provide media with access to daily updates on the status of disease spread and the current response; • provide access to background information; • make spokespeople available; • respond to media requests; • provide advice on: <ul style="list-style-type: none"> - respiratory hygiene and hand-washing; - mask wearing (if appropriate); - how to find out more information; and • hotline details (if any).

(Communication measures related directly to infection control and border are included in those sections.)

Border activities

Border measures	<ul style="list-style-type: none"> Implement enhanced border measures, such as enhanced entry screening, non-automatic pratique, preventative biosecurity measures.
Communications	<ul style="list-style-type: none"> Provide information to travellers through: <ul style="list-style-type: none"> in-flight announcements; communication materials (e.g. printed and electronic media) at the border; and social media. provide guidance for border workers on: <ul style="list-style-type: none"> the disease and personal risk; respiratory hygiene and hand-washing; appropriate use of PPE while assessing ill travellers; and where to find more information.
Traveller clearances	<ul style="list-style-type: none"> Maintain requirements for customs, immigration and biosecurity clearances (including for Australian Defence Force Personnel).

Governance

AHPPC	<ul style="list-style-type: none"> Coordinate allocation of national resources to support quality care and public health measures; consider widening prescription rights for nurses to include antiviral drugs and other key medications; consider changing scheduling of influenza antiviral drugs to facilitate widespread use according to national recommendations; consider whether any social distancing measures should be implemented and advise AGCC/NCC as appropriate; consider support for the repatriation of Australians from overseas, if required; manage requests for exit screening; and coordinate provision of Australian Medical Assistance Teams in response to requests for international assistance (if appropriate).
Whole of government	<ul style="list-style-type: none"> Convene the AGCC/NCC and other relevant expert committees as required; and Minister for Health assumes emergency powers under the <i>Biosecurity Act 2015</i>, if required to support pandemic response measures.
Legislation	<ul style="list-style-type: none"> Declare a human biosecurity emergency under the <i>Biosecurity Act 2015</i>, if required to support pandemic response measures (Governor General); and undertake any state based legislative processes required to support implementation of disease control measures.
International obligations	<ul style="list-style-type: none"> Meet IHR reporting requirements.

Targeted Action stage

The Targeted Action stage will commence when there is sufficient information collected during the Initial Measures stage to inform refinement of the pandemic response measures already implemented. Measures will be regularly reviewed as more information becomes available.

Targeted measures will focus on:

- supporting and maintaining **quality care**;
- ensuring a **proportionate response**;
- communications to **engage, empower and build confidence in the community**; and
- providing a **coordinated and consistent approach**.

Identification measures will move to collecting core data from established surveillance systems in order to detect any changes in the epidemiology of those getting sick, the clinical severity of the disease or characteristics of the virus. Jurisdictions will continue to collect enhanced data on up to 10 cases per week and for outbreaks in new settings.

Communication measures will continue to be important, following the same approach as outlined in the Initial Action section above. Key messages should continue to be reviewed regularly to ensure they reflect current information about the response, the disease itself and recommended management strategies (both for responders and the public) (see Communications Chapter of AHMPPI for more detail).

In the Targeted Action stage, the following measures could be considered for implementation:

Supporting and maintaining quality care

Resources (HR & stockpile)

- Monitor health system capacity;
- health services will implement surge staff arrangements as needed (and where possible);
- health services will prioritise services to best meet demand for acute care;
- S/T HD will undertake urgent assessment and coordination of available specialist equipment such as ECMO machines and ventilators (in collaboration with the private sector) based on pandemic predictions and geographic spread;
- retrieval services will implement pandemic and surge capacity plans;
- maintain the NIR (staff, equipment, management systems);
- provide PPE, candidate pandemic vaccines and/or antiviral PrEP as appropriate (healthcare workers/ Border workers);
- distribute stockpile items as agreed by AHPPC;
- provide additional support to health systems in remote communities as needed (and where possible).
- Tailor measures to the needs of remote communities (including remote Aboriginal and Torres Strait Islander communities)*. This may include arrangements for additional healthcare workers.

*Great distances will present difficulties for transport of resources, personnel, patients and communications. Some remote health care services will already be challenged by poor health hardware and high rates of overcrowding. The additional burden of even a mild pandemic will stress capacity. In combination with higher rates of chronic illness these factors predispose people in these areas to more severe outcomes from influenza. Cultural and environmental differences will influence the effectiveness of certain measures, such as home quarantine. This remoteness may however give greater opportunities for effectively managing transmission into the community.

Vaccination	<ul style="list-style-type: none"> • Fast-track assessment and approval of the customised pandemic vaccine; • implement pandemic specific immunisation program when customised vaccine is available; • monitor vaccine uptake; and • monitor AEFI to ensure early detection of any safety signals.
Clinical care & public health management	<ul style="list-style-type: none"> • Provide antivirals for cases; • provide antivirals as prophylaxis to agreed target groups; • encourage voluntary isolation of people with ILIs; • triage and cohort patients, as necessary; • manage contacts as agreed by AHPPC; • support outbreak investigation and management in residential care facilities, schools, prisons and other institutions; • consider using different strategies to treat mild cases where resources are overwhelmed; • new models of care may be instituted to manage influenza patients, for example: <ul style="list-style-type: none"> - innovative methods for contact tracing and supply of antivirals (call centres etc.); - home based care, which may require contingency community services support (potentially telephone support); - influenza clinics staffed predominantly by nurses via management protocols, with onsite or telephone medical support; and • adjustment of ICU staffing ratios and opening of new ICU beds.
Infection control	<ul style="list-style-type: none"> • Continue application of agreed infection control strategies appropriate to increasing knowledge of transmissibility; and • continue to provide advice to the public on respiratory hygiene and hand-washing.

Governance

AHPPC	<ul style="list-style-type: none"> • Services in each jurisdiction will provide information on their capacity to State and Territory Chief Health Officers (CHOs) to allow state level coordination. In turn, CHOs will report to AHPPC to enable national coordination and sharing/ allocation of resources where needed and where possible; • AHPPC members will work together to coordinate the availability of resources and to develop strategies for alternate sources where needed; • wherever possible, AHPPC members will work together to ensure all needs are met and a consistent approach and message is maintained; • discussion and negotiation through AHPPC will achieve coordination of measures and provide a vehicle through which jurisdictions can negotiate approaches and ensure that when different strategies are operating across jurisdictions they are still supportive of each other; • consider whether any social distancing measures should be implemented and advise AGCC/NCC as appropriate; and • consider support for the repatriation of Australians from overseas, if required.
WoG	<ul style="list-style-type: none"> • Make recommendations through WoG channels when implementation of measures outside the health sector should be considered, such as school or workplace closures.
International obligations	<ul style="list-style-type: none"> • Meet IHR reporting requirements.

Standdown stage

Individual activities will be regularly assessed and stood down when they no longer contribute to the AHMPPI's goals. The **trigger** for the AHMPPI as a whole to move into the Standdown stage will occur when advice from CDNA indicates that the pandemic has reached a level where it can be managed under seasonal influenza arrangements.

Standdown activities will focus on:

- supporting and maintaining **quality care**;
- **ceasing** activities that are no longer needed, and **transitioning** activities to seasonal or interim arrangements;
- monitoring for a **second wave** of the outbreak;
- monitoring for the development of antiviral resistance;
- communications activities to support the **return** from **pandemic to normal** business services; and
- **evaluating** systems and **revising** plans and procedures.

In the Standdown stage, the following measures could be considered for implementation:

Communications (see Communications Chapter for more detail)

Sharing information between responders	<ul style="list-style-type: none"> • Advise of the commencement of transition to seasonal arrangements and how this will be managed; • thank responders for their engagement in the response; • acknowledge the Recovery efforts that will be occurring; • provide information about the review process; and • (at the end of standdown) notify stakeholders of the transition to ongoing vigilance to ensure we are well placed to respond in future.
Public Communications	<ul style="list-style-type: none"> • Coordinate public messaging through NHEMRN; • notify the public that services will transition to normal arrangements and the reason for this; • provide specific information for groups at risk or with specific needs (e.g. CALD, aged care or Aboriginal and Torres Strait Islander peoples) about the transition of services; • thank the public for their engagement in the response; • provide information about the review process; • (at the end of standdown) notify of the transition to ongoing vigilance to ensure we are well placed to respond in future; • monitor feedback and refine communications to address issues and concerns identified; • provide the media with access to information regarding the change of the status of disease spread and the transition of the response; • make spokespeople available; and • respond to media requests.

Supporting and maintaining quality care

Resources (HR)	<ul style="list-style-type: none"> • Support any resources that are depleted, in order to meet remaining demand; and • implement interim arrangements if required.
Resources (stockpile)	<ul style="list-style-type: none"> • Assess the status of stockpiles and equipment (antivirals, antibiotics, PPE); • review processes; • replenish stocks as appropriate; and • update plans/protocols in line with lessons observed.
Clinical care & public health management	<ul style="list-style-type: none"> • Implement interim arrangements if required; • transition triage and cohorting systems; • resume elective procedures (hospitals); • resume non-urgent work (primary and secondary care); • review processes; and • update plans/protocols in line with lessons observed.
Vaccination	<ul style="list-style-type: none"> • Transition pandemic vaccination program (this may continue past Standdown); • terminate supply contracts; • review processes; • update plans/protocols in line with lessons observed; • replace vaccination equipment in stockpile if appropriate; and • cease active surveillance of AEFI for the pandemic influenza vaccine.
Legislation	<ul style="list-style-type: none"> • Prepare and action any legislative instruments required to return legislative powers to normal.

Identification

Surveillance (see Surveillance Plan for more detail)	<ul style="list-style-type: none"> • Monitor for a second wave or change in the virus; • continue academic studies and analysis of data from both enhanced and routine surveillance systems as necessary; • review processes; and • update Surveillance Plan in line with lessons observed.
Laboratory capacity	<ul style="list-style-type: none"> • Monitor for a second wave or change in the virus; • review processes; and • update plans/protocols in line with lessons observed.

Border activities

Border measures	<ul style="list-style-type: none"> Stand down enhanced border measures and return to business as usual arrangements.
Communications	<ul style="list-style-type: none"> Update in-flight announcements to reflect transition; implement signage (such as crawlers on customs screens or posters) explaining transition; update social media messages for travellers (if used); review any disease specific communication materials; review processes; and update plans/protocols in line with lessons observed.
Liaison	<ul style="list-style-type: none"> Advise airline/airport, seaport/shipping industries and border agencies of transition to normal business arrangements.

Governance

AHPPC	<ul style="list-style-type: none"> Services in each jurisdiction will provide information on their capacity to State and Territory Government CHOs to allow state level coordination. In turn, CHOs will report to AHPPC to enable national coordination and sharing/allocation of resources where needed and where possible; coordinate the availability of resources and to develop strategies for alternate sources where specific areas are depleted; ensure a consistent message is maintained; coordinate the transition to standdown, as this may differ among jurisdictions; and direct and participate in review processes. consider updated plans/protocols.
WoG	<ul style="list-style-type: none"> Make recommendations through WoG channels where implementation of measures outside the health sector should be stood down, such as school or workplace closures and enhanced border measures; and participate in WoG review processes.
International obligations	<ul style="list-style-type: none"> Meet IHR reporting requirements.

PART 3

Support Documents

Attachment A. Glossary

AAHL	Australian Animal Health Laboratory
Access Block	Refers to the percentage of patients who were admitted or planned for admission but discharged from the ED without reaching an inpatient bed, transferred to another hospital for admission, or died in the ED whose total ED time exceeded 8 hours, as per the ACEM P02 Policy on Standard Terminology.
ACCHS	Aboriginal Community Controlled Health Services. ACCHSs operate in the metropolitan, regional, rural and remote areas of all states and territories in Australia. ACCHSs are controlled by, and accountable to, Aboriginal people in those areas in which they operate. ACCHSs aim to deliver holistic, comprehensive and culturally appropriate health care to the community that controls it.
ACEM	Australasian College for Emergency Medicine
ACIPC	Australasian College for Infection Prevention and Control
ACSQHC	Australian Commission on Safety and Quality in Healthcare
Acute Care	Health services (usually hospitals) that provide care or treatment of people with short-term serious injury or illness. Medical conditions requiring acute care are typically periodic or temporary in nature, rather than long term.
AGCC	Australian Government Crisis Committee
AGCMF	Australian Government Crisis Management Framework
Aged Care Peak Bodies	Associations of groups or industries that advocate for and provide quality support, services, representation and policy development in the aged care sector.
AGD	Attorney General's Department
AHMPPI	Australian Health Management Plan for Pandemic Influenza
AHPPC	Australian Health Protection Principal Committee
AHMAC	Australian Health Ministers Advisory Council
ALGA	Australian Local Government Association
AMA	Australian Medical Association

Animal Health Australia (AHA)	AHA is a not-for profit public company established by the Australian Government, state and territory governments and major national livestock industry organisations. AHA manages national programs on behalf of members: the Australian Government, state and territory governments, peak national councils of Australia's livestock industries and service providers. These programs improve animal and human health, biosecurity, market access, livestock welfare, productivity, and food safety and quality.
ANZICS	Australian and New Zealand Intensive Care Society
APSU	Australian Paediatric Surveillance Unit
ARDS	Acute respiratory distress syndrome
ASPREN	Australian Sentinel Practices Research Network. The ASPREN currently has sentinel GPs who report ILI presentation rates in NSW, NT, SA, ACT, VIC, QLD, TAS and WA.
At-Risk groups	Groups at increased risk of experiencing complications from influenza infection.
ATAGI	Australian Technical Advisory Group on Immunisation
AUSMAT	Australian Medical Assistance Teams
Australian Government	The Federal Government of Australia
AV	Antiviral
BDMs	Births, Deaths and Marriages
CALD	Culturally and linguistically diverse communities
Candidate vaccine	A vaccine based on a strain of influenza virus considered to have pandemic potential. This vaccine may provide partial protection if it develops into a pandemic strain that is easily transmissible between humans.
CAR	Clinical Case Attack Rate
Case definition	A set of uniform criteria used to define a disease for public health surveillance (US CDC).
CDNA	Communicable Diseases Network Australia
CDPLAN	Emergency Response Plan for Communicable Disease Incidents of National Significance
CHBO	Chief Human Biosecurity Officer
CHC	COAG Health Council
CHO	Chief Health Officer
CMO	Chief Medical Officer of Australia
COAG	Council of Australian Governments

COMDISPLAN	Commonwealth Government Disaster Response Plan
Commonwealth	The governments of Australia—Australian Government and state and territory governments collectively
Comms	communications
Community transmission	Community transmission is the passing of a disease from an infected individual to another individual outside of a known group of contacts, and outside health care settings.
Contact tracing	The process of identifying and managing people who have been ‘in contact’ with someone who has an infectious illness.
Cough and sneeze etiquette	Measures individuals can take when we cough, sneeze or blow our nose, to reduce the change of spreading the virus. This is sometimes referred to as respiratory hygiene.
CPD	Continuing Professional Development
CS	clinical severity
CSF	Clinical Stakeholders Forum
Customised pandemic vaccine	A vaccine based on the actual pandemic virus, which cannot be developed until the next pandemic virus emerges.
Department of Health / Dept. Health	Australian Government Department of Health
Depts. Primary Industry	State and territory departments of primary industry
DFAT	Department of Foreign Affairs and Trade
DHB	Director of Human Biosecurity (Australia’s Chief Medical Officer)
DSM	Decision Support Map
ECDC	European Centre for Disease Prevention and Control
ECMO	Extracorporeal membrane oxygenation
ED	Emergency department
Epidemic	An outbreak or unusually high occurrence of a disease or illness in a population or area
EpiLOG	Data matching software used by Queensland to match hospitalisations and notifications.
FF100	Data matching software used by Queensland to match hospitalisations and notifications.

First Ministers	The Prime Minister of Australia, premiers of the states and Chief Ministers of the territories
Flu clinic	Flu clinics are specially planned facilities that will be set up during a pandemic for safe medical assessment and management of people with suspected pandemic influenza.
FluCAN	<p>The Influenza Complications Alert Network (FluCAN) sentinel hospital system monitors influenza hospitalisations. There is at least one hospital in each jurisdiction that participates in this network.</p> <p>Influenza counts are based on active surveillance at each site for admissions with PCR-confirmed influenza in adults. Some adjustments may be made in previous periods as test results become available. ICU status is as determined at the time of admission and does not include patients subsequently transferred to ICU.</p>
FluTracking	<p>FluTracking is a project of the University of Newcastle, the Hunter New England Area Health Service and the Hunter Medical Research Institute. FluTracking is an online health surveillance system to detect epidemics of influenza. It involves participants from around Australia completing a simple online weekly survey, which collects data on the rate of ILI symptoms in communities.</p> <p>Further information on FluTracking is available at www.flutracking.net/index.html.</p>
GISRS	Global Influenza Surveillance and Response System
GP	General Practitioners
GPRT	General Practice Roundtable
HCAI	Health care associated infection
HCP	Health Care Professional
HCW	Health Care Worker (Defined as doctors, nurses, paramedics and other front line medical personnel)
HDC	Health declaration cards
Health sector	The health sector is government departments responsible for health, the public and private health system, in addition to the private and public health system, and health professionals.
High Risk groups	Groups at increased risk of experiencing complications from influenza.
hosp	Private and public hospitals
HR	Human resources
IAR	Infection attack rate
ICAO	International Civil Aviation Organization
ICU	Intensive Care Unit
IHR	International Health Regulations 2005
ILI	Influenza Like Illness

Infectious	Capable of spreading disease or a disease that is capable of spreading (also known as communicable).
lab	Laboratories
LCD	Laboratory case definition
LHD	Listed human disease. A disease which the DHB considers may be communicable and cause significant harm to health. LHDs are determined in the <i>Biosecurity (Listed Human Diseases) Determination 2016</i> , enabling a range of powers and measures to become available to manage the risk under the <i>Biosecurity Act 2015</i> .
Meas.	Measures
MO	Minister's Office
Morbidity	State of disease. The term morbidity rate refers to the numbers of cases of illness in a population divided by the total population considered at risk of that illness.
Mortality	Death—mortality rate is the measure of the number of dead (in general, or due to a specific cause) in a population scaled to the size of that population, per unit time.
MTAA	Medical Technology Association of Australia
NA	Neuraminidase
NACCHO	National Aboriginal Community Controlled Health Organisations
NAI	Neuraminidase inhibitors (antivirals such as oseltamivir and zanamivir)
National	The Australian Government, and State and Territory governments
National CD Plan	Emergency Response Plan for Communicable Disease Incidents of National Significance: National Arrangements
NCC	National Crisis Committee
Negative pratique	Aircraft commanders must report the health status of passengers on board before landing, rather than the normal reporting by exception
NetEpi	Open source software designed to assist with epidemiological investigations, analyses, and other aspects of public health practice.
NFP	The area or areas within the Department of Health, designated under the Act, as the IHR National Focal Point to liaise with and facilitate actions by national and international bodies to prevent, protect against, control and respond to a Public Health Event of National Significance or a Public Health Emergency of International Concern.
NHCCN	National Health Call Centre Network
NHEMRN	National Health Emergency Response Network
NHEMS	National Health Emergency Management Standing Committee

NHMRC	National Health and Medical Research Council
NHS Act	<i>National Health Security Act 2007</i>
NIC	National Immunisation Committee
NICs	National Influenza Centres
NIP	National Immunisation Program
NIR	Department of Health National Incident Room
NISC	National Influenza Surveillance Committee
NMS	Australia's National Medical Stockpile
NNDSS	National Notifiable Diseases Surveillance System
NSC	National Security Committee of Cabinet
NZ	New Zealand
Other A. Gov	Other Australian Government departments
P2 Mask	A P2 mask (P2 respirator) is a device specifically designed to provide protection to the wearer's respiratory tract from small infectious particles. A P2 mask is a particulate filter, personal respiratory protection device which, when tested against AS/NZS 1716:2003, does not show penetration of particles with a mass median diameter of 0.3 micro meters, of more than 6%.
PAEDS	Paediatric Active Enhanced Disease Surveillance
Pandemic	An epidemic on a global scale. Only Type A influenza viruses have been known to cause influenza pandemics.
PCR	Polymerase Chain Reaction
PEP	Post Exposure Prophylaxis
PHIL	Public Health Information Line
PHLN	Public Health Laboratory Network
PHN	Primary Health Networks
PHU	Public Health Unit
PLC	Passenger locator cards
PLFs	Passenger locator forms
POC testing	Point of Care testing
Point of care	The place where three elements come together: the patient, the HCW, and care or treatment involving contact with the patient or his/her surroundings (WHO Guidelines on hygiene in healthcare)

Post-exposure prophylaxis	A dose or doses of a drug (usually antibiotic or antiviral) given immediately after exposure to a disease (such as influenza), but before onset of illness.
PPE	Personal Protective Equipment (gowns, gloves, masks)
Pre-exposure prophylaxis (PrEP)	A dose or doses of a drug (usually antibiotic or antiviral) given before exposure to a disease, to protect the person from being infected.
Primary care	Health services providing initial care of a patient before they are referred to transferred elsewhere. General practice surgeries and emergency departments are common sites for primary care.
ProMED	Program for Monitoring Emerging Diseases
Prophylaxis	Medical or public health procedure designed to prevent infection, rather than treat or cure existing disease.
Public Health Medical Officers Network	The collective term for all Public Health Medical Officers. Public Health Medical Officers are based in the State/Territory based affiliates of NACCHO. Their role is to support, strengthen and assist the work of NACCHO State and Territory affiliates to expand and implement the growing number of public health activities. A Senior Aboriginal Public Health Medical Officer (SAPHMO) provides leadership and coordination of the National Public Health Medical Officer group.
Quarantine	The limitation of freedom of movement for a period of time of well persons who are likely to have been exposed to the virus (contact) to prevent their contact with people who have not been exposed.
RACF	Residential Aged Care Facilities
RACGP	Royal Australian College of General Practitioners
RACP	Royal Australian College of Physicians
RANZCOG	Royal Australian and New Zealand College of Obstetricians and Gynaecologists
Resilience	The capacity to cope with stress or change, and capacity to adapt.
S/T	States and territories
S/T HD	State and territory health departments
SARS	Severe Acute Respiratory Syndrome
SCAHLs	Sub-Committee on Animal Health Laboratory Standards
Serial interval	Average length of time between an initial primary case developing symptoms and subsequent secondary cases developing systems.
SoNGs	Series of National Guidelines. CDNA National Guidelines for Public Health Units on the control of communicable diseases.
TG	Therapeutic Goods
TGA	Therapeutic Goods Administration

WHO	World Health Organization
WHO NIC	WHO National Influenza Centres
WHOCC	WHO Collaborating Centre for Reference and Research on Influenza
WoG	Whole of Government

Attachment B. Decision Making Committees

(as per diagram in Governance Chapter)

Table 2: List of Decision Making Committees

Committee	Reports to	Function
WHOLE OF GOVERNMENT DECISION MAKING		
National Security Committee of Cabinet (NSC)	n/a	NSC is the Government's highest decision-making body on Australia's national security. NSC focuses on major international security issues of strategic importance to Australia, border protection policy and national responses to developing situations (either domestic or international). NSC is convened to ensure coordinated, timely government action and to set priorities for response, recovery and communication strategies. NSC is chaired by the Prime Minister. The current membership consists of the Deputy Prime Minister, the Treasurer, the Defence Minister, the Foreign Minister and the Attorney-General.
Council of Australian Governments (COAG)	n/a	COAG is the peak intergovernmental forum in Australia. The role of COAG is to promote policy reforms that are of national significance, or which need coordinated action by all Australian governments. The members of COAG are the Prime Minister, State and Territory Premiers and Chief Ministers and the President of the Australian Local Government Association.
National Crisis Committee (NCC)	NSC	NCC is the primary forum for coordinating whole-of-government response to an incident of national significance including consolidation of information and coordination of information exchange, advice to ministers and coordination of ministerial decisions across the Federal, State and Territory governments. Membership of the NCC includes the Australian Government Crisis Committee members plus senior representation from the First Ministers' departments and the relevant police and emergency services agencies in each jurisdiction.
Australian Government Crisis Committee (AGCC)	NSC	AGCC is a coordination body comprised of senior officials from Australian Government agencies and chaired by the Department of Prime Minister and Cabinet Associate Secretary for National Security. The AGCC may convene in response to any crisis, including a terrorist act, where the scope and resourcing of Australian Government support to states and territories requires senior officials' level coordination.

Committee	Reports to	Function
HEALTH SECTOR DECISION MAKING		
COAG Health Council (CHC)	Council of Australian Governments	<p>CHC's responsibilities include health related elements of emergency management and national security.</p> <ul style="list-style-type: none"> Membership: Australian Government, state, territory and New Zealand Ministers with responsibility for health matters, and the Australian Government Minister for Veterans' Affairs.
Australian Health Ministers Advisory Council (AHMAC)	CHC	<p>AHMAC supports CHC by providing strategic advice on health issues and by acting as a forum for planning, information sharing and innovation</p> <ul style="list-style-type: none"> Membership: chief executive officers of Australian Government, state and territory, and New Zealand departments that have responsibility for health.
Australian Health Protection Principal Committee (AHPPC)	AHMAC	<p>AHPPC is the key advisory body to health ministers and is the peak strategic decision making committee for planning for and response to health emergencies. It facilitates the development of national health emergency policies, guidelines and standards, and coordinates a cross-jurisdictional health response to health emergencies.</p> <ul style="list-style-type: none"> Core membership: Chief Medical Officer; Chief Health Officer of each State and Territory; chairs of each of the three sub-committees (CDNA, PHLN, EnHealth); Emergency Management Australia; Defence health services; NZ Health; National Mental Health Disaster Response Committee.
Therapeutic Goods Administration (TGA)	Australian Government Assistant Minister for Health	<p>TGA is part of the Australian Government Department of Health (Department of Health). The TGA's overall purpose is to protect public health and safety by regulating therapeutic goods that are supplied either imported or manufactured, or exported from Australia. Therapeutic goods include medicines, medical devices and human blood, blood products, tissues and vaccines.</p> <p>As part of this function, the TGA registers new pharmaceuticals and vaccines as approved for use in Australia, following assessment of quality, safety and efficacy. The TGA also monitors and reports adverse events from antiviral drugs and pandemic vaccines and provides advice on safety.</p>

Committee	Reports to	Function
HEALTH ADVISORY GROUPS		
National Health Emergency Management Standing Committee (NHEMS)	AHPPC	<p>NHEMS addresses the operational aspects of disaster medicine and health emergency management in an all hazards context, with a focus on Preparedness and Response. NHEMS advises the Australian Health Protection Principal Committee on activities to strengthen disaster health infrastructure and capacity nationally, and on national coordination of the health sector in response to disasters.</p> <ul style="list-style-type: none"> Membership: Australian, state and territory governments and national organisations, a New Zealand health representative and subject matter experts dependent on the issue being considered.
Public Health Laboratory Network (PHLN)	AHPPC	<p>It provides leadership and consultation in all aspects of public health microbiology and communicable disease control; and strategic advice to the AHPPC to identify gaps and needs.</p> <p>It also ensures optimal use of existing pathology laboratory resources for communicable disease surveillance and for response to outbreaks of national importance, and develops laboratory case definitions to be used for diagnosis of certain communicable diseases.</p> <ul style="list-style-type: none"> Membership: State and Territory public laboratory representatives, expert (WHOCC), national (AAHL, CDNA) and observer members (private pathology, Technical and Forensic Intelligence, AFP, and New Zealand).
Communicable Diseases Network Australia (CDNA)	AHPPC	<p>CDNA is a sub-committee of AHPPC. It provides national public health coordination on communicable disease surveillance, prevention and control, develops case definitions and guidelines, and offers strategic advice to governments and other key bodies on public health actions to minimise the impact of communicable diseases in Australia and the region.</p> <p>CDNA is the central coordinating body for public health response advice in a pandemic.</p> <p>Membership: State and Territory communicable diseases managers; chair of the NIC; experts representing a range of organisations.</p>

National Influenza Surveillance Committee (NISC)	CDNA	<p>NISC's role is to maintain national and regional influenza surveillance systems in order to provide high-quality and timely information on influenza activity and better prepare and support Australian health systems for influenza epidemics and pandemics.</p> <ul style="list-style-type: none"> Membership: CDNA representative (chair); Department of Health; New Zealand and State and Territory representatives; representatives from PHLN, Paediatric Active Enhanced Disease Surveillance (PAEDS), WHO CC and NICs; and influenza surveillance systems managers.
National Immunisation Committee (NIC)	CDNA	<p>NIC is the peak group responsible for overseeing the development, implementation and delivery of the National Immunisation Program. This includes leading policy development and evaluation, providing advice on strategic direction and on communication strategies, consulting with stakeholders and other immunisation committees (including ATAGI) on development of national priorities, strategies and service delivery.</p> <ul style="list-style-type: none"> Membership: Department of Health (chair); State and Territory nominees; peak bodies (nursing, general practice, Aboriginal and Torres Strait Islander health); CDNA representative; a consumer representative.
Australian Technical Advisory Group on Immunisation (ATAGI)	Chief Medical Officer	<p>ATAGI provides technical advice to the Minister for Health on the National Immunisation Program and other related issues including matters relating to vaccine efficacy and safety, and the implementation of immunisation policies and procedures. ATAGI reviews novel vaccine formulations and reviews pandemic response recommendations relevant to the use of vaccines. ATAGI currently has an Influenza Working Party, which assists in the provision of advice. ATAGI also produces the Australian Immunisation Handbook.</p> <ul style="list-style-type: none"> Membership: technical expertise including paediatric medicine, public health, infectious diseases and immunology, general practitioners, Department of Health, TGA, NCIRS, CDNA, NIC and a consumer forum representative.
National Health Emergency Media Response Network (NHEMRN)	Chief Medical Officer	<p>NHEMRN's role is to keep the public and the media informed during national health emergencies by providing consistent and coordinated media and public responses. It is managed by the Department of Health.</p> <ul style="list-style-type: none"> Membership: all health departments media units representatives; relevant Australian Government agencies, national medical colleges and associations, and select parts of the private sector directly involved in emergency health management.

Chief Human Biosecurity Officers (CHBOs)	Chief Medical Officer	<p>The CHBOs collectively provide advice to the CMO (as the DHB) and to the Department of Health on human biosecurity matters. Meetings, consultation and CHBO appointments are coordinated by the Department of Health. CHBO appointments are nominated by state and territory health departments.</p> <ul style="list-style-type: none"> Membership: State and territory communicable disease managers appointed as CHBOs by the Department of Health under the <i>Biosecurity Act 2015</i>. CHBOs are often also members of CDNA.
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HEALTH CONSULTATIVE FORA		
GP Roundtable (GPRT)	n/a	<p>GPRT is an informal discussion group led by the Department of Health.</p> <ul style="list-style-type: none"> Membership: CMO, Department of Health representatives, Australian Medical Association, Australian Practice Nurses Association, Australian Medicare Local Alliance, Rural Doctors Association of Australia, Australian College of Rural and Remote Medicine, Royal Australian College of General Practitioners, Australian College of Nurse Practitioners, Australian Indigenous Doctors' Association, National After Hours Medical Deputising Service.
Clinical Stakeholders Forum (CSF)	n/a	<p>CSF is a group convened by the CMO to provide specialist clinicians with access to the AHPPC to build and maintain information links between policy and clinical management.</p> <ul style="list-style-type: none"> Membership: by invitation.
National Aboriginal Controlled Community Health Organisations (NACCHO)	n/a	<p>NACCHO is the national peak body representing over 150 Aboriginal Community Controlled Health Services across the country on Aboriginal health and wellbeing issues.</p>
Aged Care Peak Bodies	n/a	<p>Associations of groups or industries that advocate for and provide quality support, services, representation and policy development in the aged care sector.</p>

Attachment C. Communication materials

Key Communication Messages Template

Communications will be central to many aspects of the response. The Australian Health Protection Principal Committee (AHPPC) will play a key role in ensuring communications are consistent by determining what the key messages are in different stages. These can then be adapted by stakeholders to meet the needs of their target audience and the purpose of communications, and distributed. The National Health Emergency Media Response Network (NHEMRN) will coordinate the distribution of messages to the public.

The information below is designed to support AHPPC in the development of consistent, comprehensive messages. It is based on the World Health Organization (WHO) description of best practice for communicating with the public during an outbreak.

This is what we know.	Provide information on the current status of the pandemic, overseas and in Australia.
	Provide information about the disease itself that is relevant to the audience.
	Characterise the pandemic impact level anticipated, based on current evidence. (This should be considered in terms of managing expectations.)
This is what we don't know.	Acknowledge the level of uncertainty at the current time.
This is what we are doing.	Provide information about P reparedness or R esponse activities.
	Note continuing collection of surveillance data and monitoring.
This is what you can do.	Provide information on how the audience can contribute to the AHMPPI's strategic objectives of <ol style="list-style-type: none"> 1. Minimising morbidity and mortality; 2. Minimising the burden on/ support health systems; and 3. Informing and empowering the public.
	Advise the audience where further information can be obtained.

An example of the key messages suitable for communications being distributed to the general public during the Initial Action stage has been provided below as an illustration of the use of the template.

This is what we know.	<p>Key messages:</p> <ul style="list-style-type: none"> • (The disease) is now widespread across Asia, particularly in x, y and z countries. The number of people with the disease is still increasing. • The governments of these countries are working together with the WHO to slow the transmission of the disease and to provide treatment and care for those who are infected. • It is recommended that non-essential travel to x country should be postponed if possible. • There are now a small number of people in Australia who are believed to have x (the disease). They are receiving treatment and support. • The information we have so far suggests that this disease is very easily passed from one person to another and that in most people it will cause a moderate illness, though men between 40 and 55 years of age and people from Aboriginal and Torres Strait Islander backgrounds are more likely to experience a more serious illness.
This is what we don't know.	<ul style="list-style-type: none"> • This is a new type of influenza virus so our understanding of how it will affect people and how easily it will move through our community is imperfect.
This is what we are doing.	<ul style="list-style-type: none"> • We are working hard to obtain as much information as possible about how the disease has behaved overseas to help us manage its impact on the Australian community as effectively as possible and we will continue to refine our arrangements as more information becomes available. • We are also collecting information about cases in Australia as they appear so that we can fully understand how the disease behaves in the Australian context. • As the most effective way of preventing infection with x disease is vaccination, we have contracted x company to develop a vaccine for this disease. It is expected that this will be available in x months. • Health systems are preparing to manage people with this disease and to meet any increased demand on their services. • Based on our current knowledge of the disease, we have developed expert guidance to support people in our health system to <ul style="list-style-type: none"> - Identify someone likely to have this disease; - Undertake testing to confirm this; and - Provide effective treatment. • People identified as having this disease are receiving treatment and support.
This is what you can do.	<ul style="list-style-type: none"> • Normal hand hygiene, cough and sneeze etiquette should be recommended. • The main symptoms of this disease are <ul style="list-style-type: none"> - A high fever - A cough - Fatigue • Those who believe they are experiencing these symptoms should contact their GP by telephone, or contact the Public Health Information Line.

Information sharing

The following table explores potential methods of sharing information in each of the AHMPPI stages. It is colour coded to highlight separately the methods for communicating with people in the health sector responding to the pandemic, with the media or the general public, or with both, as follows:

Materials designed for

 = responders

 = primarily public or media

 = responders and the public

Specific methods may vary at the time of the pandemic, however information will be shared on all the topics below.

Preparedness

Table 3: Methods of sharing information during the preparedness stage.

Information about	Method	Responsible agency
the international situation	Information from WHO Event Information Site (forwarded to contacts in S/T)	Department of Health
	Presentation and discussion at AHPPC	AHPPC members
	Australian Influenza Surveillance Report	Department of Health
the epidemiology, severity and virology of seasonal influenza	Australian Influenza Surveillance Report (Department of Health, Australian Influenza Surveillance Report and Activity Updates, http://www.health.gov.au/internet/main/publishing.nsf/content/cda-surveil-ozflu-flucurr.htm) analyses national influenza activity, including descriptive epidemiology and virology as well as indicators of disease severity. Data are collected through a suite of national and sentinel influenza surveillance systems. Systems monitor across the spectrum of severity including community influenza-like illness (Flutracking), GP influenza-like illness presentations (Australian Sentinel Practice Research Network—ASPREN) and hospitalisations and ICU admissions (Influenza Complications Alert Network—FluCAN)	Department of Health
	Virological characterisation and drug sensitivity of influenza isolates from around Australia. (Also contained in Australian Influenza Surveillance Report)	WHOCC
	Pandemic Flu Kit	RACGP
management of seasonal influenza	Influenza Infection: CDNA National Guidelines for Public Health Units (Series of National Guidelines (SoNGs))	CDNA
	Guidelines for the Prevention, Control and Public Health Management of Influenza Outbreaks in Residential Care Facilities in Australia	CDNA
	Influ-Info Influenza Kit for Community Aged Care (for community care providers)	Department of Health

good hygiene behaviours for influenza	Paid advertising/ printed materials/electronic displays/ social media	Hand Hygiene Australia
	Hand Hygiene Australia website (www.hha.org.au/home.aspx)	WHO
	WHO Guidelines on Hand Hygiene in Health Care (whqlibdoc.who.int/publications/2009/9789241597906_eng.pdf)	WHO
	WHO Guidelines in Outpatient and Home-based Care and Long-term Care Facilities (www.who.int/gpsc/5may/hh_guide.pdf)	WHO
vulnerable groups	Influenza Infection: CDNA National Guidelines for Public Health Units (SoNGs)	CDNA
infection control	Infection control guidelines	National Health and Medical Research Council
	Pandemic Flu Kit	RACGP
	Infection Control Standards for Office Based Practices	RACGP
roles and responsibilities during a pandemic, in relation to GPs	Managing Emergencies and Pandemics in General Practice: A Guide for Preparation, Response and Recovery Pandemic Flu Kit	RACGP
disaster and pandemic practice planning	For e.g. Continuing Professional Development (CPD) modules as part of RACGP Quality Improvement (QI) & CPD Program or online disaster and pandemic training	RACGP
	Emergency plans	Primary Health Networks NACCHO Airports/airlines Seaports/shipping and cruise lines
	Pandemic Flu Kit	RACGP
	Managing Emergencies and Pandemics in General Practice: A Guide for Preparation, Response and Recovery Pandemic Flu Kit	RACGP

Standby

Table 4: Methods of sharing information during the Standby stage

the international situation	Information from WHO Event Information Site (forwarded to contacts in S/T)	Department of Health
	International data showing emerging trends shared through existing surveillance systems	Department of Health
	Advice on border related disease management strategies such as allowing on-travel of identified ill-travellers	CDNA
	Spokespeople will be available for talk back radio interviews	Department of Health
	Information for travellers on the smartraveller.gov.au website	Department of Health
	Information posted on the Australian Government Department of Health website (www.health.gov.au) and social media accounts	Department of Health
	Transcripts of media interviews	Department of Health
	Streaming of press conferences and interviews	Department of Health
status of the pandemic in Australia	Telephone advice from the Department of Health freecall Public Health Information Line 1800 004 599.	Department of Health
	Regular media conferences	Department of Health
	Spokespeople will be available for talk back radio interviews	Department of Health
	Information posted on S/T HD websites	S/T HD
	Information posted on the Australian Government Department of Health website (www.health.gov.au) and social media accounts	Department of Health
	Streaming of press conferences and interviews	Department of Health
	List of links to S/T HD and other key website on Australian Government Department of Health website (www.health.gov.au)	Department of Health
the disease and its severity	Sharing of surveillance information as described in the Surveillance Plan	Australian Government/ state and territory govt. surveillance systems, CDNA, PHLN, NICs, NISC, WHOCC
	Direction for GPs/Hospitals about the correct sites for information regarding the pandemic including relevant clinical advice and guidance on the Royal Australian College of General Practitioners (RACGP) website (www.racgp.org.au)	RACGP, ACEM, Dept. Health, CDNA, websites of peak bodies

the disease and its severity (cont.)	Information posted on the Australian Government Department of Health website (www.health.gov.au) and social media accounts	Department of Health
	Information posted on S/T HD websites	S/T HD
	Information for GP and ED waiting rooms-paper and TV screen savers	Hospitals, GPs
	Access to information and advice from healthcare professionals through a national call centre	National Health Call Centre Network
implementation of measures	Discussion at AHPPC meetings	AHPPC
	Key messages communicated to government health departments, border agencies and airports/airlines/seaports/shipping and cruise lines.	Department of Health
	Key messages communicated to Local Government, NACCHO affiliates and jurisdictional industry peak bodies through identified email contacts for pandemic	S/T HD NACCHO
	Paid television, radio or print advertisements concerning behaviours to be promoted, such as hygiene practices	S/T HD & Department of Health
emergency contact numbers	Department of Health contact numbers on the Australian Government Department of Health website (www.health.gov.au)	Department of Health
	State and Territory Health Department (S/T HD) contact numbers on relevant health department websites	S/T HD
	The National Health Services Directory provides information on locating health services	Department of Health, S/T HD, GPs, Pharmacies, Hospitals, Primary Health Networks, Local Area Networks

Initial and Targeted Action

Table 5: Methods of sharing information during the initial and targeted stage

Information about	Method	Responsible agency
the international situation	Presentation and discussion at AHPPC	AHPPC members
	International data showing emerging trends shared through existing surveillance systems	Department of Health
	Situation Reports	Department of Health NIR
	Information for travellers on the smartraveller.gov.au website	Department of Health
	Information posted on the Australian Government Department of Health website (www.health.gov.au) and social media accounts	Department of Health

status of the pandemic in Australia	Key messages communicated to Local Government, NACCHO affiliates and jurisdictional industry peak bodies through identified email contacts for pandemic.	S/T HD NACCHO
	Direction for GPs about the correct sites for information regarding the pandemic including relevant clinical advice and guidance on the RACGP website (www.racgp.org.au)	RACGP, ACEM, Dept. Health, CDNA, websites of peak bodies
	Regular media conferences	Department of Health/ S/T HD
	Spokespeople will be available for talk back radio interviews	Department of Health/ S/T HD
	Telephone advice from the Department of Health freecall Public Health Information Line 1800 004 599.	Department of Health
	Local arrangements such as the location of influenza clinics or vaccination services	S/T HD
	Regular updates on progress of pandemic posted on the Australian Government Department of Health website (www.health.gov.au)	Department of Health
	Links to S/T HD and other key websites on the Australian Government Department of Health website (www.health.gov.au)	Department of Health
	Information posted on S/T HD websites	S/T HD
	List of links to S/T HD websites and other key websites on the Australian Government Department of Health website (www.health.gov.au)	Department of Health
	Streaming of press conferences and interviews.	Department of Health
	Sharing of media announcements, media releases and status of the pandemic through the National Health Emergency Media Response Network (NHEMRN)	NHEMRN: Department of Health, State and Territory Health Departments, Australian Government agencies, national medical colleges and associations, and parts of the private sector directly involved in emergency health management NACCHO

the disease and its severity	Surveillance case definitions, as described in Surveillance Plan	CDNA
	Information outlining <ul style="list-style-type: none"> • incubation and infectious period; • case and contact management; • chemoprophylaxis and education; • vaccination; • quarantine/isolation; • risk assessment; • infection control and • use of antivirals 	CDNA
	Confirmation/identification of at-risk groups	CDNA
	Definition of minimum data set, as outlined in Surveillance Plan	CDNA
	Clinical management guidelines	CDNA
	Laboratory Case Definition	PHLN
	Guidance on <ul style="list-style-type: none"> • The type of clinical specimen required • Sample collection guidance • Detection methodologies, such as culture, molecular methods such as Polymerase Chain Reaction, molecular characterisation (typing and sub-typing methods and serology) • Quality assurance considerations 	PHLN
	Laboratory Testing Protocols	PHLN
	Information regarding relevant isolates and sequencing data for test development	PHLN
	Point of care testing advice	CDNA/PHLN
	Advice that it is no longer necessary to test all cases	PHLN/CDNA
	Collation and analysis of jurisdictional data to show emerging trends, as outlined in Surveillance Plan	Department of Health
	Jurisdictional surveillance data, as outlined in Surveillance Plan	S/T HD

the disease and its severity (cont.)	Key messages communicated to Local Government, NACCHO affiliates and jurisdictional industry peak bodies through identified email contacts for pandemic.	S/T HD NACCHO
	Tailoring Infection Control Guidelines to pandemic virus	CDNA + additional expertise
	Advice regarding the need for additional action specific to institutional settings	AHPPC on advice from CDNA, jurisdictions and GP Roundtable, Clinical Stakeholders Forum
	Protocol outlining how people identified under exit screening should be managed.	AHPPC on advice from CDNA
	Telephone advice from the Department of Health freecall Public Health Information Line 1800 004 599.	Department of Health
	Health Alert Information lines with capacity to manage inbound and outbound calls. (These can be set up within 2hours)	Department of Health
	Access to information and advice from healthcare professionals through a national call centre.	National Health Call Centre Network
	Regular media conferences	Department of Health
	Spokespeople will be available for talk back radio interviews	Department of Health
	Question and Answer sheets on the Australian Government Department of Health website (www.health.gov.au)	Department of Health
	Scenario based advice (e.g. I think I might have been exposed as someone at work might have influenza, or, a child at my child's school has influenza) on the Australian Government Department of Health website (www.health.gov.au)	Department of Health
	Question and answer facility on website where queries are answered online at the Australian Government Department of Health website (www.health.gov.au)	Department of Health
	YouTube will be used to provide press conference materials (Australian Government and State and Territory Government), health information and pandemic updates	Department of Health
	Health emergency Facebook and other social media accounts will provide basic information and referrals to the health emergency website and other resources. They will be interactive—providing the public an opportunity to express their views and needs	
	Fact sheets which can be adapted as required by state and territory health departments and other agencies	CDNA

the disease and its severity (cont.)	Information for GP and ED waiting rooms-paper and TV screen savers	Hospitals, GPs
	Electronic and/or printed media at the border to raise disease awareness and behaviours to be promoted	Department of Health
	Direction for GPs/Hospitals about the correct sites for information regarding the pandemic including relevant clinical advice and guidance on the RACGP website (www.racgp.org.au)	RACGP, ACEM, Dept. Health, CDNA
	Streaming of press conferences and interviews	Department of Health
	Data, if available, on at-risk groups	Department of Health / S/T HD
	Sharing of information resources through NHEMRN (as above)	NHEMRN members
implementation of measures	Discussion at AHPPC meetings	AHPPC
	Guidance for healthcare workers on use of PPE and antivirals	CDNA
	Guidance for border workers on use of PPE	Department of Health
	Information on vaccine efficacy	ATAGI
	Information on vaccine safety	TGA
	Guidance for pathology and research staff regarding antiviral prophylaxis	PHLN
	Guidelines concerning management of influenza outbreaks in Residential Aged Care Facilities	CDNA + senior clinical advisor + Department of Health
	Key messages communicated to government health departments, border agencies and airports/airlines/seaports/shipping and cruise lines.	Department of Health
	Key messages communicated to Local Government, NACCHO affiliates and jurisdictional industry peak bodies through identified email contacts for pandemic.	S/T HD NACCHO
	Paid television, radio or print advertisements concerning behaviours to be promoted, such as hygiene practices	S/T HD Department of Health
	Electronic and/or printed media at the border to raise disease awareness and behaviours to be promoted	Department of Health
	Fact Sheets tailored to the needs of Residential Aged Care Facilities	Department of Health

implementation of measures (cont.)	Consumer information on PPE, antivirals and vaccination together with a 'frequently asked questions' section and how to contact a health professional for further advice will be available on the Australian Government Department of Health website (www.health.gov.au)	Department of Health
	Information on the vaccine delivery program.	S/T HD Department of Health GPs, nurses, ACCHSs, hospitals, RACF

Standdown

Table 6: Methods of sharing information during the standdown stage

Information about	Method	Responsible agency
the international situation	Information for travellers on the smartraveller.gov.au website	Department of Health
	Information will be posted on the Australian Government Department of Health website (www.health.gov.au) and social media accounts	Department of Health
status of the pandemic in Australia	Direction for GPs about the correct sites for information regarding the pandemic including relevant clinical advice and guidance on the RACGP website (www.racgp.org.au)	RACGP, ACEM, Dept. Health, CDNA, websites of peak bodies
	Transcripts of media interviews	Department of Health
	Streaming of press conferences and interviews	Department of Health
	Question and Answer sheets on www.health.gov.au	Department of Health
	List of links to S/T HD and other key websites on the Australian Government Department of Health website (www.health.gov.au) and social media accounts	Department of Health
	Information for GP and ED waiting rooms-paper and TV screen savers	Hospitals, GPs
	Information will be posted on the Australian Government Department of Health website (www.health.gov.au) and social media accounts	Department of Health
	Information posted on S/T HD websites	S/T HD

the disease and its severity	Direction for GPs about the correct sites for information regarding the pandemic including relevant clinical advice and guidance on the RACGP website (www.racgp.org.au)	RACGP
	Telephone advice from the Department of Health freecall Public Health Information Line 1800 004 599.	Department of Health
	Transcripts of media interviews	Department of Health
	Streaming of press conferences and interviews	Department of Health
	Question and Answer sheets on Australian Government Department of Health website (www.health.gov.au)	Department of Health
	List of links to S/T HD and other key websites on Australian Government Department of Health website (www.health.gov.au)	Department of Health
	Access to information and advice from healthcare professionals through a national call centre.	National Health Call Centre Network
	Information will be posted on the Australian Government Department of Health website (www.health.gov.au)	Department of Health
	Information posted on S/T HD websites	S/T HD
return to business as usual	Key messages communicated to government health departments, border agencies and airports/airlines/seaports/shipping and cruise lines	Department of Health
	Key messages communicated to Local Government, NACCHO affiliates and jurisdictional industry peak bodies through identified email contacts for pandemic	S/T HD NACCHO

Attachment D. Decision Support Map

Major decision making points

This document highlights the major decisions to be made across the stages of the AHMPPI. As the key decision making body, these decisions will be made by AHPPC, in consultation with broader government and other stakeholders. Decisions will be based upon the capacity of actions to contribute positively to the AHMPPI's strategic objectives:

- Minimise transmission, morbidity and mortality;
- Minimise the burden on/ support health systems; and
- Inform, engage and empower the public.

To ensure that the appropriate expertise and implementation experience is available to support these decisions, relevant health advisory bodies, such as CDNA, PHLN or the Department of Health will provide AHPPC with a set of recommendations for its consideration.

The triggers used here will be identified through surveillance as outlined in the Surveillance Plan. CDNA will be responsible for advising AHPPC of the presence of any of these triggers.

Note: In this document the AHMPPI stage during which the decisions discussed will be made is indicated as a coloured bar on the side of each page (for e.g. the decision to move to the Standby stage will actually be made during the Preparedness stage and is represented as a green bar.)



Trigger: If surveillance indicates sustained community transmission of a **novel influenza virus overseas**, AHPPC will consider:

1. Should the AHMPPI be escalated to **Standby** stage?



If **YES**, which measures should be commenced?



If **NO**, continue to gather and review surveillance information

2. Should the disease be determined as an LHD under the *Biosecurity Act 2015*?
3. Should a declaration by the Governor General under the *Biosecurity Act 2015* be made to provide legal support for any measures?
4. What are the key communication messages to be conveyed? (Template provided at Attachment C of the AHMPPI.)

Background

Surveillance for novel viruses of concern is an ongoing 'normal business' activity undertaken by the Department of Health and state and territory health departments, with advice from WHO. While novel viruses are periodically identified, this identification is relevant to the AHMPPI only if it signals the need to prepare to mount an imminent response.

Escalation of the AHMPPI to Standby would signal commencement of a range of preparatory activities to

- confirm knowledge of current resources (human, stockpiles);
- plan potential reprioritization of resources (including surge staffing and alternate HR options);
- provide briefing to refresh knowledge of anticipated needs, governance, communications and arrangements;
- implement some measures (e.g. communications, NMS pre-deployment);
- confirm communications channels between responders; and
- build community preparedness and engagement.

Compliance with most measures by the individual will be implemented on a voluntary basis. Where the consequences of non-compliance are high however, it is possible to provide legislative support to the implementation of certain measures under the human biosecurity emergency powers of the *Biosecurity Act 2015* by the Minister for Health of either:

- declaring a ban or restriction on a behaviour or practice; or
- declaring a requirement for a behaviour or practice.

Communications will be central to many aspects of the response. The role of AHPPC in communications will be to establish the key messages to be conveyed to support the strategic objectives of the Plan. These will then be tailored to the needs of specific audiences and distributed by a range of stakeholders, with public communications coordinated through NHEMRN.

Trigger: If surveillance indicates the **first case of the novel virus has been identified in Australia**, AHPPC will consider:

1. How should the pandemic impact level be characterised, based on current evidence?
2. Should the AHMPPI be escalated to the **Initial Action** stage?



If **NO**, continue to gather and review surveillance information

If **YES**, should any modification of the initial measures proposed in the AHMPPI be made, given the current information available about the disease?



If **NO**, implement initial measures described in AHMPPI.

If **YES**, determine appropriate modifications and implement measures.

3. What recommendations regarding measures outside the health sector should be made? (e.g. school closures, transport, enhanced border measures)
4. What are the key communication messages to be conveyed at this stage? (Template provided at Attachment C of the AHMPPI.)

Background

At the beginning of the pandemic lack of information about the virus and how it will behave in the Australian context will make it difficult to characterise the impact it will have on the Australian community. Nevertheless there is likely to be pressure to do so to inform the public and to shape planning (including the decision about escalating the AHMPPI to the Initial Action stage). Information from overseas can be used to point to a certain level, but the uncertainty around the information should be acknowledged and review conducted regularly.

Escalation of the AHMPPI to Initial Action would signal commencement of a package of initial measures considered to be most likely to effectively meet the objectives of the AHMPPI in the absence of detailed knowledge of the disease. (Early information is likely to be insufficient to support planning.) As the consequences of aiming response efforts at too low a level of impact are significant, these measures are aimed at responding to a pandemic of moderate to high impact. At the time of the pandemic, if reliable information is available it should be used to confirm or modify these measures as appropriate. Initial measures would transition into measures more closely targeted to current needs more information becomes available.

The AHMPPI is focused on health sector activities. Some measures may need to be implemented in other sectors, on advice from health sector experts. The decision to make recommendation to other sectors will be made by AHPPC and input into Whole of Government channels.

Trigger: If advice from CDNA/PHLN indicates that information is now available about the disease which allows closer targeting of measures, **AHPPC** will consider:

1. Should characterisation of the pandemic impact level be modified?
2. Should the measures identified be modified (scaled up/ scaled down), wound down or ceased?
3. Should any new measures be commenced?
4. Have key communication messages changed?

Background

As more information becomes available about the virus and its impact in the Australian context, measures can be tailored more closely to meet current needs. This will allow us to

- implement a response proportionate to the risk;
- increase the effectiveness of the measures; and
- make the most efficient use of resources.

All measures should be reviewed regularly to ensure they are still contributing positively to the strategic objectives. It may useful to set a regular time for review (frequency will depend on the progress of the pandemic), such as weekly, to assist building awareness of changes made. A suitable exit strategy should be considered for any measures being ceased.

Components of key communication messages may change at this point, as this trigger is likely to coincide with a change in focus of surveillance activities. Once the epidemiology, clinical severity and virology of the disease are understood, the benefits from enhanced data collection, to the extent envisaged in 'FF100 studies', are minimal (see Surveillance Plan for more detail). To continue enhanced activities on this scale would place an unsustainable burden on surveillance and laboratory systems. Some level of ongoing monitoring of epidemic behavior, however, is warranted to ensure that the response remains appropriate. Surveillance will return to routine activities and monitor for any changes in the situation that would impact on the public health response. The change in the information available will need to be managed carefully as there is likely to be a continuing demand for specific reporting, such as numbers of cases and deaths (preferably this should not be the emphasis of early stage reporting either, however this may be unavoidable.)

This trigger is likely to occur at a number of times as activities implemented in the Initial Action stage are reviewed. The transition from Initial Action to Targeted Action is not a hard cut off, but a gradual refinement of activities as more information about the disease becomes available.

Trigger: If surveillance indicates **widespread community transmission** is now occurring in Australia, **AHPPC** will consider:

1. Should resources be reallocated/ reprioritised to support increased demands for treatment/ increasing staff absenteeism?
2. Should actions aimed at minimizing entry into the community be wound down and ceased?(if applied)
3. What are the key communication messages to be conveyed at this stage? (Template provided at Attachment C of the AHMPPI.)

Background:

As transmission becomes widespread the emphasis of measures will move from identification to treatment. The pattern of demand may become such that existing arrangements can no longer cater for it. Reallocation and reprioritization of resources may be required. Staff absenteeism, due to either illness or the need to care for those who are ill, will impact on human resources. Increased absenteeism across the community is likely to cause increasing disruption to services and will need to be taken into account within health system planning (and across broader community planning). Some level of enhanced data collection will need to continue in order to fully understand the behaviour of the disease and to monitor for changes.

With widespread community transmission actions aimed at minimizing entry of the disease into the community are no longer of value. The demand for health services is likely to increase dramatically and resources should be allocated to supporting treatment rather than identification.

As transmission becomes widespread, measures will need to be examined for their appropriateness in the current level of pandemic. As resources become scarcer decisions will need to consider whether milder cases should be treated. For milder pandemics decisions will need to balance limiting of transmission with the disruption to society caused by isolation of ill individuals and quarantining of contacts.

Trigger: If advice from the Department of Health indicates that a **customised pandemic vaccine** will shortly be available, **AHPPC** will consider

1. Will distribution of the vaccine follow seasonal arrangements? Are other mechanisms required?
2. Do resources need to be reallocated/ reprioritised to support the vaccination program?
3. Will the vaccine be provided in stages?



If **YES**, which will be the priority groups?

4. Will any addition be required to existing arrangements for monitoring adverse events?
5. What are the key communication messages to be conveyed at this stage? (Template provided at Attachment C of the AHMPPI.)

Background:

The most effective way of preventing individual infection with an influenza virus is vaccination. The provision of a customised pandemic vaccine will be one of the goals of the response.

An assessment will need to be made regarding whether existing arrangements will be sufficient to meet the expected demand for vaccination. These may need to be supported by additional mechanisms. Depending on the nature of the pandemic, when a customised pandemic vaccine becomes available the demand may surpass the immediate availability. In this case while a range of potential priority groups can be predicted, based on seasonal influenza and past influenza pandemics, the actual priority groups will need to be finalised in the light of the epidemiology of the pandemic virus.

Implementation of a vaccine program will need to be accompanied by regular review of measures with an aim to winding down and ceasing any escalation beyond seasonal influenza arrangements.

Trigger: If advice from CDNA indicates that the **needs of the situation can be met by seasonal influenza arrangements and monitoring for change is in place**, AHPPC will consider:

1. Should the AHMPPI be scaled back to the **Standdown** stage?
2. Are there any current resource needs which require discussion?
3. Are there any key points/instructions to guide evaluation processes?
4. What are the key communication messages to be conveyed at this stage? (Template provided at Attachment C of the AHMPPI.)

Background:

Enhanced arrangements place an additional burden on health systems and individuals and should be scaled back when no longer necessary. The Standdown stage allows a supported withdrawal of enhanced arrangements. The evaluation of the response, and updating of/adaptation of systems, which is part of the Standdown stage ensures that as much as possible, the lessons from the pandemic can be applied to future outbreaks.

Resources at this stage may be considerably depleted and may still require some reprioritisation to meet demand.

Communications will be important as the response winds down to ensure that people continue to be aware of measures to protect themselves at an individual level, and to shape awareness such as the possibility of further outbreaks and the continuity into the following two to three years of seasonal influenza.

Trigger: If advice from the Department of Health indicates that **all escalated measures have ceased**, AHPPC to consider:

1. Should the AHMPPI be returned to the **Preparedness** stage?
2. What are the key communication messages to be conveyed at this stage? (Template provided at end of this document.)

Background:

It is likely that the health sector will continue to require support to enable services to “catch up” while recognising that the community may require additional services to enable full psychological, social, economic, environmental and physical recovery from the effects of the pandemic.

At some point the Department of Health will advise AHPPC that all enhanced measures have been transitioned to seasonal arrangements. Arrangements under the AHMPPI should then return to the **Preparedness** stage. The **Preparedness** stage represents ongoing activities under normal business arrangements which will support preparedness for any future pandemics. The return to **Preparedness** should acknowledge that **Recovery** activities may still be taking place within the health sector.

Attachment E. Introduction to the Menu of Actions Contents

Infection control measures

- Communication strategies to improve hand hygiene and cough/sneeze etiquette
- Personal protective equipment for healthcare providers, public health officials and other workers in direct contact with infected individuals
- Mask wearing by symptomatic individuals in the community

Border measures

- Communications measures:
 - Pandemic-specific inflight announcements and on-board announcements on ships
 - Communications materials for incoming or outgoing travellers
 - Travel advice regarding high-risk places and to raise awareness of symptoms if returning from travel
 - Information for border staff
- Identification measures:
 - Entry screening
 - o Negative pratique
 - o Passenger locator documents
 - o Thermal scanners
 - o Border nurses
 - o Screening of passengers on cruise ships prior to disembarkation, where there is evidence of cases of influenza on board
 - o Voluntary isolation of ill travellers not requiring hospitalisation
 - o Voluntary quarantine of contacts of ill travellers
 - Exit screening
- Internal travel restrictions

Social distancing measures

- Proactive school closure
- Reactive school closure
- Workplace closure
- Working from home
- Cancellation of mass gatherings
- Voluntary isolation of cases
- Voluntary quarantine of contacts
- Contact tracing

Pharmaceutical measures

- Antivirals for treatment of cases
- Antivirals for post-exposure prophylaxis for contacts
- Antivirals for post-exposure prophylaxis for contacts in at-risk groups
- Antivirals for pre-exposure prophylaxis for healthcare workers
- Candidate pandemic vaccine
- Customised pandemic vaccine
- Seasonal influenza vaccine

Measures of effectiveness

The following scale has been used in this document to describe effectiveness:

- high: an overall risk reduction of more than 50%
- moderate: a risk reduction between 10% and 50%
- minor: a risk reduction of less than 10%.

For some measures, it has been noted that no evidence is available.

The following scale has been used to describe economic impact:

- extreme: an impact in the order of hundreds of millions, or billions, of dollars
- high: an impact in the range of millions of dollars
- moderate: an impact in the range of hundreds of thousands of dollars
- minor: a smaller impact.

Direct costs have been defined as costs incurred in implementing or participating in measures, such as printing, distributing and storing brochures; or costs for staff to implement screening measures.

Indirect costs have been defined as flow-on costs incurred as a consequence of implementing or participating in measures, such as lost profits due to workplace closure, absenteeism from work for parents to look after children sent home as a result of school closures, and opportunity costs where resources could have been used elsewhere.

The tables in this menu of actions are based on evidence available in 2013. They will be updated periodically.

Menu of actions: infection control

The overall aim of infection control measures is to minimise the risk of exposure to the influenza virus, reducing transmission, infections and illness.

Effective infection control during a pandemic is best achieved by applying a combination of:

- Individual measures;
- Appropriate personal protective equipment (PPE); and
- Organisational and environmental measures.

Infection control measures will be essential in healthcare settings, but it may also be helpful to encourage individuals within the community to use certain measures to reduce their risk of exposure, or to reduce the likelihood of those with the disease transmitting it to others.

Modes of transmission of influenza

The types of infection control which should be applied are dictated by the mode of transmission of the disease. There is good evidence from outbreak investigations, interventional studies, experimental studies, animal studies and modelling to demonstrate that influenza is transmitted through contact (when hands, clothing or other objects become contaminated) and through droplets (where respiratory droplets are transferred to mucosal surfaces through coughing, sneezing or direct contact). The contribution of transmission through aerosols (when microorganisms remain infectious over time and distance when suspended in the air), and the circumstances under which this mode of transmission is important are still unclear. The importance of managing aerosol transmission is dependent on factors related to the virus, the individual and the environment. For example, specific procedures within the health care setting may increase the risk of aerosol transmission such as intubation and bronchoscopy.

Potential aerosol generating procedures are endotracheal intubation, nebulized medication administration, airway suctioning, bronchoscopy, diagnostic sputum induction, positive pressure ventilation via facemask, cardiopulmonary resuscitation and high frequency oscillatory ventilation.

To manage contact and droplet transmission the recommended infection control practices for influenza in Australia include:

- hand hygiene;
- respiratory hygiene and cough etiquette;
- gloves, gown and eye protection—to be worn when there is the potential of direct or indirect contact with blood or body substances;
- surgical mask; and
- patient placement—single room or cohorting, surgical mask when not in isolation.

When there is a high probability of airborne transmission additional infection control aspects which can be considered include:

- P2 respirators—these are designed to help reduce the wearer's respiratory exposure to airborne contaminants. For patients with influenza, this is practiced by the use of P2 respirators by healthcare workers when there is a significant risk of aerosol transmission, such as staff involved in bronchoscopy and intubation; and
- minimising exposure of staff and patients through patient placement and transfer.

Overseas approaches

Pandemic influenza documents on infection control by the WHO, Public Health England and US Centers for Disease Control and Prevention consistently highlight the importance of applying a package of infection control measures (administrative, engineering/environmental controls and PPE). WHO¹ and UK² documents recommend standard and droplet precautions for influenza viruses (for both sustained human to human transmission seasonal/pandemic flu and new influenza virus with no sustained human to human transmission), with the addition of airborne precautions for aerosol generating procedures. They recognise that if a severe infection risk is posed there may need to be an increased usage of respirators. The US CDC³ recommends respirator use for all close contact with patients in an influenza pandemic.

Building a package of infection control measures for pandemic influenza

The selection of appropriate infection control measures will be made by individual organisations and individuals. Within healthcare settings this should be guided by the *Australian guidelines for the prevention and control of infection in healthcare* (2010)¹ (the Infection control guidelines). These Guidelines outline the current evidence based recommendations for infection prevention and control practices in healthcare settings in Australia. Healthcare workers are familiar with these guidelines, and this will assist the appropriate implementation of practice in a potentially difficult and fast moving situation. When a pandemic occurs, the appropriateness of these practices to the current situation will be examined by CDNA and appropriate experts. Advice will be circulated widely among health professionals confirming the application of existing guidelines or highlighting any changes of approach recommended to best adapt to the current pandemic. Jurisdictions may also provide guidance on preferred approaches.

The summary tables which follow this introduction provide information on factors relevant and can be used to support decisions regarding the use of PPE by healthcare workers, public health officials and other workers in direct contact with infected (symptomatic) individuals.

The following information is also useful when considering which organisational measures should be implemented as part of an infection control package:

- Patient placement, flow and segregation are essential factors for hospitals, GP practices and other healthcare settings where influenza patients may be encountered.
- Early triaging and patient management can reduce the risk of transmission from influenza patients. Identifying suspected influenza patients (e.g. by telephone triage or self-identification), placing a surgical mask on them, and separating them quickly is important in reducing the spread.
- Systems can separate suspect and confirmed influenza patients throughout their interaction with healthcare. Designating separate sites, such as flu clinics or specific flu-designated GP clinics, to direct people with possible influenza is one method. Within settings, patient isolation and cohorting, is used to protect non-flu patients from flu patients. Separate staffing arrangements for flu and non-flu patients may also assist in protecting patients, as well as staff members at particular risk of influenza complications.
- Staff vaccination, including the use of candidate and customised pandemic vaccines where available, is important to consider and, if appropriate, encourage.

1 Infection prevention and control of epidemic- and pandemic-prone acute respiratory diseases in health care, WHO Interim guidelines, June 2007. http://apps.who.int/iris/bitstream/10665/69707/1/WHO_CDS_EPR_2007.6_eng.pdf

2 Infection control guidance for hospitals and primary care settings, UK Department of Health, 2009. <https://www.gov.uk/pandemic-flu>

3 Interim Guidance on Infection Control Measures for 2009 H1N1 Influenza in Healthcare Settings, US CDC, 2010.

Use by individuals

Infection control measures, such as hand hygiene, cough and sneeze etiquette, are also likely to be among the most effective measures which can be implemented by individuals within the community to manage their exposure to the disease, and that of those they care for. Communication campaigns implemented at a national or jurisdictional level, may be used to inform members of the public about these simple measures, which they may implement themselves. Healthcare professionals may also be asked to encourage certain behaviours among their patients. This is discussed further in the Communications Chapter.

The summary tables which follow this introduction provide information on the factors relevant to deciding whether to implement:

- Communication strategies to improve hand hygiene and cough/ sneeze etiquette; or
- Mask wearing by symptomatic individuals in the community.

This entry on communications strategies is focused on communication with the general public during a pandemic. Hand hygiene for healthcare workers is a standard component of normal practice and should comply with the Infection control guidelines.

Quality of evidence regarding the effectiveness of infection control measures

Good evidence about the effectiveness of infection control measures is lacking, although a number of recent studies have been supportive. Much of the available evidence indicating the effectiveness of improved hand washing in reducing infection, relates to healthcare settings and to diseases other than influenza.

Although work related influenza infection in healthcare settings is well documented, very few studies have been undertaken about the effectiveness of PPE in reducing infection. Many of the studies that have been conducted suffer from poor compliance, or lack power to detect an effect. The use of airborne precautions in an influenza pandemic situation, in particular the use of P2 respirators, has been discussed extensively. The evidence about the contribution of, and circumstances under which, aerosol transmission of pandemic influenza is unclear. There is also a lack of good evidence about the effectiveness of P2 respirators to reduce the transmission and development of influenza in contacts. The evidence does highlight that the effective use of P2 respirators requires it to be properly fitted and for individuals to be trained in the correct and safe use. In addition, P2 respirators are often uncomfortable to wear, particularly for those not used to these devices.

While the responsibilities and understanding of disease transmission of the general public will be different from that of healthcare workers, it is likely that the heightened concern associated with a pandemic will motivate the public to engage in infection control measures. Providing the public with measures to that they can apply to reduce their own risk of infection will benefit public confidence.

Information regarding the effectiveness of communication strategies in changing hygiene behaviours is available but sparse.

Use of infection control measures in AHMPPI stages

Hand and respiratory hygiene, and cough etiquette should be followed across all AHMPPI stages, unless advice is provided indicating new practices are needed for the current pandemic. Similarly, hand hygiene and use of PPE by healthcare workers should follow the standard approach set out in the Infection control guidelines. Should emerging evidence show the virus to be causing severe infection risks, the use of airborne precautions may need to be re-examined.

Early and timely identification, triage and separation of potential cases will promote most effective infection control. Effective use of surgical masks for patients should be considered in all stages. In the Initial Action stage triage and separation of potential cases will be important. As more becomes known about the virus during

the Targeted Action stage, when clinical severity is higher measures such as telephone triage, cohorting, and possibly alternate clinical care models which allow greater separation will become more important.

Staff who are sick should be encouraged to stay home in all stages and vulnerable staff should be protected by using appropriate PPE, or where clinical severity is higher isolated from exposure to settings where there is a risk of exposure.

Standard methods of environmental cleaning are appropriate across all stages. Open environments, such as outside clinics, verandahs and open doors/windows may be considered during the Initial Action stage and used when possible during the Targeted Action stage if clinical severity is higher.

IC1: Communication strategies to improve public hand hygiene and cough/sneeze etiquette (recommendations to avoid mass gatherings may also be included)

Application
Recommended. This measure is easy to implement and provides the public with a method of reducing their individual risk. Some studies have shown a benefit in community settings if hand washing is practised frequently.
Objective and rationale
To limit community spread of the virus by reducing the risk of exposure.
Effectiveness
<p><i>Minor to moderate.</i> There is currently a lack of good evidence in this area. It is unlikely infection control measures will significantly affect overall pandemic attack rates unless disease transmissibility is low, compliance with the measure by the majority of the population is high, and the measure is used in association with other mitigation strategies. However, a number of studies point to the value of this measure in reducing individual risk.</p> <p>Alcohol-based hand sanitisers have been shown to be effective in schools in reducing the incidence of gastrointestinal and respiratory diseases.² A study conducted in Hong Kong found that hand hygiene seemed to prevent household transmission of influenza virus when implemented within 36 hours of onset of symptoms in the index patient.³ Clinical trials conducted in Finland concluded that intensified hand hygiene using water and soap, together with behavioural recommendations, can reduce the occurrence of self-reported acute illnesses in common work environments.⁴</p> <p>There is a considerable evidence to support the positive impact of media campaigns on health-related behaviours². Information and evidence on hand hygiene is available in the WHO Guidelines on hand hygiene at http://whqlibdoc.who.int/publications/2009/9789241597906_eng.pdf</p>
Risks and benefits
<p><i>Risks:</i> Use of alcohol-based hand sanitiser may cause dermatitis in some individuals, which could prolong the viability of infective agents.</p> <p><i>Benefits:</i> This measure will reduce the risk of exposure to the virus, with a high potential benefit to the individual. It may reduce microorganisms in the air. When disease clinical severity is low, the greatest benefit will be for high-risk individuals. Increased confidence in the general public is likely, arising from the capacity to take steps to manage their own risk. Infection control measures can be started quickly and without specific knowledge of the respiratory agent.</p>
Direct costs
Minor to moderate. Costs include those associated with purchase of hand sanitiser, cleaning agents and tissues; development and printing of posters and advertisements; advertising time; and disposal of significant amounts of contaminated paper.
Secondary costs
Nil
Likely acceptability and expectations
Acceptability will be highest if the disease is perceived to be severe. A hand hygiene program with provision of alcohol-based hand sanitiser in an office work environment was found to be acceptable and to increase hand washing in Germany, ⁵ but no research is currently available for the Australian population/context. Respiratory hygiene advice has been used as part of seasonal and pandemic H1N1 2009 influenza campaigns.
Practicalities and experience
<p>To increase the frequency with which people wash their hands, individuals will require easily accessible facilities. As availability of hand washing facilities is often limited, alcohol-based hand sanitiser will often be the best way to support increased hand washing.</p> <p>This is a simple measure that can easily be adopted by the public. Adequate stocks of hand sanitiser would be required. It will be important to ensure that media campaigns build on seasonal influenza programs and are developed in collaboration with higher risk groups and vulnerable populations.</p>
Timing
This measure should be commenced early. Community benefits will decrease as transmission becomes widespread, but benefits for the individual will continue to warrant use of this measure until the end of the pandemic.

IC2: Personal protective equipment (PPE) for healthcare workers, public health officials and other workers in direct contact with infected (symptomatic) individuals

Application

Use should be **based on risk** of transmission of infectious agents and risk of contamination of clothing or skin. PPE should be used as part of a package of infection control measures, as described in the *Australian guidelines for the prevention and control of infection in healthcare* (2010) (infection control guidelines).¹

Objective and rationale

To reduce transmission from infected persons to staff members in higher risk settings.

Effectiveness

Moderate. Although work-related influenza infection is well documented (e.g. Kuster et al.)⁶, very few studies have been undertaken about the effectiveness of PPE in reducing infection. Many of the studies that have been conducted suffer from poor compliance or lack the power to detect an effect.

Whether surgical masks or respirators should be recommended for routine patient care in healthcare settings, and for general use in the community is not clear, given the lack of evidence supporting one type of mask over the other and uncertainties about the predominant modes of influenza transmission. The evidence highlights that incorrect technique for wearing PPE is common. Effective use of P2 respirators requires them to be properly fitted and for individuals to be trained in their correct and safe use.

Current practice includes use of PPE as part of contact and droplet infection control recommendations (see infection control guidelines¹).

There is little evidence available to demonstrate transmission of influenza to border workers. Although such transmission is possible, the level of contact with infected cases is likely to be much lower for border workers than for healthcare workers.

Risks and benefits

Risks: Inappropriate use of PPE may reduce effectiveness. Education on appropriate use of masks would be required to ensure that there are no unintended negative effects of mask wearing, or increased indirect transmission through constant touching and adjusting of wet masks. Staff should be well trained in the appropriate donning, removal and disposal of PPE.

Benefits: This measure can be started quickly and without specific knowledge of the respiratory agent. It allows people to continue to work while giving them some protection. It is likely to build confidence and decrease absenteeism. This measure may reduce transmission. When disease clinical severity is low, the greatest benefit will be to high-risk individuals. Protection of healthcare workers from infection is an important part of OH&S, and in the pandemic setting, important to maintain the health workforce, particularly the specialised health workforce such as Intensive Care Unit (ICU) staff. Use of PPE may help to minimise the use of antivirals.

Direct costs

Depending on the scope of the measure used, the clinical severity and transmissibility of the pandemic, costs could range from minor to high. Costs would include purchasing, storing, stockpiling, distributing and disposing of PPE.

Secondary costs

Minor to moderate. The use of some types of PPE can affect the speed of work being undertaken by staff and therefore their productivity (e.g. through time taken to don and remove PPE, and increased time required for routine clinical tasks). There will also be costs associated with educating staff on use of PPE.

Likely acceptability and expectations

Good. Use of PPE is well established in healthcare settings and generally supported by healthcare workers. The difficulty and discomfort of working while wearing PPE may lead to poor compliance; compliance is likely to be higher with a disease of higher clinical severity.

Practicalities and experience

Wherever possible, use of PPE should be consistent with use for seasonal influenza and the Infection control guidelines.¹ Sufficient quantities of PPE and facilities for its disposal will need to be available. Simple guidelines for when PPE should be used, and education campaigns to communicate appropriate use and disposal of PPE will be needed. If respirators are used, they will need to be properly fit checked for each staff member and available in appropriate sizes. Respirators may be difficult to wear for extended periods. Special arrangements may need to be made to ensure sufficient availability in remote and vulnerable communities.

Timing

This measure must be used from the first patient contact. There is a case for wider use of PPE early in the pandemic, when the clinical severity of the disease may not be well known. Benefits would continue throughout the pandemic.

IC3: Mask wearing by symptomatic individuals in the community

Application

This measure may be **considered by individuals** when the disease has a high clinical severity.

Objective and rationale

To reduce transmission within the broader community.

Effectiveness

No evidence. Very few studies have been undertaken about the effectiveness of PPE in reducing infection in the community. Modelling studies of widespread PPE use suggest that mask use could reduce population transmission, although estimates of effectiveness are limited by the quality of data on individual effects. There is evidence from both clinical and modelling studies that earlier initiation of PPE improves its effectiveness.

The evidence highlights that incorrect technique for wearing PPE is common. Mask wearing in the community is unlikely to affect overall attack rates from a pandemic unless disease transmissibility is low, compliance with the measure by the majority of the population is high, and the measure is used in association with other pandemic mitigation strategies.

Risks and benefits

Risks: Inappropriate use of masks may reduce effectiveness. Education on appropriate use of masks would be required to ensure there are no unintended negative effects of mask wearing, such as decreased compliance with social distancing measures (self-isolation) because people feel protected, or increased indirect transmission through constant touching and adjusting of wet masks. Stigmatisation of people wearing masks is possible.

Benefits: This measure may reduce the exposure of individuals' household and family members to infection. It can be started quickly and without specific knowledge of the respiratory agent. It may reduce transmission.

Direct costs

High. Costs would include purchasing, storing, stockpiling, distributing and disposing of masks. A system would need to be implemented to make masks accessible at short notice, so that they could be worn from the onset of symptoms.

Secondary costs

Minor to moderate. Mask wearing in the community would need to be supported by educational materials. Costs would depend on the type of materials used (e.g. posters, leaflets, internet, advertising).

Likely acceptability and expectations

Poor compliance is likely. It is particularly difficult to keep masks on young children.

Practicalities and experience

This type of measure would need to be supported by an education campaign on both use and disposal of masks, and by provision of advice from healthcare workers, particularly GPs. Sufficient quantities of masks and facilities for disposal would also need to be available. People with respiratory disease may find it difficult to wear a mask continuously.

Timing

There is a case for wider use of masks early in the pandemic, when the clinical severity of the disease may not be well known. Early application offers the greatest opportunity to reduce transmission, although benefits would continue throughout the pandemic. This measure would require the population to recognise the early signs and symptoms of influenza, and to already possess or have prompt access to masks. In the early stages of the pandemic, public health authorities may be able to coordinate mask distribution to cases; however, distribution systems are likely to be overwhelmed as the pandemic spreads. As more information on the virus becomes available, it is possible that use of masks could be scaled back to a more sustainable and evidence-based level.

Menu of actions: border measures

Border measures include a range of measures that can be taken at airports and seaports to delay the entry or minimise the spread of illness to or from affected countries (or jurisdictions).

Australia's large land mass, large number of entry/exit points and frequent international travel means that it is highly unlikely that border measures would be effective in delaying the entry of pandemic influenza into Australia for a length of time that has practical relevance. Research consistently concludes that even with very rigorous restrictions on air travel, a delay of only two weeks could be achieved. Furthermore, in 2009, the pandemic virus had already spread widely before international authorities were alerted, suggesting that the point of emergence and opportunity to stop entry into countries had been missed by several weeks.

Australia's border measures will therefore aim to minimise transmission of the disease into the Australian community.

Public health measures related to communicable diseases of concern are in place at Australia's borders every day. In circumstances where a new or changing public health risk arises, such as an influenza pandemic, a range of options exist to strengthen these measures. The potential public health benefit of these options depends on the characteristics of the virus and disease, the behaviour and extent of spread internationally, and practicalities of implementation.

In selecting the most appropriate border measures for use during an influenza pandemic, it is important to have an understanding of the full suite of public health actions being used to reduce the spread of the disease across the Australian community. In Australia there is a comprehensive and well-resourced public health system that is able to detect and manage those with the disease and their contacts at multiple points in the healthcare system. Border measures should be selected to complement this public health response in the most efficient and effective way to ensure that the public health action is maximised. In countries with a less comprehensive public health system, the suite of public health actions to reduce the spread of communicable disease may be quite limited and border measures may play a different role in their response.

Border measures fall into the two main categories of communications and case identification (identifying and managing cases at the border).

Communications

Communications during situations of high risk or concern are an effective and efficient way to provide essential knowledge and engage key stakeholders, including the public, in the appropriate management of the situation.

Early in the response to a communicable disease threat, when the disease exists only (or principally) overseas, travellers are the group most likely to have been exposed to, and hence to be at risk, from the disease. Therefore, communication with travellers at the border is an essential component of the response.

A crucial aim of these communications is to build and maintain the trust and confidence of travellers and the general public, by providing clear, concise, honest, realistic and timely information. This will promote the adoption of public health behaviours by travellers which will reduce transmission. These include the practice of hygiene measures, and awareness by individuals of when they may have influenza and of the need to present to health care early. Early presentation promotes early diagnosis and management and advice received can reduce behaviours that promote transmission, such as discouraging socialising with others when sick.

The key goals and messages at the border will be to:

- inform the public of the disease (symptoms and signs, how it is transmitted),
- provide guidance on appropriate responses (hand and respiratory hygiene measures, what to do, who to approach and where to go if symptoms are present), and
- address concerns (provide an accurate assessment of risk while acknowledging uncertainty and reassuring the travelling public that there are people who can help).

Multiple communication methods will be used comprising written, verbal and visual tools. This may include inflight announcements, posters/banners, brochures/pamphlets, electronic displays, social media messages for travellers and education of personnel at airports/seaports to whom travellers can ask questions.

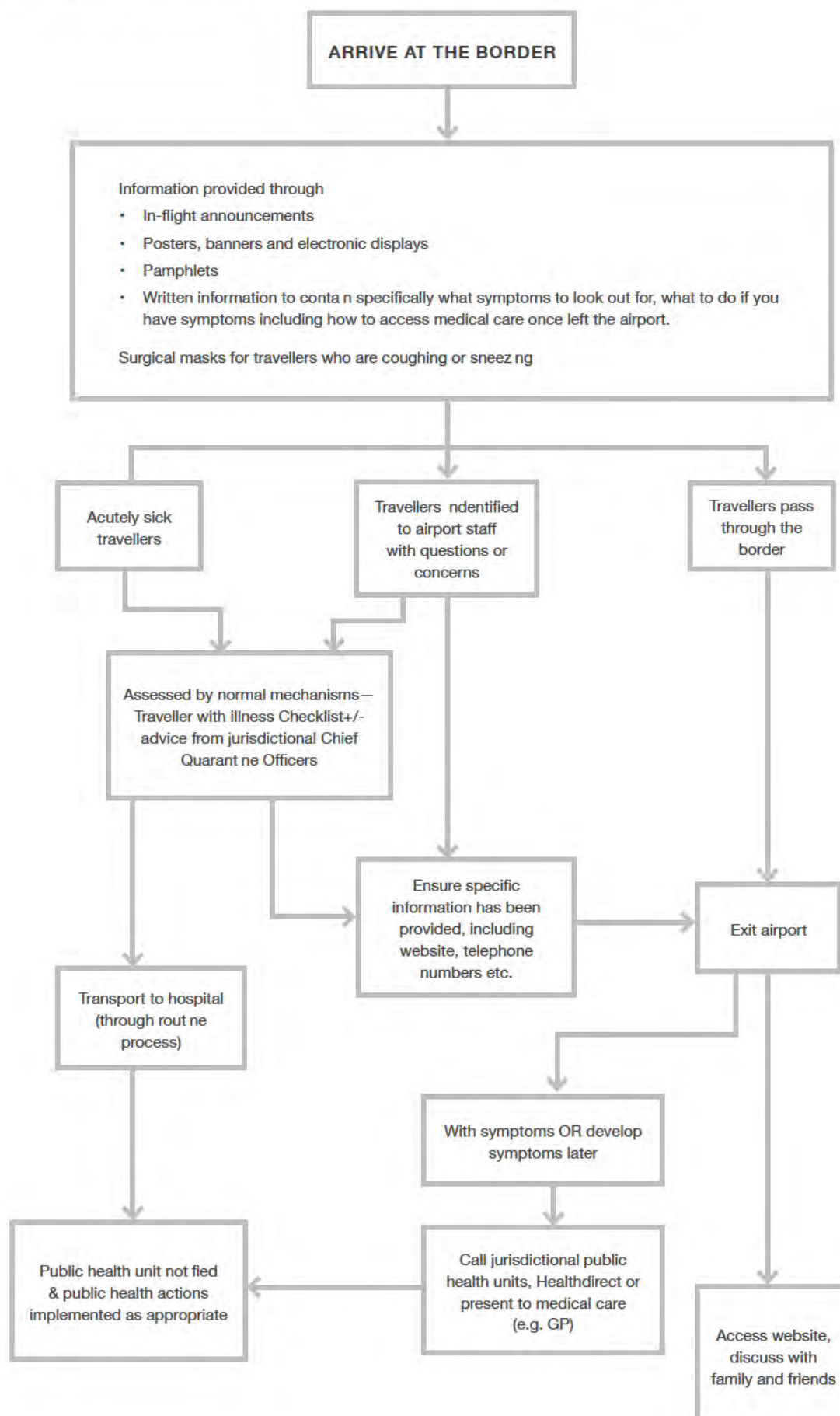
Measures that effectively inform travellers can continue to be useful beyond the audience at the border. Travellers entering or residents returning to our community after travel will circulate advice and reassurance at a community level about appropriate actions and management of the disease threat.

The summary tables which follow this introduction provide detailed information on the factors relevant to deciding whether to implement the following communication measures:

- In-flight announcements/On-board announcements (ships);
- Distribution of communications materials;
- Travel advice regarding high risk places and to raise awareness of symptoms; and
- Information for border staff.

Below is a flow chart outlining how communications measures at the border for pandemic influenza could be implemented.

Figure 8: Implementation of communication measures at the border.



Case identification

Mechanisms exist at all times to assess and manage acutely sick travellers who require immediate medical care at the border. This may include transportation to a nearby medical facility with the oversight and advice of biosecurity officials and the relevant CHBO.

Additional screening methods such as Passenger Locator documents can be used to try to identify more cases of communicable disease prior to their entry into the community, in order to minimise disease transmission. These measures attempt to identify cases by asking questions about symptoms,. Implementation of screening measures is likely to require additional resources from both the Australian Government and from state/territory health sectors (border nurses) to conduct the screening, and triage and assess those who are identified through the screening process.

Overall effectiveness

There is limited direct evidence for the effectiveness of communications measures at the border in significantly influencing transmission of the disease. However broader evidence supports the value of communications campaigns in promoting behaviours which reduce risks to health at an individual level (including risks to border staff) and building community confidence.

The effectiveness of screening measures (case identification) varies according to the disease. To be effective the following criteria need to be met:

- The proposed screening test is highly sensitive, and reasonably specific relative to other similar acute respiratory illnesses; and
- A high proportion of infectious patients are symptomatic at the time of presentation at the border.

Influenza would not typically satisfy these criteria. In influenza infections the symptoms and signs of the disease are found in other common illnesses such as the common cold and other respiratory viruses and bacterial infections. This means many people will be picked up by screening who do not have the specific disease. Furthermore, some persons infected with influenza will still be in the incubation period, some will be shedding virus asymptomatically, may have mild symptoms, or have taken analgesics which will reduce their temperature, and therefore not be identified by the screening methods. Therefore employing screening measures for influenza and other respiratory conditions are likely to identify many more people without influenza than with it (low specificity), and miss people who may continue to spread the infection (low sensitivity).

Evidence suggests that the ability of border measures to identify cases is limited. During the pandemic (H1N1) 2009 of the 15,457 travellers who were identified at the Australian border as being unwell, only 154 (1%) were managed as influenza after further investigation. Of 1287 passengers identified at Sydney airport through entry screening measures, only 3 (0.3%) were confirmed as cases.⁷

Even though the nature of SARS makes it more suited to use of border measures, experience from the SARS outbreak also showed that entry and exit screening was quite ineffective in preventing spread.⁸ Of the 1.84 million arrivals screened for SARS at the border when entering Australia in April–June 2003, only 4 arrivals met the case definition when investigated further.⁷

As the nature of the influenza virus makes it difficult to achieve any practically useful delay in transmission through active screening border measures, the focus of border measures in this plan will be on minimising the spread of the virus through the use of communications. Active screening measures for case identification, such as thermal scanners and Passenger Locator documents, are an ineffective and inefficient use of resources for the purposes of reducing transmission of respiratory viruses.

The exact nature of an influenza pandemic cannot be predicted. To ensure that information is available to support consideration of a full range of measures, in addition to communication measures, the summary tables which follow this introduction provide information on the factors relevant to deciding whether to recommend implementing the following case identification measures:

- Entry Screening:
 - Negative pratique
 - Passenger locator documents
 - Thermal scanners
 - Border nurses
 - Screening of passengers on cruise ships prior to disembarkation, where there is evidence of cases of influenza on board
 - Voluntary isolation of ill travellers not requiring hospitalisation
 - Quarantine of contacts at the border
- Exit screening
- Internal travel restrictions

Quality of evidence

Overall, the quality of the evidence available about the effectiveness of border measures is low. The majority is based on mathematical modelling and observational studies. There are few analytical studies. There was very limited published information about some of the measures, and none were considered in isolation.

Reference is made in this Menu to some literature in which SARS-related border measures were described or evaluated. It should be noted that there are limitations to extrapolating the experiences with SARS to pandemic influenza. Key factors in the success in controlling SARS (through case isolation, contact tracing and quarantine of contacts) were that cases of SARS are not infective during the incubation period, and that infectivity seems to peak 5 to 10 days after symptoms occur and asymptomatic cases did not seem to transmit the infection. Neither of these two factors applies to influenza⁹, and therefore any success with border measures during SARS may not be replicated during an influenza pandemic.

B1: Pandemic-specific inflight announcements and on-board announcements on ships

Application
Recommended as part of a communications package.
Objective and rationale
To encourage prompt presentation and diagnosis by raising travellers' awareness of signs and symptoms; encouraging presentation to a GP if symptoms are present; encouraging people to advise their GP of having travelled recently (and their destination). To reduce the burden of disease by encouraging early effective treatment.
Effectiveness
There is currently little direct evidence about the effectiveness of communications activities directed towards travellers. However, as part of a communications package, it could be a valuable tool for reaching people with an increased likelihood of exposure to the disease. In the 2009 pandemic review, travellers identified inflight announcements as the second most effective form of communication at the border for raising awareness of the disease.
Risks and benefits
<p><i>Risks:</i> Inflight announcements could raise concern in travellers about their safety in Australia and lead to travellers presenting unnecessarily at GPs as a result of anxiety. Identified services need to be available and accessible to avoid loss of confidence in authorities.</p> <p><i>Benefits:</i> This measure has broad coverage. Issue by the Australian Government of a standard message would promote consistent communications by all airlines and shipping lines. This measure provides an opportunity to raise awareness of signs and symptoms of the disease before people enter Australia and to raise awareness of public health interventions. It also informs travellers of the status of the disease in Australia. It would bring travellers up to date with community messages already provided within Australia.</p>
Direct costs
Minor. Costs include translation of the messages to other languages and distribution of announcements to airlines and shipping agents (human resources time).
Secondary costs
Minor. A short amount of aircrew time would be required.
Likely acceptability and expectations
High. This measure would have minimal impost, and the public appreciates being informed.
Practicalities and experience
<p>Support would be required to liaise with airlines and shipping agents and to respond to their requests to adapt centrally distributed announcements. Early in the pandemic, when the number of cases in Australia is very small, this measure would raise awareness in a group (travellers) that is more likely to have had exposure to the disease.</p> <p>Communications activities for incoming travellers that encourage early presentation to a medical facility for moderate to severe influenza-like illness should be seen as part of the provision of clinical care for the entire Australian community. Clinical care services have the potential to reduce mortality and morbidity, and border measures can be useful as a referral mechanism for mainstream clinical services.</p>
Timing
This measure should commence when notified of sustained human to human transmission of a novel virus. To be effective in reducing entry of the disease into the community, this measure would need to be used early; however, as a tool to raise awareness and update incoming travellers on the status of the disease in Australia, it would be useful throughout the pandemic. Announcements should change as the status of the disease within Australia changes and cease when seasonal influenza levels are reached.

B2: Communications materials for incoming or outgoing travellers

Application
Recommended as part of a communications package.
Objective and rationale
To encourage rapid presentation and diagnosis by raising travellers' awareness of signs and symptoms; encouraging presentation to a GP if symptoms are present; encouraging people to advise their GP of having travelled recently (and their destination); to inform of personal protective measures, such as hygiene.
Effectiveness
Evidence suggests this measure may have a <i>minor</i> effect in preventing overall transmission (as the number of infections likely to be prevented is small compared with the total number of infections across the community). However, as part of a communications package, this is a valuable tool for reaching people with an increased likelihood of exposure to the disease. During the pandemic (H1N1) 2009, 89% of individuals identified for assessment at Sydney airport self-identified after receiving health declaration cards—an example of information to raise the awareness of incoming travellers. ¹⁰ Analytical studies of the effectiveness of risk communication on reduction of transmission are not available.
Risks and benefits
<p>Risks: Materials printed in hardcopy can become out of date as the pandemic changes and understanding of the disease develops. Social media allows for rapid updating of information but not all travellers are users of social media and therefore may not be reached.</p> <p>Benefits: This measure empowers travellers to take action. Printed materials can be easily put into a wallet to keep for later reference, and electronic messages can be checked via social media. The use of electronic displays at airports and social media allows for key messages to be updated as the situation changes. Key contact numbers can be communicated. Translated versions of communication materials will ensure wider accessibility and to take into account the cultural diversity of the Australian community.</p>
Direct costs
Minor to moderate. Costs could include design, translation, printing, storage, and distribution and display of printed materials. For electronic messages, costs could include display screen purchases or message display fees (e.g. on doctor surgery or travel agent screens). (Costs will depend on the type of materials selected.) The use of social media has no direct cost if developed and monitored in-house.
Secondary costs
Minor. Costs will include the time taken to distribute and store materials, and to update/remove/destroy them once they are out of date.
Likely acceptability and expectations
High. There is minimal impost and no delay to travellers. Materials could be handed out at the same time as other entry documents. The expectation of the distributing agency would be that minimal time would be required to distribute materials.
Practicalities and experience
It would be better not to print too many materials early in the course of the pandemic, as the message may change through the course of the outbreak. Communications activities for incoming travellers that encourage early presentation to a medical facility for moderate to severe influenza-like illness should be seen as part of the provision of clinical care for the entire Australian community. Clinical care services have the potential to reduce mortality and morbidity, and border measures can be useful as a referral mechanism for mainstream clinical services. There may be some delay in provision of hard copy materials, such as pamphlets or posters, due to printing and distribution requirements. Design templates for printed and electronic messages could be created during the Preparedness stage to minimise the time for provision in later stages. Liaising with airports/seaports about appropriate channels to display information for travellers at individual ports should also be considered during the Preparedness stage. The use of existing social media trending tags (e.g. #pandemicflu) may assist in maximising the reach of social media messages.
Timing
This measure should commence when notified of sustained human to human transmission of a novel virus. To be effective in reducing entry of the disease into the community, this measure would need to be used early; however, as a tool to raise awareness and update incoming travellers on the status of the disease in Australia, it would be useful throughout the pandemic.

B3: Travel advice regarding high-risk locations and to raise awareness of symptoms if returning from travel

Application
Recommended as part of a communications package.
Objective and rationale
To reduce the number of Australians exposed to infection through travel to high risk locations by communicating the disease risks. To avoid exposure of Australians to infection who will then return and bring the disease back into the country. To reduce transmission, morbidity and mortality of those who do travel by raising awareness of symptoms and encouraging prompt presentation for medical assistance.
Effectiveness
<i>Minor.</i> Modelling studies suggest that travel advice to avoid high-risk areas has only a small effect on stopping the international spread of a pandemic unless adherence is close to 100%, although there may be a small delaying effect. ¹¹ However, raising awareness of symptoms and how to access medical advice should lead to prompt presentation. Prompt presentation to medical assistance can provide people with strategies and resources to minimise transmission, and early intervention, which can minimise morbidity and mortality.
Risks and benefits
<i>Risks:</i> Potential perceived liability issues may arise from cancelling of travel. Many people may travel regardless of the advice.
<i>Benefits:</i> 'Provides Australians with information about overseas disease risks to enable them to make an informed decision about whether or not to travel.
Direct costs
Minor, but moderate if an advertisement is produced (leading to costs of developing the advertisement and obtaining screening time).
Secondary costs
Moderate. Diplomatic tensions may arise from discouraging travel to specific countries.
Likely acceptability and expectations
The Australian public expects to be informed of high-risk destinations. People in nominated countries may wish to depart and may expect assistance from the Australian Government.
Practicalities and experience
Experience from the SARS outbreak was that the number of international travellers to affected areas declined in advance of formal travel advice. Systems already exist for providing advice about high-risk destinations (Smartraveller— www.smartraveller.gov.au).
Timing
This measure should commence when notified of sustained human to human transmission of a novel virus. To be effective in reducing entry of the disease into the community, this measure would need to be used early; however, as a tool to raise awareness and update incoming travellers on the status of the disease in Australia, it would be useful throughout the pandemic. Announcements should change as the status of the disease within Australia changes and cease when seasonal influenza levels are reached.

B4: Information for border staff

Application
Strongly recommended .
Objective and rationale
To reduce the risk of transmission of influenza to staff through education and information about the risks of contact with infected persons. To reduce levels of concern amongst staff.
Effectiveness
There is <i>no direct evidence</i> of the effectiveness of this measure. Education of healthcare workers on hospital infection control measures has shown some effectiveness. This measure could be seen as a necessary component of good staff management.
Risks and benefits
<p><i>Risks:</i> The measure could raise concern in some staff about their safety when dealing with travellers. Any support services identified need to be available and accessible early to avoid loss of confidence in support systems.</p> <p><i>Benefits:</i> Reduced transmission and reduced concern are likely to lower staff absenteeism. The measure provides an opportunity to raise awareness of signs and symptoms of the disease and of public health interventions, such as hand washing. It would keep staff informed about the status of the disease in Australia and the current response approach and priorities. It would also increase the feeling of inclusiveness of staff in response efforts as a whole.</p>
Direct costs
Minor. Exact costs would depend on the mode of communication used, but could include printing, distribution and storage costs.
Secondary costs
Minor. Costs include administration costs.
Likely acceptability and expectations
High. This measure would have minimal impact, and the public appreciates being informed.
Practicalities and experience
<p>This measure may produce the need to provide secondary support systems, such as access to medical advice or PPE. Information will need to be tailored to staff needs to promote confidence.</p> <p>Staff concerns are common in epidemic situations, reflected in requests for healthcare coverage in the United States, and access to PPE in Australia.</p>
Timing
This measure should commence when notified of sustained human to human transmission of a novel virus. It will be important to update staff throughout the pandemic. Information should change with changes in the status of the disease within Australia and the response. The measure should cease when seasonal influenza levels are reached.

B5: Negative pratique (aircraft commanders must report the health status of passengers on board before landing, rather than the normal reporting by exception)

Application
Recommended only when asymptomatic carriage is unlikely. Not recommended once community transmission is established.
Objective and rationale
To detect infected incoming travellers in order to prevent on-going transmission.
Effectiveness
<p><i>Minor.</i> As asymptomatic individuals will not be identified under negative pratique, this measure is likely to be ineffective in preventing or delaying disease entry.¹¹ Effectiveness is further reduced as this measure relies on crew members noticing that someone is ill and making a decision to report it (this is unenforced). The measure is not effective without further case management.</p> <p>Negative pratique was implemented in Australia on aircraft and cruise ships for influenza in 2009. Of the 15 457 travellers identified at the border as being unwell, 2011 (13%) were identified through this measure, though the number of actual cases was small. (See comments on overall effectiveness at front of the border measures menu.)</p>
Risks and benefits
<p><i>Risks:</i> Large numbers of asymptomatic travellers will still bring the disease into Australia while the border measures have created a false sense of security. Airlines may not report illness, to avoid being delayed or associated with illness. Implementation could be complex, as it requires efficient coordination between pilots, handling agents and Australian Government Department of Agriculture to avoid delays to passengers. Resourcing could also be challenging in larger airports.</p> <p><i>Benefits:</i> The measure is easy to implement. It simply extends an existing system, raises airlines' awareness of the need to report ill travellers and identifies a proportion of ill travellers.</p>
Direct costs
High, if the cost of investigation and management of individuals detected is included. This measure results in additional work for staff from the Australian Government Department of Agriculture staff as they must take a larger number of calls and arrange pratique (not normally required for all aircraft and ships).
Secondary costs
High. Implementing the negative pratique process and interviewing ill travellers could delay vessel turnaround. Management of identified ill travellers may require use of biosecurity officials and state health resources (if medical resources are stationed at airports and seaports). These resources are likely to be better used elsewhere during a pandemic, particularly as transmission within the community increases. Costs of delays in travel for individuals identified for follow-up may be substantial. Minor legislative change would be required to implement this measure.
Likely acceptability and expectations
High. This measure is an extension of an existing system that is regularly used. Experience from the SARS outbreak and pandemic (H1N1) 2009 suggests that there will be a public expectation of entry screening in some form. Decisions not to do so should be supported by information provided to the public and decision makers. There will be an expectation that the process is completed efficiently to minimise delays.
Practicalities and experience
During the response to pandemic (H1N1) 2009, limiting negative pratique to high-risk countries was considered. However, this was impractical as most flights into Australia pass through large international hubs before arriving in Australia, so it would be difficult to target the original destinations. It was also impractical for Department of Agriculture workforce planning, as border staff would need to manage different processes for aircraft from different locations. During normal business times, regular reports indicate under-reporting of ill travellers. (This may or may not be relevant during a pandemic. Experience from 2009 showed good reporting compliance.)
Timing
This measure should commence when notified of sustained human to human transmission of a novel virus. It must be used early to be effective, since its primary aim is to limit the entry of the disease into the community. The measure would cease when community transmission is well established.

B6: Passenger locator documents, such as the health declaration cards (HDCs) used during pandemic (H1N1) 2009 or International Civil Aviation Organization (ICAO) Passenger Locator Forms (PLFs)

Application
Recommended only when asymptomatic carriage is unlikely. Not recommended once community transmission is established.
Objective and rationale
To detect infected incoming travellers so that on-going transmission can be prevented; to encourage self-reporting by ill travellers; to raise awareness of the disease and provide information for use in contact tracing.
Effectiveness
<p><i>For detection of cases: Minor.</i> The measure cannot detect asymptomatic cases, and large numbers of asymptomatic travellers will still bring the disease into Australia. A small-scale pilot study in New Zealand of HDCs reported a voluntary response rate of only 57%, of whom 15% reported symptoms consistent with influenza-like illness. Of 1.2 million HDCs distributed to incoming passengers in Canada, none identified cases of SARS. During pandemic (H1N1) 2009 in Australia, 13 000 travellers with symptoms were identified through information provided on HDCs and underwent further assessment; of these, only 154 were managed as influenza.</p> <p>To be effective in reducing transmission this measure requires case management of identified individuals.</p> <p><i>For awareness raising:</i> There is <i>no evidence</i> on whether passenger locator documents raise awareness of the disease, but they could potentially be another source of information.</p>
Risks and benefits
<p><i>Risks:</i> Ill travellers may not provide accurate or legible assessments of their health or details. Border measures may create a false sense of security. HDCs do not include seat numbers, so cannot be used for contact tracing.</p> <p><i>Benefits:</i> Self-reporting identifies people who are feeling unwell when this may not be noticeable to others. One benefit of PLFs is that they are universally available and managed by ICAO, thereby giving a consistent message with no impost on Australia to manage design. They include seat numbers for contact tracing and do not requiring professional printing. One form for all countries is easier for airlines and shipping agents to store, manage and distribute. Use of PLFs rather than country-specific cards contributes to a consistent international response.</p>
Direct costs
Moderate to high. Costs include medical resources and testing processes (if deployed at the border); printing (lower costs than for HDCs as no design work is needed); distribution to airlines and shipping agents; storage and distribution by airlines and shipping agents; collection, collation and analysis of the forms (e.g. HR resources, transport, scanning software, associated service provider); and storage of completed forms. If the forms are being used for contact tracing, a system is required for rapid data entry so that details are available to public health authorities in a timely manner. Staff required to take those reporting symptoms to further action.
Secondary costs
High. Costs include liaison with airlines and shipping agents regarding use of the forms, and opportunity costs if medical resources are deployed at the border.
Likely acceptability and expectations
High. There is a minor time inconvenience to passengers to complete the form and some administrative burden on airline and ship crews. As HDCs have been used before, there will be some existing acceptability and expectation of use of the forms. Experience from SARS and pandemic (H1N1) 2009 shows that there may be a public expectation of entry screening in some form. Decisions not to do so should be supported by information provided to the public and decision makers. Guidelines for filling in the PLF (printed on the reverse of the form) will be available in different languages, which is likely to increase acceptability and compliance.
Practicalities and experience
Major logistical challenges in printing, distribution, collection, collation and analysis of HDCs were experienced during pandemic (H1N1) 2009. Although these will be less with PLFs, as they can be obtained more easily prior to vessels entering Australia, challenges will remain, particularly for analysis. There will also be logistical challenges in managing delays to passengers.
Timing
This measure should commence when notified of sustained human to human transmission of a novel virus. It must be used early to be effective, since its primary aim is to limit the entry of the disease into the community. The measure would cease when community transmission is well established.

B7: Thermal scanners

Application
Not recommended as effectiveness is likely to be low. Experience from SARS and pandemic (H1N1) 2009 shows that there may be a public expectation of entry screening in some form. Decisions not to do so should be supported by information to the public and decision makers.
Objective and Rationale
To detect infected incoming travellers so that on-going transmission can be prevented; to encourage self-reporting.
Effectiveness
<i>Minor.</i> If people are infectious when asymptomatic, the number of people entering without being detected will inevitably make the effectiveness of this measure low. Not all cases of influenza are febrile. Thermal scanners may be useful in identifying cases of diseases for which cases are not infectious until they are symptomatic, and one of the symptoms is a high temperature. The WHO <i>Global influenza preparedness plan</i> states that experience shows this measure is not effective. ¹² The use of thermal scanners identified only 12% of all imported pandemic (H1N1) 2009 cases at arrival in Singapore. Data from Canada, China and Singapore showed that no cases of SARS were detected by thermal scanning among the more than 35 million international travellers scanned. The measure is not effective without further case management. Scanners seemed to provide some public reassurance during the 2009 pandemic, but this is likely to have been based on a false estimate of the effectiveness of the measure.
Risks and benefits
<i>Risks:</i> Use of thermal scanners may impede circulation of travellers within airports and seaports. This measure is indiscriminate, identifying anyone with a high temperature—including those who do not have a fever, or have a fever due to another cause—and thereby causing unnecessary delays and wasting resources. Large numbers of asymptomatic travellers will still bring the disease into Australia while the border measures have created a false sense of security.
<i>Benefits:</i> The measure encourages self-reporting (i.e. people think they will get picked up and be in trouble if they have not self-reported). As this measure is highly visible, it may inspire public confidence that something is being done to manage the outbreak
Direct costs
High. Costs include equipment purchase, calibration and storage; administration of contracts; training; and personnel. If medical resources are deployed at the border to support this measure, costs will include nursing personnel and personnel to bring ill travellers to nurses. There will also be costs associated with testing identified people. Thermal scanners require space in the airport or seaport.
Secondary costs
High, if supported at the border by medical resources. Medical resources deployed at the border will be associated with an opportunity cost, since they are likely to be a scarce resource and could be used elsewhere. There will be costs to individuals from delayed travel and lost productivity.
Likely acceptability and expectations
High for the public; low for implementing agencies. The public, upon whom there is small impost, is likely to be accepting of this measure; acceptability was high during pandemic (H1N1) 2009. Acceptability for implementing agencies will be low. Lack of confidence in the effectiveness of scanners and their high cost during pandemic (H1N1) 2009 led to a lack of support for their use among implementing border agencies.
Practicalities and experience
Thermal scanners are labour intensive. A lot of planning is involved in placing and managing them. They are difficult to use in peak times as people must go through in single file. This may lead to delays. Identification of possibly febrile individuals will require follow-up.
Timing
This measure should commence when notified of sustained human to human transmission of a novel virus. It must be used early to be effective, as its primary aim is to limit the entry of the disease into the community. It would cease when community transmission is well established.

B8: Border nurses

Application
Not recommended , as effectiveness is depends on the effectiveness of identification measures, which is likely to be low.
Objective and rationale
<p>To support negative pratique, thermal scanners and/or HDCs/PLFs by following up ill travellers identified and so reduce on-going transmission, by providing case antiviral treatment and isolation and possibly contact tracing and quarantine of household contacts. Placement in airports/seaports reduces transport issues and time delays from moving people to be assessed and tested. An immediate nursing clinical assessment reduces the number of erroneous identifications, which are likely to be frequent due to lack of sensitivity in the initial case identification systems.</p> <p>To detect (high risk) cases early to enable early treatment and prevent complications.</p>
Effectiveness
<p>The effectiveness of border nurses in reducing transmission is linked to the effectiveness of entry screening. As screening methods are not effective in detecting cases, border nurses will not have a significant impact on preventing transmission from imported cases. If disease is severe, at-risk groups are identified, or there is a high rate of disease in incoming travellers, early diagnosis and treatment associated with this measure could be of benefit.</p>
Risks and benefits
<p><i>Risks:</i> Significant amounts of nursing time will be used for ill people who do not have influenza, since it is difficult to discriminate between influenza and other illnesses.</p> <p><i>Benefits:</i> Having easy access to health care may encourage self-reporting of infection by travellers. The measure will allow early testing, the opportunity for immediate antiviral treatment to reduce transmissibility and complications, the opportunity to advise self-isolation and self-quarantine of close contacts, and increased public confidence in control of infection.</p>
Direct costs
High. Costs include nursing personnel (a scarce resource), taking ill travellers to nurses following identification (HR cost), space in the airport or seaport required for examination, pathology, consumables, drugs, PPE.
Secondary costs
High. There is an opportunity cost associated with this measure as nurses and border staff could be used elsewhere in the health system. Minor legislative change is required to authorise border nurses to conduct screening measures under the <i>Biosecurity Act 2015</i> .
Likely acceptability and expectations
<p>Low. The opportunity cost will make this measure unpalatable to state and territory health systems that supply the nurses.</p> <p>This measure is also more disruptive to travellers as it takes them out of the processing line.</p>
Practicalities and experience
<p>During pandemic (H1N1) 2009, difficulties related to security procedures were experienced in providing rapid access within airports for nurses. Suitable facilities for this measure are not normally available in an airport or seaport. Nurses are a scarce commodity that could well be used in community care, hospital care or public health. Mechanisms exist at all times to assess and manage acutely sick travellers who require immediate medical care at the border. This may include transportation to a nearby medical facility with the oversight and advice of biosecurity officials and the relevant CHBO.</p>
Timing
<p>This measure should commence when notified of sustained human to human transmission of a novel virus. It must be used early to be effective as its primary aim is to limit the entry of the disease into the community. It may be of use in reducing morbidity and mortality early on if the rate of infection in travellers is high and disease is severe. This measure will become less acceptable to state and territory health departments as nurse shortages become more extreme. It would cease when community transmission is well established.</p>

B9: Screening of passengers on cruise ships prior to disembarkation, where there is evidence of cases of influenza on board

Application
Not recommended unless there is evidence of high clinical severity.
Objective and Rationale
To reduce entry of the disease into the community through closer management of the entry of travellers on higher risk vessels. Cruise ships provide good conditions for the rapid spread of respiratory viruses as they allow interactions between large groups of people in enclosed environments. They also disembark passengers in several ports for a few hours, increasing the risk of spreading the virus.
Effectiveness
<i>Minor.</i> Modelling studies show that travel restrictions do not prevent global spread, although they may reduce the number of incoming cases. Severe restrictions of up to 99% reduction in travel from affected countries may be required to achieve a delay of 2–3 weeks in introduction of the disease to uninfected countries.
Risks and benefits
<i>Risks:</i> This measure may cause loss of goodwill from tourists.
<i>Benefits:</i> This measure may slow introduction of the disease into the community in early stages of the pandemic.
Direct costs
High. Costs include the costs to vessels of delays (including additional pay for personnel and additional food requirements), resources to implement screening processes, testing, and managing and accommodating identified cases.
Secondary costs
Costs include difficulties for people getting home after delays, and damage to the international perception of Australian tourism. There is also an opportunity cost, since the resources required (e.g. nurses) could be used elsewhere.
Likely acceptability and expectations
Low, though compliance is likely to be good, especially for diseases with a moderate to high clinical severity. It imposes a significant impost on travellers. During pandemic (H1N1) 2009 in Australia, one index case was responsible for the spread of the pandemic virus strain, resulting in 83 cases on a cruise ship (an attack rate of 3%). After disembarkation, cases undertook voluntary isolation, and asymptomatic passengers were quarantined at home for seven days. In a follow-up survey of 45 randomly selected quarantined passengers, only 2 reported refusing quarantine.
The WHO International Health Regulations ¹³ require that measures not unnecessarily interfere with international trade and travel.
Practicalities and experience
Some argue that controlling disease outbreaks in ships has a minimal impact as a border measure due to the huge number of travellers who enter Australia through air traffic. On the other hand, as cruise ships provide the opportunity for intense transmission of the virus, the risk posed by cruise ships in introducing cases into Australia cannot be ignored. As respiratory diseases are common in cruise ships, disease surveillance systems already exist. They are usually performed on board by designated crew. Public health measures performed in cruise ships include isolation of cases, training, advising, cleaning, respiratory etiquette and surface disinfection. Advice on the management of cases of pandemic (H1N1) 2009 on ships was issued in 2009 by the WHO and remains a useful reference. It is available at http://www.who.int/csr/resources/publications/swineflu/cp011_2009_1029_who_guidance_H1N1_ships.pdf .
Timing
This measure should commence when notified of sustained human to human transmission of a novel virus. It must be used early to be effective as its primary aim is to limit the entry of the disease into the community. The measure would cease when community transmission is well established.

B10: Voluntary isolation of ill travellers not requiring hospitalisation

Application
Ill travellers identified at the border through other measures, such as thermal scanners or HDCs could be encouraged to isolate themselves as part of a broader policy of voluntary isolation of those with influenza-like illness. It should be considered that there may come a time when resources required to initiate this at the border would be better used elsewhere. On its own, it is unlikely to have a high impact on reducing transmission due to limitations in identifying cases. Returning Australians may isolate themselves at home, however other arrangements would be required for other travellers.
Objective and Rationale
To reduce exposure to the disease by managing the entry of ill travellers at the border.
Effectiveness
<i>Minor.</i> In modelling studies, isolation of infectious cases is effective in reducing transmission by reducing cumulative attack rates, even in models assuming high transmissibility. ^{14, 15} However, this assumes the ability to identify cases. Mild or asymptomatic cases are difficult to detect and therefore not usually isolated, reducing the effectiveness of this measure.
Risks and benefits
<p><i>Risks:</i> When people are isolated at home caregivers would be at high risk of infection due to more concentrated exposure and, families would be at risk of infection. Compliance may be low in mild or asymptomatic cases.</p> <p><i>Benefits:</i> This measure may delay spread of the disease within the community.</p>
Direct costs
Moderate if isolated at home; high if isolated in hotels. Costs include accommodation, food, servicing, medical support, security, entertainment, and establishing and maintaining a support system to monitor people isolated.
Secondary costs
Moderate. Costs include loss of wages, lost productivity from time spent in isolation, paid time off work for caregivers, and impacts on small business.
Likely acceptability and expectations
During the SARS outbreak, compliance with self-isolation was high in most countries. Difficulty may be created for caregivers, and loss of income due to isolation may be unacceptable in some circumstances. This is a high visibility measure. Communication would be important to increasing acceptability.
Practicalities and experience
<p>Isolation of cases with mild symptoms may be difficult to enforce. No quarantine premises are available, and use of hotels is problematic. Self-regulated isolation may not be complied with, and the support lines required would be resource intensive. Traditionally Australians are quite compliant (as shown by the SARS outbreak and pandemic [H1N1] 2009), and so isolation could result in some reduction in spread.</p> <p>It is not expected that the practice of isolation at the border will achieve significant benefits over assessing and managing possible cases when they re-enter the community, given the limited effectiveness of case identification at the border. Therefore, provision of advice and referral for assessment after travellers leave the airport is considered adequate.</p> <p>Isolation of non-Australians would require resolution of issues such as visa extension, entitlement to medical care, and missing return flights or voyages. Issues of compensation may arise. See also social distancing measure Voluntary isolation of cases.</p>
Timing
<p>This measure should commence when notified of sustained human to human transmission of a novel virus. It must be used early to be effective as its primary aim is to limit the entry of the disease into the community.</p> <p>The measure would be replaced with advice on influenza-like illness given to the general community when community transmission is well established. See menu item 'Self-isolation of cases' for discussion of duration of isolation.</p>

B11: Quarantine of contacts of ill travellers at the border

Application
Not recommended. The contact tracing required to identify and contact contacts of ill travellers is difficult to achieve in the necessary rapid timeframes, and requires significant resources. Combined with the limited effectiveness of case identification at the border, it is likely that the benefits will be limited. Returning Australians may quarantine themselves at home, however other arrangements would be required for other travellers.
Objective and Rationale
To prevent or reduce on-going transmission from infected travellers.
Effectiveness
<i>Minor.</i> Evidence suggests that, in combination with other measures, quarantine of contacts may have some effectiveness in reducing secondary infection. During pandemic (H1N1) 2009 in Japan, the use of antivirals and quarantine of contacts of imported PCR-positive cases may have prevented some further spread. Isolation and quarantine of ill people and contacts identified on the basis of screening is ineffective in preventing continuing transmission unless the proportion of infections occurring before symptom onset falls below a threshold value. A usable value can be applied for SARS and smallpox, but not for influenza. Delays in follow-up can dramatically reduce effectiveness.
Risks and benefits
<p><i>Risks:</i> There is a significant burden on health and other systems from this measure.</p> <p><i>Benefits:</i> Secondary transmission may be reduced if compliance is high enough and sufficient cases are identified. This measure may delay some spread of the disease within the community, however the proportion would be so low as cases increased within the general community, that this measure would have no noticeable effect on the course of the pandemic.</p>
Direct costs
Moderate if isolated at home; high if isolated in hotels: Costs include accommodation (which will be a substantial cost), food, servicing, medical support, security and entertainment. Extensive infrastructure is required, including databases, information and surveillance hotlines, and staff to carry out contact tracing and monitoring, and to enforce quarantine.
Secondary costs
Moderate. Costs include loss of productivity and wages, impacts on small business and impacts on tourism. In the SARS experience in Toronto, some people lost their jobs because of the need to comply with quarantine for at least 10 days.
Likely acceptability and expectations
Low. High costs and significant impost on travellers and services would occur with this measure. It would also be highly complex to arrange and maintain. It is likely to draw significant criticism.
Practicalities and experience
Acceptability is likely to be low unless disease is very severe. Compliance may be low; ethical issues may arise from confining individuals; and stress may result from confinement. No quarantine premises are currently available, and use of hotels is problematic. Quarantining of non-Australians would require resolution of issues such as visa extension, entitlement to medical care, and missing return flights or voyages. Issues of compensation may arise. See also social distancing measure Quarantine of contacts.
Timing
<p>This measure should commence when notified of sustained human to human transmission of a novel virus. It must be used early to be effective, since its primary aim is to limit the entry of the disease into the community.</p> <p>The measure would cease when community transmission is well established. See menu item 'Voluntary quarantine of contacts' for discussion of duration of isolation.</p>

B12: Exit screening

Application
Not recommended as effectiveness is likely to be low and costs are likely to be high. It could be considered if the virus emerges first in Australia.
Objective and Rationale
To reduce the number of ill travellers travelling from Australia to reduce the international spread of the disease.
Effectiveness
<i>Minor.</i> Modelling studies suggest that exit screening can be effective in delaying local epidemics by a few (1–3) weeks. However, this assumes a high degree of effectiveness in detecting and preventing travel by cases, which is unlikely to be the case in practice.
Risks and benefits
<p><i>Risks:</i> External pressure to apply exit screening from WHO and other countries may cause diplomatic tension. Lack of effectiveness of screening measures may lead to criticism if infected people are allowed through screening.</p> <p><i>Benefits:</i> Benefits would be experienced primarily by other countries. For example, there may be some benefit to small island countries where the community has to date had little exposure to the disease; however, low detection rates and the potential for asymptomatic travel mean that the influence of exit screening is still likely to be small.</p>
Direct costs
High. Costs include staff to implement screening (a large number of staff would need to be used to avoid delaying passengers and vessels), advertising exit screening arrangements, support for screening (e.g. staff, materials such as passenger locator documents), medical resources if they are deployed at the border, and staff and health resources to investigate and manage individuals detected.
Secondary costs
High. Costs include delays to flights, and opportunity costs if medical resources are deployed at the border.
Likely acceptability and expectations
Low. This measure is not familiar to Australians and is therefore likely to be less acceptable than entry screening.
Practicalities and experience
<p>Exit screening may be recommended by the WHO under the International Health Regulations, although this is not an obligation. As asymptomatic people may be infectious and will not be prevented from travelling, preventing symptomatic travellers from travelling is unlikely to be effective in preventing the spread across countries.</p> <p>Exit screening arrangements would need to be widely advertised, so that travellers are aware before they arrive at airports or seaports. Law enforcement officers would also be likely to be required to manage restriction of passengers from boarding scheduled flights.</p>
Timing
To influence transmission patterns, this measure would need to be implemented before widespread global evidence of the disease.

B13: Internal travel restrictions (restriction of travel across state or territory borders, or within certain areas of a state or territory, either to protect remote communities or to isolate areas with higher rates of exposure)

Application
Not recommended in general as benefits are likely to be minor.
Objective and Rationale
The delay or prevent the transmission of influenza from one town or region to another.
Effectiveness
<i>Minor.</i> Very limited evidence suggests that high travel restrictions (e.g. 50%) may bring about a minor benefit, and low travel restrictions (e.g. 10%) may be of no benefit.
Risks and benefits
<i>Risks:</i> Strict travel restrictions could seriously affect key societal functions, including the supply of food and fuel.
<i>Benefits:</i> Very limited delay or prevention of transmission is possible.
Direct costs
High. Costs would include loss of income to transport authorities, travel-dependent industries and trade. Costs would be incurred from preparing and distributing promotional materials; potential screening activities on entry to airports, seaports, and bus and train stations; or closure of airports, which might require compensation. More localised restrictions would probably require enforcement by some kind of police or army presence.
Secondary costs
Secondary effects are likely to be high. Restrictions on travel may indirectly impair supply of essential commodities and disrupt economic activities.
Likely acceptability and expectations
Acceptability of air travel restrictions is likely to be high. Acceptability of land travel restrictions is unknown however it is expected to be lower.
Practicalities and experience
This measure is likely to be impractical in the Australian context. Non-essential travel is likely to decline in any case. Legal authority to implement this measure would need to be investigated. Some remote communities may choose to implement this measure. This would require organisational support to ensure availability of essential supplies.
Timing
To be effective, this measure should be enacted as soon as the first cases are detected in a region.

Menu of actions: social distancing measures

Social distancing is a community level intervention to reduce normal physical and social population mixing in order to slow the spread of a pandemic throughout society.

Social distancing measures may complement measures applied to individuals to decrease the likelihood of spread of pandemic influenza. Implementation of many social distancing measures would occur outside the health sector. The role of health sector experts and decision makers would be to develop and forward recommendations to central governance bodies, such as the National Crisis Committee, for consideration and action by relevant parties.

The summary tables which follow this introduction provide information on factors to consider in developing recommendations on:

- Proactive school closure;
- Reactive school closure;
- Workplace closure;
- Home working; and
- Cancellation of mass gatherings.

Related public health measures, with the similar aim to reduce transmission by reducing contact between infectious cases and uninfected individuals, include the isolation of cases and quarantine of contacts. The summary tables which follow this introduction provide information on the factors relevant to deciding whether to implement self-isolation of cases and voluntary quarantine of contacts, as well as another related measure: contact tracing.

This, the Menu of Actions: Infection Control section of the AHMPPI, is to be used in conjunction with the *Australian Guidelines on for the Prevention and Control of Infection in Healthcare (2010)* to provide support for the implementation of social distancing measures in healthcare settings. The management of cases and contacts at the Australian border have specific considerations and are discussed in the border measures section above.

Within the community, case and contact management will be conducted by state and territory health departments according to jurisdictional guidelines. Decisions concerning the identification and management of contacts (contact tracing) will consider the benefits of public health interventions (such as quarantine and antivirals) and the benefits of collection of surveillance data to inform decision making (discussed further in the Surveillance Plan). Evidence suggests that compliance with, and hence effectiveness of, home isolation and quarantine depends on multiple factors including the perception and understanding of risk associated with infection/illness, and financial considerations. Early and transparent communication to the public will be an important component of implementing home isolation and quarantine.

During the Initial Action stage, little may be known about the impact of the pandemic, and what information is available is likely to suggest moderate–high morbidity and mortality. Therefore, early on case and contact management is likely to reflect a precautionary approach (for moderate–high disease severity), and include both isolation and quarantine.

As surveillance information becomes available, the management of cases and contacts can be modified to suit the characteristics of the disease and to more effectively manage limited public health resources. For example, in a pandemic with high mortality and morbidity, preventing transmission as much as possible is important, and so both isolation and quarantine may be continued.

Compliance and benefits with social distancing measures are likely to be highest when disease is clinically severe. Where transmission is occurring quickly and severity is lower, the practicalities of implementing and supporting contact quarantine may outweigh the potential benefits. Isolation is likely to have the most impact on spread of virus when transmissibility is low and/or asymptomatic cases rare. As the pandemic progresses, decisions will become more pragmatic as the potential benefits of these measures are balanced against resourcing, capacity and social impact/disruption. The impact of these interventions is dependent on early application.

The recommended period of isolation for cases, and quarantine for contacts, will primarily be determined by the period of communicability and incubation period of the disease. The use of antivirals for treatment and/or prophylaxis may modify the length of these periods of isolation (shorten), depending on their efficacy in reducing transmission. At the time of the pandemic, the period of isolation and quarantine should be considered in the light of the specific information about the characteristics of the current disease.

During the Initial Action stage, the period of isolation and quarantine will be based on previous and current knowledge of pandemic influenza viruses (planning assumptions) and available evidence of the current pandemic disease. As more information becomes available from surveillance and specific studies, these may be modified during the Targeted Action stage.

Quality of evidence

Social distancing measures are considered to be an important part of 'defence in depth' against pandemic influenza although the available evidence is weak. Overall, social distancing measures are found to be modestly effective. Although the pandemic (H1N1) 2009 generated fresh evidence, the overall quality of the evidence was not strong as it derived predominantly from observational studies or mathematic modelling.

The evidence concerning the overall effectiveness of isolating cases is moderate. It is limited to a small number of modelling studies that tried to measure the impact of isolation of affected cases at home. Modelling of the isolation of household contacts of index cases suggest this may be beneficial.

SD1: Proactive school closure

Application

Not generally recommended, however could be considered when there is evidence of high clinical severity and/or high transmissibility specifically in children. The level of disruption is likely to outweigh benefits.

Objective and rationale

To limit community spread of the virus.

Rationales for using proactive school closure include the following:

- Respiratory infections have been observed to spread easily in day-care and school settings and are considered likely to show the same features during a pandemic.
- Children are at greater risk of transmission and infection, due to their developing immune systems and immature hygiene practices.
- Children are potentially a group at risk of complications (the 1957 pandemic showed a focus of transmission in children).

Effectiveness

Moderate. Modelling suggests reduced transmission by 1–50%. Studies suggest that school closure delays the epidemic peak by a week or two and flattens the wave of the epidemic.

Risks and benefits

Risks: This measure may cause workplace and economic disruption, as a large proportion (about 40%) of Australian parents, including healthcare workers, would need to take unplanned leave from work. Some children may be left without supervision. The benefits would be reduced if children continue to have contact with others during the school closure period. Children may find changes in their normal routine unsettling.

Benefits: This measure may moderately reduce and delay transmission.

Direct costs

Moderate. Costs include increasing security and communicating school closures.

Secondary costs

Extreme. Costs include workplace absenteeism of parents and carers who need to provide care and supervision to school children; disruption of school curricula; and possible delays to examinations, with implications for senior high-school students. There may be economic implications for parents without access to paid parental leave.¹⁶

Likely acceptability and expectations

School closures of limited duration would be largely acceptable in Australia if their purpose was understood, though this will depend on individual circumstances.

Practicalities and experience

Decisions about school closures may vary unless there is central direction.

The effects on transmission may be smaller than predicted by modelling studies, as children also mix outside schools.

The secondary effects of proactive closure are likely to be worse than those of reactive closure, because the reactive closures would be in response to specific cases, whereas proactive closures would be speculative and potentially prolonged, and may include many schools where no transmission is occurring.

To have a significant effect, school closure may be required throughout most of the pandemic (i.e. at least 8 weeks). The practicalities of closing schools for such a long period are problematic, particularly around exam times.

Timing

If longer term closure is considered, it is better to introduce this measure as soon as possible.¹⁷ This is because starting early in the epidemic will maintain a lower R_0 (transmission coefficient) and achieve lower eventual attack rates. However, this may be seen as unsustainable. If a short period of closure is implemented, it is preferable to close schools a few weeks before the epidemic's peak. While early closure is most likely to reduce initial epidemic transmission, there is a risk of 'rebound' epidemics on reopening schools. This would need to be managed proactively.

SD2: Reactive school closure

Application
Not recommended unless the disease has high clinical severity or children are a group at risk of complications.
Objective and rationale
<p>To reduce increasing or uncontrolled influenza transmission in school settings where transmission is taking place. To respond to staff shortages.</p> <p>Rationales for using reactive school closure include the following:</p> <ul style="list-style-type: none"> • Respiratory infections have been observed to spread easily in day-care and school settings and are considered likely to show the same features during a pandemic. • Children are at greater risk of transmission and infection, due to their developing immune systems and immature hygiene practices. • Children are potentially a group at risk of complications (the 1957 pandemic showed a focus of transmission in children).
Effectiveness
Variable but generally <i>moderate</i> overall. Reactive school closures have been reported to reduce transmission by 7–15%; on rare occasions, up to 93% reductions have been demonstrated in modelling.
Risks and benefits
<p>Risks: This measure may cause workplace and economic disruption, since a large proportion (about 40%) of Australian parents would need to take unplanned leave from work. Some children may be left without supervision. Children may find changes in their normal routine unsettling.</p> <p>Benefits: This measure may moderately reduce and delay transmission.</p>
Direct costs
Moderate. Costs include increasing security and communicating school closures. Public health unit resources would be needed for tasks such as contacting notified cases of school age and liaising with schools. There may be economic implications for parents without access to paid parental leave.
Secondary costs
Extreme. Costs include workplace absenteeism of parents and carers who need to provide care and supervision to school children, and disruption of school curricula. ¹⁶
Likely acceptability and expectations
School closures of limited duration would be largely acceptable in Australia if their purpose was understood, though this will depend on individual circumstances.
Practicalities and experience
The effects on transmission may be smaller than predicted by modelling studies, as children also mix outside schools.
Timing
The optimal timing of this measure is not known for certain. It should be considered when the attack rate of influenza-like illnesses reaches 5%.

SD3: Workplace closure

Application
Not generally recommended. Although some specific workplaces may be able to accommodate closure, it is unlikely that a large enough percentage could participate to significantly affect the pandemic's impact. This measure is only relevant if clinical severity is moderate to high.
Objective and rationale
To reduce transmission of influenza in workplace settings. Proactive workplace closure is not considered here as a measure as determining triggers describing sufficient evidence of transmission to warrant closure, in a timeframe which would make closure effective, will be problematic. Reactive closure may be considered after introduction of the virus into workplaces especially if simultaneous to local school closure.
Effectiveness
<i>Moderate.</i> Modelling suggests that at least one-third of workplaces would need to be closed to bring an epidemic under control (to achieve an attack rate of less than 5%).
Risks and benefits
<i>Risks:</i> This measure may cause disruption to businesses, threats to income and job security, and economic strain on families if closures are prolonged. It is not plausible for essential services and supplies (e.g. medical goods). <i>Benefits:</i> This measure may allow better control of transmission.
Direct costs
High. Costs would depend on the workplace. There would be substantial costs from closure for any period of time due to lack of production and engagement in business. Costs would also result from announcements, promotional materials and potentially requests for compensation. The cost of worker compensation, if provided, would be very high.
Secondary costs
High. Costs include effects on profits, availability of goods and services, and job security. Modelling has estimated the macroeconomic impacts of school and workplace closure are likely to exceed costs caused by the pandemic itself. ¹⁸
Likely acceptability and expectations
Acceptability will depend on the business. Closure is likely to be acceptable to employees, particularly if they are sufficiently compensated, although data about this is not available in the Australian context. It would be important to have a clear understanding of benefits and entitlements between employees and employers.
Practicalities and experience
Modelling suggests that at least one third of workplaces would need to be closed to bring an epidemic under control. This would cause substantial disruption and economic impact. The measure may therefore be impractical. It may also be impossible to close some workplaces (e.g. aged and healthcare industries). Some workplaces may ultimately close as a result of staff illnesses. Some businesses, such as pharmacies, may need to expand to meet demand. There may be limitations to computer systems' capacity to support high numbers of people working from home.
Timing
Precise data from Australia concerning timing of this measure are not available. Workplace closures at the same time as school closures would avoid associated workplace disruption, but this alignment is unlikely in cities if workplace and school closures are reactive only.

SD4: Working from home

Application
This measure should be considered for pandemics with a moderate to high clinical severity, and where home working can be reasonably accommodated. Home working may not be practical for many workplaces.
Objective and rationale
To allow employees who may or may not be infectious to work from home and therefore decrease transmission outside domestic settings.
Effectiveness
<i>Minor.</i> This measure is moderately effective in reducing transmission of influenza by about one-fifth. A Japanese trial that assessed the effectiveness of home stay of employees on full payment found that the strategy reduced the overall risk of pandemic (H1N1) 2009 influenza by around 20%. ¹⁹
Risks and benefits
<i>Risks:</i> Productivity may potentially be lower, due to lower levels of supervision, access to resources or assistance. <i>Benefits:</i> This measure provides people who have been 'quarantined' with the capacity to continue to work from home.
Direct costs
Direct costs of home working (compared with travelling to work) have not been well studied. There may be minor costs of planning.
Secondary costs
Minor and variable. Home working may not be feasible for all, especially for self-employed people, who may suffer serious financial problems. Where home working is possible, there may still be reduced productivity and coordination.
Likely acceptability and expectations
The measure is likely to be acceptable among employees if they are paid fully (this would be an internal organisational issue), although precise data in the Australian context are not available.
Practicalities and experience
<p>It may not be practical to do all types of work from home; many functions must be conducted in designated places. There will also be capacity limitations with IT systems which will severely limit the number of workers able to simultaneously remotely access their organisations' servers.</p> <p>Guidance must be given on the definition of an appropriate isolation period (see menu item 'Self-isolation of cases') for the conditions of isolation (e.g. contact limitations, use of PPE etc.).</p>
Timing
No data on timing are available, but the measure should be considered once community transmission occurs.

SD5: Cancellation of mass gatherings

Application
Not generally recommended , however, may be considered if the disease has a high clinical severity rate and moderate to high transmissibility, at certain stages in the progress of the pandemic.
Objective and rationale
To reduce transmission of influenza by limiting the number of potentially ill contacts an individual is exposed to.
Effectiveness
There is some evidence to suggest that mass gatherings can amplify the risk of influenza transmission. One modelling study that examined the impact of mass gatherings specifically found large increases (around 10%) in the simulated peak prevalence as a result of the occurrence of mass gatherings within 10 days before the epidemic peak. However, mass gatherings that occurred much earlier or later in the epidemic would have relatively little effect—for example, if they were more than 40 days before or 20 days after the peak when the initial R_0 (transmission coefficient) is 1.5.
Risks and benefits
<i>Risks:</i> Certain mass gatherings may be important to maintain public morale. <i>Benefits:</i> Benefits are uncertain.
Direct costs
Moderate. Costs will result from planning and arranging cancellations, especially in the absence of insurance. The issue of financial liability and meetings insurance would be crucial.
Secondary costs
High. Secondary costs will especially affect those who organise meetings and events, and derive an income from that work.
Likely acceptability and expectations
Acceptability is likely to be high, but members of the public may oppose banning certain types of gatherings (e.g. religious or sports gatherings).
Practicalities and experience
Cancellation of meetings and events is not without precedent, and contingency plans are generally in place. Communication materials will need to be employed to notify people of cancellations. These messages may not reach all parties.
Timing
To be effective, this measure should be enacted within 10 days before an anticipated peak of an epidemic.

SD6: Voluntary isolation of cases

Application
Voluntary self-isolation of cases is recommended (particularly as the clinical severity of the disease increases), to be used in conjunction with infection control measures to reduce the risk of transmission to household contacts. Most likely to influence the course of the pandemic when clinical severity is high and transmissibility is low.
Objective and rationale
To reduce transmission by reducing contact between infectious cases and uninfected persons.
Effectiveness
<p><i>Minor.</i> Modelling studies have demonstrated that the action of isolation may delay the peak of an influenza pandemic, especially when combined with other preventive measures.</p> <p>Isolation is likely to have the most impact on the spread of the virus when transmissibility is low and/or asymptomatic cases are rare. Impact is dependent on early application.</p>
Risks and benefits
<p><i>Risks:</i> Household contacts of the index case are at risk of acquiring the infection.</p> <p><i>Benefits:</i> Benefits will be minor (see 'Effectiveness'). They are most likely if clinical severity of disease is high and transmissibility is low.</p>
Direct costs
Expected to be minor. Costs will result from loss of income and may disproportionately affect lower income groups.
Secondary costs
Minor. Contacts may be at risk of acquiring infection, and both cases and contacts may suffer from psychosocial distress. There would be disruption to workplaces and the economy in a large-scale pandemic.
Likely acceptability and expectations
Acceptability and expectations are variable but overall high (>80%) in Australia. Experience is that compliance is higher in households that are well informed about quarantine than in those that are less well informed.
Practicalities and experience
<p>Consideration may need to be given to support mechanisms, such as financial, psychological, social, physical and other needs of the patient and caregivers while they are in isolation.</p> <p>During pandemic (H1N1) 2009 influenza in Australia, it was found that, from a public health response perspective, a number of factors were integral to ensuring effective isolation and quarantine: a flexible incident control system, a web-based multi-user access database with both reporting and case management capacity, upskilling of surge staff, and electronic communication.</p>
Timing
The isolation period will be based on available evidence of the pandemic disease during the Initial Action stage and modified for the Targeted Action stage when adequate information is available from surveillance. Voluntary self-isolation of confirmed cases should begin early and remain throughout the pandemic period. Voluntary self-isolation based on symptoms should begin once transmission starts to become widespread

SD7: Voluntary quarantine of contacts

Application
Recommended in the Initial Action stage, and consider in the Targeted Action stage, particularly if consequences of infection are high.
Objective and rationale
The aim of quarantine is to reduce transmission of influenza by preventing its spread through seclusion of contacts of cases. Contacts could be asked to isolate themselves for a period after their last exposure to the case. If symptoms occurred, they would continue to isolate themselves and seek medical advice.
Effectiveness
<i>Moderate.</i> The quality of available evidence is low; however, it suggests that quarantine of contacts may reduce the peak case load and delay the peak of a pandemic. A modelling study of the Asian influenza pandemic 1957–58 showed that rates of illness and mortality were reduced by around 50% if people with influenza-like illness and their household contacts stayed home; compliance was assumed to be 40%. A study in Japan found that the overall risk of pandemic (H1N1) 2009 influenza was reduced by about 20% by ill employees staying at home on full pay. The impact of this measure will depend on early application and rapid identification of cases.
Risks and benefits
<p><i>Risks:</i> Quarantining of contacts sharing the same room or toilet with index cases significantly increases the risk of acquiring the infection among the contacts. There is a significant burden on health and other systems from this measure.</p> <p>Those affected by quarantine may report distress due to fear and risk perceptions.</p> <p><i>Benefits:</i> Benefits will be moderate (see 'Effectiveness'). Compliance and benefits will be highest when disease is clinically severe. Provision of antivirals to contacts would be likely to reduce morbidity and mortality in this group.</p>
Direct costs
Potentially high, depending on the number of cases. Costs will result from a substantial number of people being absent from work.
Secondary costs
Moderate. Costs will result from the increased risk of secondary transmission among isolated contacts and the consequent disruption to work and society.
Likely acceptability and expectations
Acceptability of quarantine measures is likely to be high in Australia, especially if the public is well informed about the consequences of a pandemic, though this will depend on individual circumstances.
Practicalities and experience
It is important to consider that contacts remain highly susceptible to acquiring the infection from index cases if they are quarantined in the same house. They should therefore be separated from the index case, whenever possible; this may not always be practical. Consideration may need to be given to support mechanisms such as financial, psychological, social, physical, and other needs of the patient and caregivers while they are in isolation.
Timing
The period of quarantine will be based on available evidence of the pandemic disease during the Initial Action stage and modified for the Targeted Action stage when adequate information is available from surveillance. No data on the timing of introduction of quarantine are available, but quarantine should be considered during the Initial Action for contacts of confirmed cases. Consideration should be given to basing quarantine on symptoms once transmission becomes more widespread.

SD8: Contact tracing

Application
Important part of initial enhanced surveillance activities. If it is aimed at reducing morbidity and mortality, consider if clinical severity is high.
Objective and rationale
<p>To reduce transmission by identifying people who have been in close contact with symptomatic cases and implementing interventions such as voluntary isolation or antivirals. To reduce morbidity or mortality by promoting prompt treatment.</p> <p>To obtain surveillance data to support modelling of pandemic impact levels.</p>
Effectiveness
<p><i>Minor.</i> Effectiveness depends on the capacity to identify cases and locate their close contacts, and the effectiveness of the interventions applied (see menu items relating to isolation and antivirals). Since the low sensitivity of case definition and detection methods mean that the capacity to identify cases is low, evidence suggests that the ability of contact tracing to significantly influence pandemic transmission rates is also low. Interventions are less effective after 48 hours, and it is difficult to trace contacts within that time; these factors also limit the likely effectiveness of this measure. However, prompt treatment of people at higher risk is likely to influence morbidity and mortality. The extent of the treatment program will dictate the level of impact.</p>
Risks and benefits
<p><i>Risks:</i> This measure imposes a significant burden on health and other systems.</p> <p><i>Benefits:</i> The measure would be valuable as part of early information gathering to assist understanding of the disease. Early in the pandemic, when the clinical severity of the disease is unknown, contact tracing may be prudent to reduce morbidity and mortality of people known to have been exposed to infection before widespread community transmission. Similarly, if clinical severity is known to be high, contact tracing before widespread transmission may be worthwhile to help reduce morbidity and mortality. Only minor overall reduction in transmission is likely.</p>
Direct costs
Moderate to high. Contact tracing requires a high level of human resources.
Secondary costs
High. Costs of associated interventions may be high, depending on the protocol adopted to determine how extensive contact tracing should be and the interventions implemented. There is an opportunity cost associated with use of health resources, which could be better used elsewhere, depending on the stage of the pandemic and the clinical severity of the disease.
Likely acceptability and expectations
Contact tracing is regularly undertaken for other diseases by public health units, but not routinely used for seasonal influenza. The perception of the benefit of contact tracing for influenza to reduce transmission is likely to be low, but will be higher where the purpose is to reduce morbidity and mortality of a disease with a high clinical severity. Acceptability is likely to be good if seen as part of initial enhanced surveillance activities.
Practicalities and experience
Contact tracing of travellers is difficult to achieve in the necessary rapid timeframes. The process of locating and informing contacts is also laborious. To identify contacts from aircraft, information must be obtained from airlines (unless PLDs are in use). This may require reference to head offices and therefore takes time. For ships contact tracing is also problematic as passengers circulate widely on board, potentially creating the need to contact many passengers. This measure is more feasible early in the pandemic when numbers of cases are lower.
Timing
This measure should commence when notified of sustained human to human transmission of a novel virus. If used for surveillance data gathering, it would cease when the characteristics of the disease are understood. If used to reduce transmission, morbidity or mortality, it would cease when community transmission is well established.

Menu of actions: pharmaceutical measures

The pharmaceuticals referred to in this Menu include antivirals, candidate pandemic vaccines (a vaccine based on a strain of influenza virus considered to have pandemic potential), customised pandemic vaccines (a vaccine based on the actual pandemic virus) and seasonal influenza vaccine. References to antivirals relate to the neuraminidase inhibitors (NAIs) oseltamivir and zanamivir. The recommendations made in this Menu assume the pandemic virus is susceptible to these NAIs. The evidence used in this menu will be periodically reviewed to incorporate new antiviral agents.

This Menu examines:

- Antivirals for treatment of cases
- Antivirals for post exposure prophylaxis for contacts
- Antivirals for post exposure prophylaxis for at-risk groups
- Antivirals for pre exposure prophylaxis for healthcare workers
- Candidate pandemic vaccine
- Customised pandemic vaccine
- Seasonal influenza vaccine

Antivirals

Antiviral medications can be used for treatment of infected cases, prophylaxis of exposed contacts, and pre-exposure prophylaxis for healthcare workers at high risk of infection. Treatment with antivirals aims to reduce symptoms in individuals and hence lower morbidity and mortality. Prophylactic use of antivirals aims to reduce the risk of infection and illness in contacts, potentially lowering the spread and hence disease attack rate. A reduction in mortality and morbidity, and transmission, will assist in minimising impact on health care services during a pandemic. The most commonly used antivirals in the community are oseltamivir and zanamivir.

The appropriate strategy for the use of antivirals will depend on the stage of the pandemic, the epidemiology (transmissibility and clinical severity) and virological (antiviral resistance) characteristics of the virus, pre-existing immunity, vaccine availability and practicalities such as logistics of antiviral delivery and availability.

During the Initial Action stage, it is possible that little will be known about the clinical severity of the disease and the likely impact of the pandemic, however the available information is likely to suggest moderate to high morbidity and mortality. As surveillance information becomes available, the antiviral strategy can be modified to more effectively manage the specific pandemic. For example, in a pandemic with high mortality and morbidity, preventing illness in as many individuals as possible is important to minimise mortality and morbidity, reduce transmission to others and maintain the health workforce. When severity is lower, protecting those at risk of severe outcomes becomes the focus.

Rapid distribution is key to the effectiveness of antivirals at a population health level. All stakeholders, including jurisdictions, will need to have considered appropriate distribution strategies. Alternate strategies for distribution of antivirals and administration of vaccines may be considered, such as a review of scheduling of antivirals to improve ease of access, and use of pharmacies to provide vaccinations.

Quality of evidence

There is consistent good quality evidence regarding the effectiveness of antivirals to treat cases. However, the evidence concerning the impact of antivirals on severe outcomes is not as high in quality. Evidence of the effect of antivirals to limit transmission, either from treated cases or through provision of prophylaxis to close contacts is more limited and generally restricted to household studies. Use of mathematical models is a good method of exploring scenarios to consider the implications of transmission reducing approaches at whole population level, however their results simplify complex systems. The findings are dependent on and sensitive to the input information (e.g. transmission characteristics, population susceptibility, and individual behaviour) which are inferred rather than quantified by direct observation.

Remarkably few recent detailed studies exist on the cost effectiveness of antivirals for treatment and/or prophylaxis. Of the recent studies, there is no consistency in the approach taken, the underlying assumptions used, or the cost effectiveness measure used. Interpretation of the results of cost-effectiveness studies is problematic because of the wide range of transmissibility and severity under investigation and the high degree of variability in the approach and assumptions used.

Vaccines

Vaccination is the key tool to limit the number of individuals infected, as it allows individuals to be immunised without experiencing disease. Vaccine-related strategies for candidate vaccines, which are developed prior to a pandemic, are different from those developed for customised pandemic vaccines. Seasonal influenza vaccine has been included here to consider its capacity to provide protection against related influenza variants and as the familiarity of the public with seasonal influenza vaccines will influence attitudes, behaviours and existing health system arrangements.

Candidate pandemic vaccines

Avian-origin H5, H7 and H9 viruses, and swine-origin H3N2 variant viruses are all currently considered strains of pandemic potential, against which vaccine seed strains have been developed.²⁰

The effectiveness of candidate pandemic vaccines will depend on the similarity between the strain used to develop the vaccine and the strain causing the pandemic. Candidate pandemic vaccination strategies will depend on the timing and extent of infection in Australia, the availability of the vaccine, the knowledge of the efficacy and safety of the vaccine, and the predicted impact of the pandemic on Australia.

It may be necessary to prioritise vaccination of individuals at greater risk, such as healthcare workers, or individuals at high risk of severe outcomes. If sufficient time and stocks of vaccine are available to vaccinate the wider population, distribution strategies might aim to target individuals who are more likely to spread infection. Many details of the vaccination program would need to be determined, including the size of dose, the number of doses per person, and the delivery strategy, including which individuals or groups should be given priority. Communication of reasons for prioritisation would be important to prevent dissatisfaction within the community.

Administration of a candidate pandemic vaccine prior to established within-country transmission of an emergent strain would be recommended on specific advice from the WHO.

Customised pandemic vaccine

Once a novel strain of influenza has emerged, the WHO will recommend a suitable vaccine virus and the Australian Influenza Vaccine Committee will advise whether this is endorsed for use in Australia. Vaccine companies will then work to develop a new vaccine for that strain. The Australian Government has arrangements in place to ensure once a customised pandemic vaccine is developed that it could be purchased as quickly as possible. This development process may take several months, so the customised pandemic vaccine may not be available until the disease is widespread. As with the candidate pandemic vaccine, delivery

strategies will need to be devised to make best use of the customised vaccine as it becomes available. Unlike candidate pandemic vaccine strategies, however, the delivery strategy may need to take account of existing levels of immunity. For example, if high levels of immunity have already been achieved in children by natural infection, prioritising children for vaccination will have less impact on reducing disease spread and may not be a good use of resources. As with the candidate pandemic vaccine, individual compliance with vaccination is likely to depend on the perceived severity of the pandemic strain and the adverse effects associated with vaccination.

The public's perceived risk-benefit profile for vaccination is likely to be dynamic, becoming less favourable over the course of a pandemic response. For this reason, clear communication throughout the pandemic response is critical to ensure good uptake of the customised vaccine.

P1: Antivirals for treatment of cases

Application

Recommended for all cases during the Initial Action stage, within available resources and using a syndromic diagnostic strategy. In the Targeted Action stage, treatment strategies can be modified to more effectively manage the specific pandemic and maximise the clinical benefits of the resources available. Modified antiviral treatment strategies are listed below from most liberal to most constrained:

1. Treatment of all identified cases regardless of risk stratum or setting of care. Provision of post exposure prophylaxis for individuals in the population that are considered to be high-risk. (This option is likely to be considered in a limited number of pandemic scenarios).
2. Treatment of all identified cases regardless of risk stratum or setting of care. Prophylaxis is not recommended.
3. Treatment of all identified cases in the population that are considered to be high-risk. Treatment of all cases in hospital and ICU settings. Prophylaxis is not recommended.
4. Treatment of hospital and ICU patients only.

Objective and rationale

To manage and reduce the duration and severity of symptoms of influenza in individuals, hence reducing transmission, morbidity and mortality. This will in turn minimise the impact on health care services.

Effectiveness

Minor. Modelling studies suggest that treatment of cases only will have minimal (<2%) influence on the scale and progress of the pandemic. However, the effectiveness for individuals may be high. There is consistent good evidence for reduced duration of symptoms. For impact on severe outcomes, observational data (including data from pandemic [H1N1] 2009) and some meta-analyses show reduced complications, hospitalisations and death. Some reduction in infectiousness will also result—for example, household study estimates include a reduction in secondary attack rate from 10.6% to 4.5%, and 16.6% to 2.1%.

In mild influenza infection, NAIs administered within 48 hours of onset of illness reduce the duration of illness by half to one day in at-risk populations (adults and children). This allows resumption of usual activities somewhat earlier than in the absence of treatment. Greater reductions may occur if the NAIs are taken earlier. Studies on pregnant women confirm the benefits of early administration, with reduced risks of hospitalisation, admission to intensive care and mortality.

Risks and benefits

Risks: Potential side-effects include nausea, vomiting and abdominal pain. There is a risk of resistance developing, which needs to be monitored. Resistance was identified in 2009 but was uncommon. Consideration should be given to whether there are limitations relating to women who are pregnant or breastfeeding.

Benefits: Treatment may reduce symptoms and thus reduce morbidity and mortality, and decrease disease transmission to contacts. It may also contribute to the prevention of secondary bacterial infection.

Direct costs

Moderate to high. Costs will depend on transmissibility and severity of the disease, and scope of treatment. Significant purchase, storage, maintenance and delivery costs will be incurred if antivirals are stockpiled. There will be additional costs for the administration of treatment to individuals.

Secondary costs

Secondary costs will include monitoring of adverse events. The costs will depend on factors such as disease transmissibility and clinical severity.

Likely acceptability and expectations

Compliance is likely to increase with disease clinical severity.

Practicalities and experience

Antivirals are only effective while being taken and are a prescription-only medication. Individuals will need to present to a healthcare provider for laboratory-confirmed or symptomatic diagnosis. They are available from the private market at cost to the individual when prescribed by healthcare providers. Since antivirals are not widely used in hospital or community settings, it would be necessary to stockpile them to ensure that they are available during a pandemic. Logistical difficulties exist in identifying cases and supplying the medication early enough to have an effect. It should be noted that no antiviral medicine is currently registered for use in children under 1 year of age.

Timing

Antivirals are more effective for individuals if they are used early, ideally within 48 hours of symptom onset. However, some studies indicate that antivirals may still have significant positive outcomes even if commenced more than 48 hours after symptom onset; mortality is reduced even if treatment is started as late as 6–8 days after symptom onset.

P2: Antivirals for post-exposure prophylaxis (PEP) of contacts⁴

Application

Recommended during the Initial Action stage within available resources. In scenarios with low clinical severity, to reduce mortality/morbidity, best directed towards those at greatest risk of severe illness. There is less benefit in reducing transmission to the general population. In scenarios of high severity, PEP for close and at-risk contacts is important to reduce mortality/morbidity and to reduce transmission, and hence risk of illness.

Objective and rationale

To reduce infection and spread, therefore reducing the number of secondary cases.

Effectiveness

Direct trials data estimates a 70–90% protective efficacy.

Modelling suggests that a strategy in which antivirals are used to treat cases and treat contacts may influence the epidemic curve. Controllability is most likely to be achieved where the disease has a high clinical severity (high visibility) and low to moderate transmissibility. The real-world logistical issues of stockpiling and delivery are likely to considerably reduce this impact. In addition, timely administration, supported by molecular diagnosis in the early epidemic phase, and on a syndromic basis during an established epidemic, has been demonstrated in modelling studies to be essential in the success of antiviral prophylaxis programs.

Risks and benefits

Risks: There is a risk of resistance developing if antivirals are overprescribed. This needs to be monitored. Resistance was identified in 2009 but was uncommon. The number of people who could be classed as contacts could be extensive, leading to depletion of stockpiles of antivirals. This should be considered when deciding which contacts will receive prophylaxis. Consideration should be given to whether there are limitations relating to women who are pregnant or breastfeeding.

Benefits: This measure may reduce infection and symptoms, thereby reducing morbidity and mortality, and disease transmission to contacts. It may also contribute to the prevention of secondary bacterial infection. The greatest benefits are anticipated where distribution is prioritised to at-risk individuals, resulting in the greatest achievable reductions in hospitalisations and deaths.

Direct costs

Moderate to high. Costs will depend on transmissibility and clinical severity of the disease, and scope of treatment. Significant purchase, storage, maintenance and delivery costs will be incurred if antivirals are stockpiled. There will be additional costs for the administration of treatment to individuals.

Secondary costs

Moderate to high. This measure requires contact tracing to identify individuals requiring prophylaxis.

Likely acceptability and expectations

Compliance is likely to increase with disease clinical severity. During pandemic (H1N1) 2009, there was some evidence of reduced compliance with antiviral prophylaxis due to adverse events, particularly in the United Kingdom. A study of Australian healthcare workers found that only 17.6% would work unconditionally during an influenza pandemic, with the majority saying that they would work if antivirals were available for prophylaxis or treatment.

Practicalities and experience

Feasibility of widespread prophylaxis decreases as transmission increases. Once widespread community transmission is established, provision of prophylaxis to extended contacts is not feasible and not an efficient use of resources. Only a limited number of doses will be stockpiled (limited by finance and storage capacity).

Defining which priority groups and healthcare workers are eligible for antivirals will be challenging; equity issues and differing levels of clinical severity will need to be taken into account.

Logistical difficulties exist in identifying cases and supplying the medication early enough to have an effect. Effective use of infection control measures, including PPE, by healthcare workers may help to reduce the requirement for antivirals. Antivirals are available from the private market at cost to the individual when prescribed by healthcare providers. It should be noted that no anti-viral medicine is currently registered for use in children under 1 year of age.

Timing

Antivirals are more effective in minimising symptoms if used early, ideally within 48 hours of exposure.

⁴ Exposure is defined as exposure to an infectious case within 1 metre for >15 minutes without a mask, as described in Influenza infection: CDNA national guidelines for public health units (July 2011) — www.health.gov.au/internet/main/publishing.nsf/Content/cdna-song-influenza.htm.

P3: Antivirals for post-exposure prophylaxis for at-risk groups

Application
Recommended during the Initial Action stage, within available resources. In scenarios of lower severity, to reduce mortality/morbidity, PEP is best directed towards those at greatest risk of severe illness. In scenarios of high severity, PEP for at-risk contacts is important to reduce illness in this group, and therefore reduce morbidity and mortality.
Objective and rationale
To reduce infection within at-risk groups where the potential for severe outcomes is higher.
Effectiveness
Modelling considered a scenario in which 10% of the population was 'at risk' due to at least one factor, and prioritised antiviral distribution to this group, within capacity constraints. Based on the reported global experience from pandemic (H1N1) 2009, it was assumed that these individuals had a five-fold higher risk of hospitalisation when infected, that each hospitalised individual had a 12.5% chance of admission to the intensive care unit (ICU) and, of those admitted to ICU, 40% died. ²¹ The clinical attack rate in the 'at-risk' category mirrored that for the general population for low-impact scenarios, but was noticeably higher for medium- and high-impact epidemics, even with a highly effective intervention strategy (e.g. treatment and prophylaxis).
Even in high-transmissibility scenarios where the total clinical attack rate in either or both of the 'at-risk' and general population groups appeared unchanged by the intervention, the assumed efficacy of the drugs against severe outcomes, based on data from pandemic (H1N1) 2009, was seen in the halving of the number of deaths reported.
Risks and benefits
<i>Risks:</i> Potential side effects include nausea, vomiting and abdominal pain. There is a risk of resistance developing if antivirals are overprescribed. This needs to be monitored. Resistance was identified in 2009 but was uncommon. The number of people who could be classed as 'at-risk' could be extensive, leading to depletion of stockpiles of antivirals. Consideration should be given to whether there are limitations relating to women who are pregnant or breastfeeding.
<i>Benefits:</i> As the likelihood of severe disease increases, so do the benefits of the reduced risk. Treatment may reduce symptoms and disease transmission to contacts, thus reducing morbidity and mortality. It may also contribute to the prevention of secondary bacterial infection.
Direct costs
Moderate to high. The cost of prophylaxis for at-risk individuals depends on the number of individuals provided with prophylaxis. Significant purchase, storage, maintenance and delivery costs will be incurred if antivirals are stockpiled. There will be additional costs for the administration of treatment to individuals.
Secondary costs
Moderate to high. This measure requires efforts to identify at-risk individuals requiring prophylaxis.
Likely acceptability and expectations
Compliance is likely to increase with disease clinical severity. During the pandemic (H1N1) 2009, there was some evidence of reduced compliance with antiviral prophylaxis due to adverse events, particularly in the United Kingdom.
Practicalities and experience
Once widespread community transmission is established, targeted use of prophylaxis to reduce morbidity and mortality among particular groups is a better use of resources. Large quantities of antivirals would be required for prophylaxis for high-risk individuals. There will be logistical difficulties in identifying people in at-risk groups and supplying the medication early enough to have an effect. It should be noted that no anti-viral medicine is currently registered for use in children under 1 year of age.
Timing
Antivirals are more effective if used early, ideally within 48 hours of exposure.

P4: Antivirals for pre-exposure prophylaxis (PrEP) for healthcare workers

Application
Not routinely recommended during the Initial Action stage. The main benefit of PrEP is to maintain the health workforce; however, in low impact pandemics, other types of protection are likely to be adequate. Higher severity pandemics may have significant negative impacts on the healthcare workforce. PrEP may reduce this impact and assist in maintaining an adequate healthcare workforce.
Objective and rationale
To reduce infection and potentially lower transmission, to maintain the health workforce.
Effectiveness
Modelling studies have shown that prophylaxis coverage of healthcare workers has little impact on the transmission dynamics of the disease. However, healthcare workers play a critical role during a pandemic in maintaining a stable healthcare system. Provision of prophylactic antivirals to this group, as part of a package of protective measures, is considered to be one means of maintaining workforce capacity. Further study is necessary to determine the practicality of delivering antivirals to this group during a pandemic.
Risks and benefits
<p><i>Risks:</i> Potential side effects include nausea, vomiting and abdominal pain. There is a risk of resistance developing if antivirals are overprescribed. Resistance was identified in 2009 but was uncommon. A shortfall in the supply of antivirals is a risk if extensive PrEP is continued once transmission is widespread. Consideration should be given to whether there are limitations relating to women who are pregnant or breastfeeding.</p> <p><i>Benefits:</i> This measure may reduce symptoms and disease transmission, thus reducing morbidity and mortality. It may also contribute to the prevention of secondary bacterial infection. Reduced morbidity and mortality among healthcare workers will increase the availability of healthcare workers. Continuous provision of PrEP to healthcare workers is associated with a marked reduction in cases within this sector, because workers are protected against both occupational and community acquisition of infection, and is an efficient means to ensure ongoing service delivery.</p>
Direct costs
Moderate to high. The cost of continuous PrEP for healthcare workers depends crucially on the proportion of workers given prophylaxis. Costs are likely to increase with transmissibility of the virus and thus the proportion of healthcare workers exposed. Significant purchase, storage, maintenance and delivery costs will be incurred if antivirals are stockpiled. There will be additional costs for the administration of treatment to individuals.
Secondary costs
Moderate to high. This measure requires the ability to identify healthcare workers requiring prophylaxis. There are also costs associated with workers taking compulsory drug-free periods and potentially being unable to work during that time.
Likely acceptability and expectations
Compliance is likely to increase with disease severity, but may wane over many weeks of antiviral use. A study of Australian healthcare workers found that only 17.6% would work unconditionally during an influenza pandemic, with the majority saying that they would work if antivirals were available for prophylaxis or treatment.
Practicalities and experience
Once widespread community transmission is established, targeted use of prophylaxis to reduce morbidity and mortality among particular groups, such as healthcare workers, is a better use of resources. Depending on demand, there may be a need to prioritise available stocks of antivirals. Prioritisation should be based on exposure to risk and duration of risk. Antivirals are only registered for six weeks of continuous use before a break is required. This would need to be factored into a strategy to provide healthcare workers with PrEP.
Timing
Use should be related to exposure to risk.

P5: Candidate pandemic vaccine

Application

For pandemics with a moderate to high severity use of candidate pandemic vaccine may be warranted for priority groups, such as of front-line responders (those who may be presented with initial cases), groups at risk of complications (advice on at-risk groups will be provided early in the pandemic) or key transmitting groups.

Objective and rationale

To protect individuals in order to maintain front line services and lessen the impact of the pandemic. Candidate vaccines may help to reduce the severity of illness in those that become infected, or prevent infection in some.

Evidence of effectiveness

Moderate. Current evidence shows generally moderate immunogenicity and generally acceptable safety profiles for most available candidate vaccines against influenza virus strains identified by WHO as having pandemic potential. Candidate vaccines are unlikely to offer the same level of protection as customised pandemic vaccine. Administration of such a candidate vaccine would be most effective early in a pandemic.²²

Risks and benefits

Risks: Possible adverse events, which occur at higher rates with adjuvanted vaccines, include swelling and redness at the injection site; low-grade fever, malaise and myalgia; and febrile convulsions in children. In a low-impact scenario, administration of candidate pandemic vaccines is likely to be associated with an adverse risk–benefit profile that would not justify the additional cost or workload. Receipt of seasonal influenza vaccine can block the acquisition of natural immunity resulting from influenza infection, potentially making recent seasonal vaccine recipients (particularly relatively immunologically naïve children) more vulnerable to pandemic virus strains. There may be limited or no experience with new vaccine formulations, particularly regarding the safety profile in relation to rare but serious adverse events such as narcolepsy and Guillain-Barré syndrome, as this requires long term use of vaccines in large population groups.

Benefits: Candidate vaccines can be stockpiled, which would allow pre-emptive administration in an anticipated pandemic scenario of high impact to induce immunity in priority groups. The benefits and cost-effectiveness would depend on vaccine effectiveness and rapid achievement of high coverage in the relevant priority groups. Use of a stockpiled vaccine for mitigation among high disease-risk groups could be appropriate in moderate- to high-impact pandemic scenarios, or in cases where high cross-protective efficacy was anticipated.²²

Direct costs

Costs will depend on quantity stockpiled, but include purchasing, storing and distributing vaccines/vaccination equipment; and coordinating the vaccination program, including developing clinical advice, developing and disseminating communications materials, briefing ministers and responding to media queries.

Secondary costs

Costs will depend on quantity stockpiled. This measure entails additional work for state and territory immunisation program managers and providers. Costs include monitoring and management of vaccine adverse events, and monitoring uptake and effectiveness of the vaccine.

Likely acceptability and expectations

Acceptability will depend on public perception of the impact of the pandemic and candidate vaccine safety. Public perceptions are likely to be dynamic. Clear communication will be critical and expectations around vaccine availability will need to be carefully managed.

Practicalities and experience

Difficulties associated with stockpiling include the need to maintain the stockpile with high likelihood of wastage due to the relatively short shelf life, and difficulties predicting which virus will cause the next pandemic.

Contracts managed by the Australian Government provide for purchase of candidate vaccine for the National Medical Stockpile. Factors influencing the decision to use a candidate vaccine will include vaccine availability (quantity in stockpile and/or potential to obtain further stocks), the anticipated impact of the pandemic, likely effectiveness against the pandemic strain, observed epidemiology of the virus and timeframe for customised pandemic vaccine production. Depending on these factors, strategic use might focus on maintaining the healthcare system, mitigating severe outcomes among the vulnerable, and/or reducing transmission in the population.

Timing

Consider pre-emptive distribution of candidate vaccine when notified of a novel virus of concern. Consider administration of vaccine when there is sustained human to human transmission outside of Australia, on the basis of expert advice from the WHO and ATAGI. Cease when supplies are exhausted, customised pandemic vaccines is available, or earlier on the basis of expert advice from ATAGI.

P6: Customised pandemic vaccine

Application

Recommended. A customised pandemic vaccine would protect against both infection and development of severe illness. The timeframe required to develop a customised vaccine is an important factor.

Objective and rationale

To protect individuals and reduce the impact of the pandemic and hence lower morbidity and mortality.

Evidence of effectiveness

Moderate. It is likely that a customised vaccine would provide a moderate (but greater than for a candidate vaccine) level of protection against both infection and development of severe illness, based on past experience with pandemic and seasonal influenza vaccines. The exact level of protection provided by a customised vaccine, particularly its effectiveness in different population groups, will not be known until the pandemic has begun and vaccine studies are performed. An acceptable level of immunogenicity will be required before the vaccine can be registered for use.²³ There also may not be sufficient time to assess effectiveness of vaccination with candidate vaccine before a customised vaccine is rolled out.

Risks and benefits

Risks: Possible adverse events, which occur at higher rates with adjuvanted vaccines, include swelling and redness at the injection site; low-grade fever, malaise and myalgia; and febrile convulsions in children. Adverse events may vary depending on the particular vaccine. Rare but severe adverse events can only be identified after use of such vaccines in much larger population groups than in small initial clinical trials. There may be a long wait for vaccine to become available, leading to higher numbers of cases.

Benefits: Customised vaccines are likely to be considerably more effective at protecting against pandemic influenza than candidate vaccines.

Direct costs

Moderate to high. Costs include purchasing vaccines, storing vaccination equipment, distributing vaccines and equipment; and coordinating a vaccination program, including developing clinical advice, developing and disseminating communications materials, briefing ministers and responding to media queries.

Secondary costs

Moderate to high. This measure entails additional work for state and territory immunisation program managers and providers, highlighting the need for an agreed immunisation strategy prior to a pandemic. Costs include monitoring/management of adverse events, and monitoring vaccine uptake and effectiveness.

Likely acceptability and expectations

Acceptability is likely to be moderate to high, depending on public perception of the severity of the pandemic and vaccine safety. Public perceptions are likely to be dynamic. Clear communication will be critical and expectations around vaccine availability will need to be carefully managed. Different strategies may need to be applied if there are multiple waves of the pandemic.

Practicalities and experience

Practical difficulties exist around the distribution and administration of vaccine. Considerations include the needs of the healthcare sector and other critical infrastructure, infectiousness of the virus, the number of doses of vaccine required and the impact of the disease on different populations. Contracts managed by the Australian Government provide for purchase of customised pandemic influenza vaccine in the event of a pandemic in Australia. Experience with pandemic (H1N1) 2009 was that customised vaccine uptake was not as high as initially predicted because of the perceived lack of severity of the pandemic. This vaccine may be provided in multi dose vials. This will be different to usual practice, where vaccines are generally single use vials in Australia—requiring both provider and consumer education / communication.

Timing

Customised vaccine is unlikely to be available until up to 6 months after initial identification of the viral strain and may post-date the first pandemic wave. Vaccines administered after this time may mitigate the impact of subsequent waves. Even with antecedent investments in vaccine capacity, it took 5 months for a matched strain-specific vaccine to be commercially available for response to the 2009 pandemic. Suppliers should be asked to commence development of a vaccine when a novel virus of concern is notified. Purchase of the vaccine should cease when an adequate supply is available, based on expert advice on level of population immunity and the risk of further transmission. Supply of vaccine would cease when virus circulation within the community is deemed as minimal.

P7: Seasonal influenza vaccine

Application
Seasonal influenza vaccine's capacity to protect against related influenza variants may be considered. Familiarity of the public with seasonal influenza vaccines will influence attitudes and behaviours. Existing seasonal influenza health system arrangements will be the basis for those used during the pandemic.
Objective and rationale
To reduce serious morbidity and mortality from influenza. During a pandemic, seasonal influenza vaccine may help to reduce the severity of illness in those that become infected, or prevent infection in some. Seasonal influenza vaccination primes the public for acceptability of a customised pandemic vaccine.
Evidence of effectiveness
<i>Moderate</i> for seasonal influenza; <i>minor</i> for a pandemic. The effectiveness of seasonal influenza vaccine depends primarily on the recipient's age and immunocompetence and the similarity between the virus strains in the vaccine and those circulating in the community. ²⁴ An Australian hospital-based surveillance study conducted in sentinel hospitals found vaccination was moderately protective against hospitalisation with influenza in the 2010/2011 seasons (estimated crude vaccine effectiveness was 57%). ²⁵ Limited evidence shows that a seasonal vaccine sharing at least the neuraminidase component with an emergent pandemic strain may provide some measure of clinical cross-protection. Receipt of seasonal influenza vaccine can block the acquisition of natural immunity resulting from influenza infection, potentially making recent recipients of seasonal vaccine more vulnerable to pandemic virus strains.
Risks and benefits
<i>Risks:</i> Seasonal vaccines do not offer full protection against the circulating seasonal virus strain. Possible adverse events including swelling and redness at the injection site; low-grade fever, malaise and myalgia; fever and febrile convulsions in children. During a pandemic, in relatively immunologically naive children, seasonal influenza vaccines do not induce cross-reactive antibodies.
<i>Benefits:</i> Seasonal vaccines protect not only individuals but also others in the community by increasing the overall immunity in the population and thus minimising the spread of infection. After vaccination, most adults develop antibody levels likely to protect them against the strains of virus represented in the vaccine. There is also likely to be protection against related influenza variants. ²⁴ Acceptability of seasonal influenza vaccination as routine is likely to increase public acceptance of pandemic influenza vaccine. During a pandemic, in adults historically exposed to influenza virus strains that are partially matched to the emergent pandemic strain, seasonal vaccines may boost cross-reactive antibody, providing partial protection.
Direct costs
Moderate to high. Costs include purchase, distribution and administration of vaccine; including management of purchasing contracts and monitoring of contracted market share arrangements. Other costs are coordination of a vaccination program, including development of clinical advice, development/ dissemination of communications materials, briefing of ministers and responding to media queries.
Secondary costs
Moderate. Costs include promotion of the seasonal influenza immunisation program, monitoring and managing vaccine adverse events, and monitoring uptake and effectiveness of the vaccine.
Likely acceptability and expectations
Acceptability is generally high.
Practicalities and experience
Existing arrangements are in place under the National Immunisation Program for the purchase, distribution and administration of seasonal influenza vaccine to at-risk groups. Multipartite contracts exist between suppliers, state and territories, and the Australian Government for the purchase of seasonal influenza vaccine. In a pandemic, the impact levels of the pandemic and the likely effectiveness of the seasonal vaccine against the pandemic strain would need to be considered.
Timing
Vaccination is best undertaken in autumn, in anticipation of winter outbreaks of influenza. The National Influenza Program commences on 15 March each year. Vaccine is available earlier for use in the northern areas of Queensland, Western Australia and the Northern Territory, where the seasonality of influenza differs slightly from the southern states, resulting in an early rise of cases prior to the winter influenza season. As full protection is usually achieved within 10–14 days, and there is evidence of increased immunity within a few days, vaccination can still be offered to adults and children after influenza virus activity has been documented in the community. ²⁴

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Attachment F. Guide to Implementation

Guide to Implementation

This document shows which measures from the Menu of Actions are relevant for each stage of the AHMPPI. For the Targeted Action Stage it also considers which measures might be applied in three scenarios representing different levels of impact a pandemic might have on the community. (See Pandemic Impact section of Governance Chapter for more information.) These scenarios are described as:

Scenario one

If clinical severity is low

The majority of cases are likely to experience mild to moderate clinical features. More severe illness may be experienced by people in at-risk groups. At the peak of the pandemic, and increasingly when transmissibility is higher, primary care and hospital services are likely to be stretched to coping capacity in areas associated with respiratory illness and acute care. Existing legislation is likely to be sufficient to support activities. The level of impact on the community may be similar to severe seasonal influenza or the H1N1 pandemic 2009.

Scenario two

If clinical severity is moderate

Young healthy people and people in at-risk groups may experience severe illness. The number of people presenting for medical care is likely to be higher than for severe seasonal influenza and primary care and hospital services will be under severe pressure, particularly in areas associated with respiratory illness and acute care. Non-urgent procedures and activities will need to be scaled back. Surge staffing and alternate models of clinical care, such as flu clinics may need to be employed to cope with increased demands for healthcare. Pressure on health services will be more intense, rise more quickly and peak earlier as the transmissibility of the disease increases.

Strategies to support at-risk groups may be required (e.g. aged care, Aboriginal and Torres Strait Islander peoples, remote communities). Pandemic emergency legislation may be needed to support pandemic specific activities. The level of impact may be similar to the 1957 Asian flu.

Scenario three

If clinical severity is high

Widespread severe illness will cause concern and challenge the capacity of the health sector. Areas such as primary care, acute care, pharmacies, nurse practitioners and aged care facilities will be fully-stretched to support essential care requirements. Heavy prioritisation will be essential within hospitals in order to maintain essential services and mortuary services will be under pressure. The demand for specialist equipment and personnel is likely to challenge capacity. Staff absenteeism will compound these difficulties. Pressure on health services will be more intense, rise more quickly and peak earlier as the transmissibility of the disease increases.

Secondary care services, such as blood services will be challenged to maintain capacities and the community focus will be on maintaining essential services. Pandemic emergency legislation may be needed to support pandemic specific activities. The level of impact may be similar to the 1918 Spanish flu.

In the table below, it is recommended that measures should be considered for implementation when the background of the cell is coloured. General practicalities which apply to this measure across all stages of the AHMPPI are addressed in the far right column. Comments specific to the use of a measure in one particular stage only are included in the coloured cell appropriate for the column representing that stage.

The definition of contacts in healthcare setting will be as per Influenza Infection: CDNA National Guidelines for Public Health Units (July 2011), unless alternate advice is issued at the time of the pandemic. Advice regarding the definition of contacts for the purposes of contact tracing, provision of prophylaxis and advice will be provided by CDNA at the time of the pandemic.

If the Menu of Actions recommends that an action as a whole should not be used, it has not been included in the Guide to Implementation.

Abbreviations used:

Comms	= communications
CS	= clinical severity
HCW	= Healthcare workers
meas.	= measures
PPE	= gowns, gloves, masks

Table 7: Guide to Implementation Pharmaceutical measures

Measures	Preparedness	Standby	Initial Action	Targeted Action: Low CS	Targeted Action: Moderate CS	Targeted Action: High CS	Standdown	Practicalities
Antivirals: treatment	Used for seasonal influenza	As for seasonal influenza	Treat cases if appropriate	Move away from treating mild cases to protecting those at risk of severe outcomes	Delivery capacity will become an issue	Delivery capacity will become an issue	Cases as required by condition	Use for all cases Effectiveness strongly dependent on timely delivery and compliance. Risk of stockpile depletion with widespread distribution.
Antivirals: post-exposure prophylaxis			close contacts, possible at-risk contacts, HCW	contacts at risk of severe illness	close contacts & HCW increasingly as CS rises,	contacts at risk of severe illness, close contacts, contacts at high risk of severe illness, HCW (depending on exposure risk) Delivery capacity will become an issue		
Antivirals: pre-exposure prophylaxis						Control of the pandemic is most likely when CS is high + transmissibility is low		
Candidate vaccine						HCW (depending on exposure risk) If vaccine proves to be effective.		Unlikely to offer full protection. Useful if pandemic strain and candidate are same subtype. Possible adverse events.
Customised pandemic vaccine						It is important to include transmissibility in any risk assessment. Transmissibility and the associated level of population immunity achieved at the time of vaccine availability will need to be considered in decisions for use of customised vaccine.	At-risk groups	Not initially available. Access is a key goal of the response

Table 8: Guide to Implementation for Social Distancing measures

Measures	Preparedness	Standby	Initial Action	Targeted Action: Low CS	Targeted Action: Moderate CS	Targeted Action: High CS	Standdown	Practicalities
Cancel mass gatherings						consider		High impact on businesses
Proactive school closures						consider		High impact on workplace absenteeism
Reactive school closures			In the presence of differentially higher transmissibility in children, the impact of school closures is likely to be greater.					High impact on workplace absenteeism
Workplace closures						Substantial costs to businesses and employees; disruption of services and supplies		Potential for high costs to employees from lost work days.
Home working								Not feasible for all
Voluntary isolation of cases				Disruption to workplaces and the economy	Disruption to workplaces and the economy	Disruption to workplaces and the economy		Household contacts at-risk of infection
Voluntary quarantine of contacts			Control of the pandemic is most likely when CS is high + transmissibility is low			High impact on workplace absenteeism Benefits and compliance will be highest if disease is severe		Impact is dependent on early application Compliance is dependent on information and understanding of patients/contacts.
Contact tracing			Essential for early surveillance activities			Benefits are most likely if disease severity is high. Continue in Targeted Action if CS is high and case identification is effective.		Impact depends on early application

Table 9: Guide to Implementation for Border measures

Border Measures	Preparedness	Standby	Initial Action	Targeted Action:	Targeted Action: Moderate CS	Targeted Action: High CS	Standdown	Practicalities
In-flight messages		Encourage awareness and appropriate behaviours	Relevant for all levels of transmissibility.					Low cost Promotes prompt presentation
Comms materials for travellers								Relatively low cost Promotes prompt presentation
Exit screening			Consider use if virus emerges first in Australia					High cost. May be recommended under IHRs. Consider upon request. Evidence does not support effectiveness

Table 10: Guide to Implementation of Infection Control measures

Measures	Preparedness	Standby	Initial Action	Targeted Action:	Targeted Action: Moderate CS	Targeted Action: High CS	Standdown	Practicalities
Organisational infection control measures: patient			Isolate suspected confirmed patients	Isolate/cohort suspected/confirmed patients	Isolate/segregate patients Consider clinical care models e.g. flu clinics	Isolate/segregate patients in the practice or ward Flu clinics or separate sites at hospitals		Surgical masks for patients Patients self-identify
			The intensity of infection control measures increases as transmissibility increases.					
Organisational infection control measures: staff			Separate flu and non-flu staff if possible or required		Cohort staff	Cohort staff		Stay home if sick Vulnerable staff – avoid flu patients, ensure appropriate PPE
PPE for healthcare workers	Used as part of national infection control guidelines		The intensity of infection control measures increases as transmissibility increases.					Use as per national infection control guidelines. Effectiveness dependent on compliance/ correct usage. Contact and droplet precautions plus eye protection. Airborne precautions for aerosol generating procedures.
Public messages re: hygiene etc.	Used for seasonal influenza		Relevant for all levels of transmissibility.					Empowers individuals Needs to be in line with seasonal approach Relevant for all levels of transmissibility.
Public messages re: situation and response efforts			Relevant for all levels of transmissibility.					Builds public confidence

Attachment G. Surveillance Plan

The Surveillance Plan for Pandemic Influenza

Office of Health Protection
Australian Government Department of Health

29 October 2013

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1. Introduction

The Surveillance Plan for Pandemic Influenza (the Plan) is intended to guide national surveillance activities in the event of a pandemic to ensure the collection of useful, consistent, representative and high quality data and enable informed decision making by public health officials. The Plan uses seasonal systems as its foundation and progresses through defined stages that support the changing requirements of decision makers throughout a pandemic.

This is an evolving document that will be updated over time based on changes to surveillance systems and, in some cases, changes to the underlying assumptions based on emerging research. Some operational aspects of the Plan, such as the mechanisms involved in initiating additional studies and refining the enhanced data forms, will also be clarified over time.

Operational details supporting the goals of the Plan are described in the Pandemic Influenza Surveillance Operational Guide which includes such things as a description of seasonal systems, pandemic planning assumptions, data collection matrices and case and contact interview forms with accompanying data dictionary.

1.1. Surveillance data

Data collected through influenza surveillance systems largely fall into four main categories:

- epidemiology;
- indicators of public health impact; and
- virology.

Information from these categories is used to inform the actions of decision makers both throughout a typical influenza season and during a pandemic.

In the Plan, case information such as core demographic data (e.g. age, sex, Indigenous status, location of residence or onset date), symptoms, occupation, risk factors, comorbidities, travel history and vaccination status will be referred to as the epidemiology.

Information on the clinical spectrum of illness, as well as transmission characteristics, is required in order to predict the likely public health impact and time course of a pandemic. This information will inform the appropriate scale of response. Virology covers all aspects of genome analysis, particularly analyses looking for markers of virulence and transmissibility, antigenic characterisation of the virus, as well as assessment of antiviral susceptibility. Characterisation of the virological features of the novel virus will guide the development of vaccines, diagnostic tests and direct treatment decisions. Additionally, animal models of influenza transmission will also inform the relative ease of direct contact and aerosol transmission compared to seasonal influenza.

1.2. Surveillance systems

Australia's key pandemic preparedness strategy is to utilise existing systems wherever possible to implement the response, rather than initiating pandemic specific systems. This approach should enable the rapid and efficient availability of surveillance systems in the event of an influenza pandemic and provide baseline seasonal data to inform the impact of the event. Familiarity with already established systems will also foster timeliness and confidence of use and minimise the need for "just in time" training.

A suite of national and sentinel influenza surveillance systems has been established to collect data on the epidemiology, clinical disease and virology of seasonal influenza (see [Pandemic Influenza Surveillance Operational Guide](#) for a description of these systems). During a pandemic, these established systems may be modified or expanded according to the requirements of decision makers and the pandemic stage.

1.3. Surveillance activities by pandemic stage

The Plan describes staged surveillance activities undertaken for the identification and response to novel influenza viruses infecting humans. This approach has been based on emergency management principles, and will support the changing requirements of decision makers throughout a pandemic (Tables 1 and 2).

Figure 9: Model of Pandemic Stages




During the *Preparedness stage*, influenza surveillance activities are designed to monitor and describe human infections with seasonal influenza and support the detection, understanding and response to novel influenza viruses. This stage cycles between the following situations:

- *Monitor*: monitoring, capacity building, maintenance and exercising of capacities; and
- *Investigate*: investigation when a novel virus infecting humans is identified and shows sporadic or limited human-to-human transmission.

During the *Preparedness stage*, surveillance activities will focus on laboratory testing, epidemiological investigations, contact tracing and local prevention and control measures in affected locations in an effort to understand the source of infection and control the outbreak. Identification of sporadic and limited clusters of cases in Australia or overseas, even those involving apparent limited human-to-human transmissions, do not constitute a sufficient risk to trigger transition to pandemic surveillance actions. Should the novel infection not progress to sustained community human-to-human transmission monitoring of the situation will continue.

Table 11: Surveillance in the Preparedness stage

Stage	Preparedness	
	Monitor	Investigate
Trigger	Syndromic and virological surveillance trends show normal seasonal pattern.	Identification of a novel virus.
Aim	Build, maintain and exercise capacities.	Understand the epidemiology and virology of the virus to inform the initial national actions. Detect cases in Australia. Identify sustained community human-to-human transmission (local or international). ⁵



Standby

Sustained community human-to-human transmission detected.

During a pandemic, surveillance aims will transition from a focused understanding of the epidemiology of the disease overseas, through detection of the virus in Australia, to detailed investigation of the epidemiology of the disease and finally monitoring the progress of the pandemic.

⁵ f sustained community person to person transmission is not detected, monitoring of the situation will continue.

The *Standby* stage is triggered by confirmation of sustained human-to-human in the community irrespective of location. Sustained community human-to-human transmission significantly raises the potential of the virus to negatively impact Australia in the short term. Detection of the first case in Australia could be used to escalate the AHMPPI to the *Initial Action* stage.

Once sufficient enhanced data have been collected during the *Initial Action* stage, the Plan will move to a *Targeted Action* stage until community transmission of the pandemic virus returns to seasonal-type levels.

Table 12: Surveillance in the Standby, Action and Standdown stages

Stage	Standby	Action		Standdown
		Initial	Targeted	
Trigger	Sustained community human-to-human transmission detected overseas.	Detection of cases in Australia. ⁶	Sufficient data collected to describe the pandemic.	Public health threat can be managed within normal arrangements and monitoring for change is in place.
Aim	Detect initial cases in Australia.	Understand epidemiology within Australian context to inform targeted action.	Monitor course of pandemic and assess actions.	Monitor for reappearance. Evaluate actions.

The remaining sections of the Plan will discuss the surveillance aims, what data will be collected, how the data collected will inform actions to the pandemic virus and the expected level and frequency of surveillance reporting by audience for each pandemic stage. Data collection activities are described in detail in the Pandemic Influenza Surveillance Operational Guide.

1.4. Roles and responsibilities

Clear accountabilities will support timely data collection and transfer to provide the most complete picture on clinical outcomes possible, including intervention effectiveness. The workload involved in following up cases and contacts is expected to be significant.

Jurisdictional responsibilities

Jurisdictions are primarily responsible for individual case data collection and timely reporting of surveillance data to the Australian Government. The purpose of data collection is to provide additional *information* on the epidemiology of the emergent virus to inform a national response, NOT as part of a case-targeted strategy for disease containment. Collection of case and contact data, including enhanced data of early cases, during a pandemic is therefore to be undertaken *in parallel* with the core responsibilities of the Public Health Units (PHUs) concerning appropriate management of cases and their household contacts.

National responsibilities

Collation and interpretation of the pandemic-associated dataset is a national responsibility. The decision to cease enhanced data collection will be a national recommendation, based on a sufficiently precise determination of epidemic characteristics to allow strategic and optimised refocusing of response activities.

The Office of Health Protection (OHP) in the Australian Government Department of Health will facilitate development of data transfer processes and will feed the results of analyses back to the jurisdictions and through to decision makers and national bodies, including the CDNA and the AHPPC.

Laboratories

The WHOCC, National Influenza Centres (NICs) and PHLN will develop diagnostic laboratory testing protocols as well as providing notification data, data on testing activity and virological surveillance.

Other surveillance systems

During an influenza pandemic, surveillance data will be provided to the Australian Government Department of Health by other contracted providers including the Australian Sentinel Practices Research Network (ASPREN), the Influenza Complications Alert Network (FluCAN), FluTracking and the Australian Paediatric Surveillance Unit (APSU).

Researchers

Other jurisdictional and non-Government groups will contribute additional pandemic data, analysis and advice through additional studies.

1.5. Surveillance reporting

Reporting of surveillance trends will be determined by the incident stage. A comprehensive communications policy will be implemented across all aspects of the AHMPPI and will be a key component in the successful response to an influenza pandemic. The communications policy is described in detail elsewhere.

1.6. Flexibility of the Plan to adapt to a different disease threat

Selected existing national and sentinel influenza surveillance systems are flexible enough to rapidly adapt to a communicable disease threat other than influenza. At a minimum, community-level illness (e.g. FluTracking), GP presentation data (e.g. ASPREN), hospitalisation data (e.g. FluCAN) and notification data (NetEpi) could be collected through existing systems by modification or addition of queries based on the symptoms and virology of the disease. More comprehensive changes can also be made but would require longer development time.

1.7. Additional studies

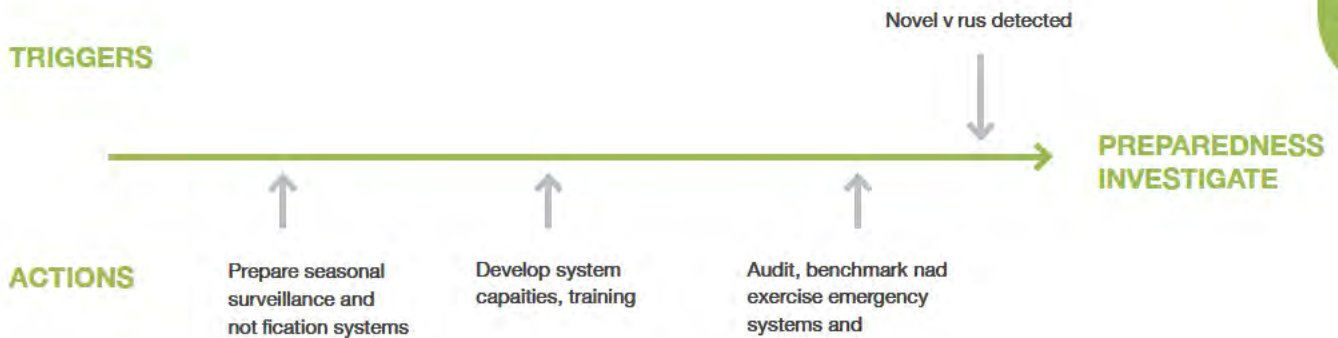
During an influenza pandemic, routine surveillance data will need to be supported by additional targeted research studies. The public health activities initiated by the first case detected in Australia will be initially guided by observations from the country of origin and the pandemic assumptions described in the Pandemic Influenza Surveillance Operational Guide. This will identify risk factors for infection and illness, including specific age groups and predicted sensitivity or resistance to antiviral drugs, which are critical for guiding the national response. As the pandemic progresses within Australia, measures of population health impact, epidemiology and virology will drive the response. Detailed epidemiological studies and the enhanced data-set will be interrogated to assess whether the pandemic assumptions are valid.

A few outbreak studies should be conducted early in school and other institutional settings, with swabbing of exposed individuals to allow identification of asymptomatic and mild secondary cases, and investigation of transmission chains to determine serial interval and effective reproductive number (R_{eff}) in those settings. Jurisdictional PHUs are not responsible for investigating situational outbreaks such as those which occur in schools.

2. Preparedness

Preparedness is an ongoing state during which the goal is to establish arrangements and update capacities to improve responses to the next emergence of a novel influenza virus infecting humans. The Preparedness stage can be considered to cycle between two situations, monitor and investigate.

2a. Monitor:



Trigger for monitoring

Syndromic and virological surveillance trends show normal seasonal pattern.

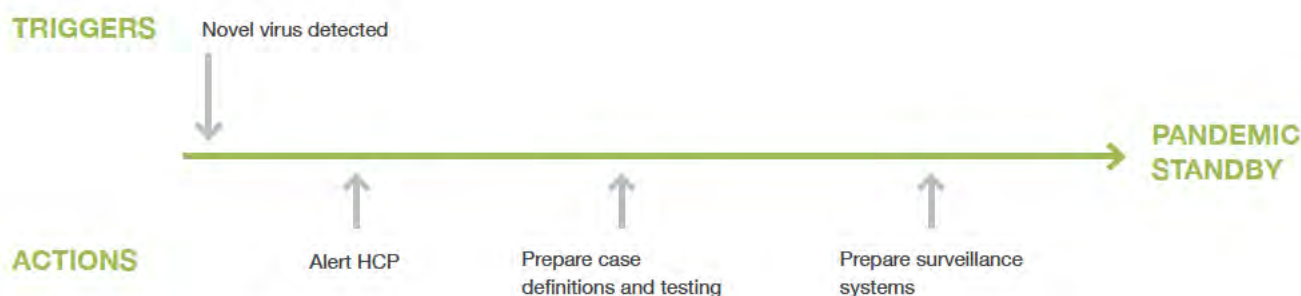
Surveillance aims

- Build, maintain and exercise surveillance systems and capacities capable of detecting and monitoring human influenza infections.

Surveillance activities

- Develop performance standards.
- Benchmark systems and staff against performance standards.
- Establish and maintain inter-agency relationships.

2b. Investigate:



Trigger for monitoring

Identification of a novel virus in Australia or overseas.

Surveillance aims

- Understand the epidemiology and virology of the virus to inform the initial national actions.
- Detect cases in Australia.
- Identify sustained, community human-to-human transmission (local or international).

Surveillance activities

- Prepare to detect cases in Australia.
- Increase Health Care Professional (HCP) awareness.
- Develop necessary laboratory capability.
- Adapt and implement case notification system.
- Assess and prepare sentinel and syndromic surveillance systems and studies.
- Analyse and report observed epidemiology and virology.

Routine monitoring for the emergence of novel agents, requires surveillance systems that are sufficiently powered to characterise the threat posed to Australia.

Identification of a novel influenza virus capable of infecting and causing disease in humans would be reported to the National Incident Room (NIR). The NIR is Australia's designated National Focal Point (NFP) under the terms of the International Health Regulations (2005).

- The case definition will be based on **virology** of the novel virus (for a confirmed case) and the **epidemiology** as per information available from the WHO and affected countries. The key demographic information to inform the case definition will be the countries, or regions of countries, with community transmission of the novel virus. Other case information that may inform the definitions includes indicators of transmissibility and risk to contacts, age, symptoms, clinical signs and symptoms, co-morbidities and risk factors.
- Some of the key surveillance systems (e.g. FluCAN and Flutracking) are only active during the influenza season. If a novel virus was identified overseas during the inter-seasonal period in Australia, those offline systems would be prepared to restart during this stage.

HCPs, particularly those in hospitals, emergency departments and ICUs will be alerted regarding the new threat and will be requested to undertake targeted testing based on the case definition and testing protocol and reporting of probable and confirmed cases to jurisdictional health departments.

National surveillance systems will be modified to capture sporadic probable and confirmed cases. Specific actions will likely include development of case and contact interview forms and implementation of data transfer protocols. Surveillance systems for influenza-associated hospitalisations and ICU admissions (FluCAN and the APSU) will be adapted for reporting confirmed adult and paediatric outbreak cases involving acute respiratory distress syndrome (ARDS) or pneumonia.

During an outbreak investigation, it may also be useful to:

- review border health surveillance protocols including incoming passenger contact tracing.
- liaise with the Australian Government Department of Agriculture regarding potential animal reservoirs and animal surveillance

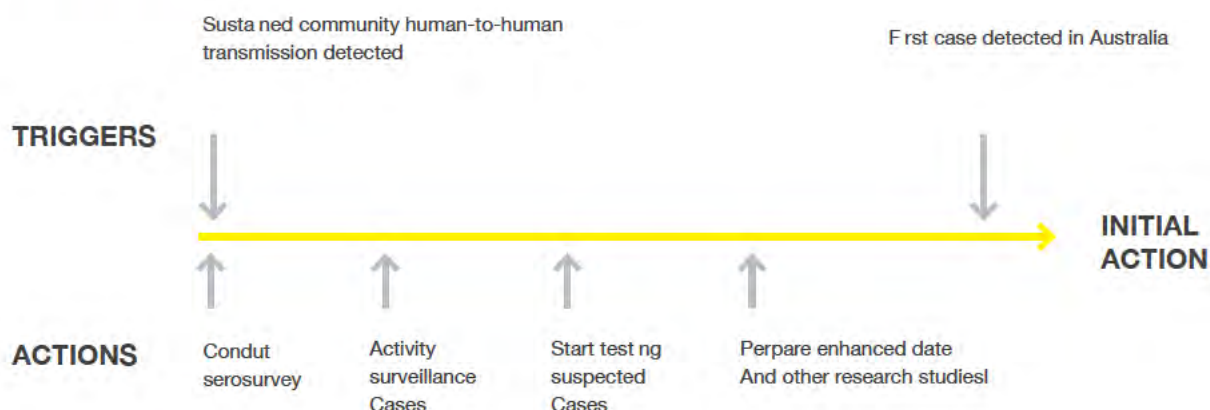
Table 13: Reporting during Preparedness

Audience	Reporting
Minister's office	Summary of information on the emerging pandemic and the likely impact for Australia, as new information becomes available.
Decision makers	All information on the emerging epidemic/pandemic as it becomes available.

Trigger for exiting Preparedness: Transition from the *Preparedness* stage to *Standby* could be triggered by any of the following:

- receipt of surveillance data that indicates sustained community human-to-human transmission of the novel virus overseas; or
- a warning of a potential influenza pandemic received from WHO; or
- indications received from a jurisdiction that they may seek assistance under the AHMPPI to manage severe seasonal influenza; or
- an indication from CDNA of a trend in seasonal influenza which may overwhelm state and territory health systems.

3. Standby



Triggers for entering Standby

- Sustained community human-to-human transmission detected; or
- a warning of a potential influenza pandemic received from WHO; or
- indications received from a jurisdiction that they may seek assistance under the AHMPPI to manage severe seasonal influenza; or
- an indication from CDNA of a trend in seasonal influenza which may overwhelm state and territory health systems.

Surveillance aims

- Detect initial cases in Australia

Surveillance activities

- Conduct expanded testing to detect the introduction of the virus to Australia and rapidly report early cases.
- Continue awareness raising activities targeted towards HCP.
- Identify testing capacity.
- Activate case notification system.
- Prepare to conduct enhanced data collections.
- Activate sentinel and syndromic surveillance systems for pandemic influenza surveillance.
- Prepare to conduct specified studies.
- Analyse and report international epidemiology and virology.
- If required, make the novel virus notifiable under relevant national and jurisdictional public health legislation.

Following the receipt of surveillance data that indicates that the novel virus is likely to negatively impact Australia in the short term, Australia's response will transition to *Standby*.

Surveillance systems not already functioning will be activated and laboratory testing activity will be expanded through active case finding.

- The case definition will be refined as required.
- The preparation of established national and sentinel and enhanced surveillance systems to detect the introduction of the novel virus into Australia will be informed by available information on **transmissibility, epidemiology** and distribution of clinical **signs and symptoms** of confirmed cases overseas.

Decision makers will plan for implementing various interventions for reducing the impact of the virus on the Australian population, health system and economy, prior to the virus being detected in Australia (refer to the AHMPPI support documents for details). Interventions will be selected based on available information on the population health impact and transmissibility of the disease, and the **epidemiology** of cases from WHO and affected countries.

- Population health impact will be assessed by available information on symptoms and outcomes of cases, by age, as reported by the WHO and affected countries. It should be noted initial population health impact estimates will likely be skewed towards the severe end of the spectrum as these are the most likely to require contact with the health system and will be affected by socioeconomic factors and the health infrastructure in affected countries.
- Early indications of the extent of transmissibility will be based on any available information from WHO and affected countries and the assumptions given in the Pandemic Influenza Surveillance Operational Guide.

During Standby, activate border health surveillance protocols including incoming passenger contact tracing. Continue to liaise with the Australian Government Department of Agriculture regarding potential animal reservoirs and animal surveillance.

Table 14: Reporting during Standby

Audience	Reporting
Minister's office	Summary of information on the emerging pandemic and the likely impact for Australia, as new information becomes available.
Decision makers	Analyses of surveillance data, including epidemiological, clinical and virological characteristics.

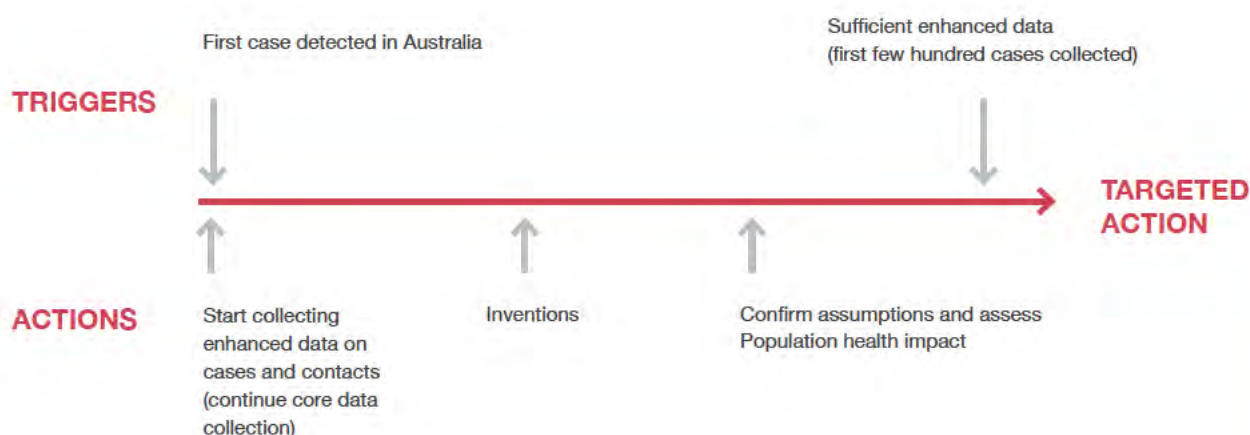
Trigger for exiting Standby: Transition from *Standby* to *Initial Action* may be triggered by any of the following indicators including:

- the first case being detected in Australia; or
- evidence of sustained community transmission of a novel virus which has emerged in Australia; or
- a declaration by WHO of an influenza pandemic; or
- a request for assistance with managing seasonal influenza from a jurisdiction.

If un-subtypeable cases of influenza A are detected during the *Standby* stage and laboratory tests for the novel virus were still being prepared, cases would be treated as probable and enhanced data collected.

4. Action

4a. Initial Action



Trigger for entering Initial Action

Detection of cases in Australia; or
 Evidence of sustained community transmission of a novel virus which has emerged in Australia; or
 Declaration by WHO of an influenza pandemic; or
 Request for assistance with managing seasonal influenza from a jurisdiction.

Surveillance aims

- Understand epidemiology within Australian context to inform targeted actions.

Surveillance activities

- Maintain HCP awareness.
- Maintain testing capability and monitor capacity.
- Maintain case notification system.
- Undertake enhanced data collection.
- Maintain sentinel and syndromic surveillance systems.
- Initiate and report outcomes of research studies.
- Analyse and report Australian and international epidemiology and virology.

Standby

Initial Action

In order to build a picture of the epidemiology of the disease in Australia, the State and Territory health departments will collect and feed detailed **demographic** data on the first few hundred cases and their contacts to the Australian Government Department of Health through an outbreak management system (e.g. NetEpi) for national collation, analysis and reporting. An enhanced data collection form and accompanying data dictionary based on existing NNDSS fields has been prepared and is described in the Pandemic Influenza Surveillance Operational Guide.

Probable and confirmed cases will be reported by the notifying jurisdiction. The decision to cease enhanced data collection will be based on the stability of trends in epidemiological and population health impact measures.

- **Population health impact** will be indicated by the number and rates of hospitalisations, ICU admissions and deaths from the enhanced data collection. Data on hospitalisations and ICU admissions will also be provided by sentinel hospitals through FluCAN. Data from sentinel systems will support the enhanced data and provide a comparator once the enhanced data collection ceases.
- **Transmission rate** will be estimated through studies (see section 1.7) and the enhanced dataset. Prior to the results of these studies being available, transmissibility will be based on overseas estimates and the pandemic assumptions (see Pandemic Influenza Surveillance Operational Guide).

Various interventions for containing the spread of the virus or reducing population health impact may be implemented by decision makers during this stage (see Attachment E of the AHMPPI for the menu of options). Interventions will be selected, refined, and discontinued based on the **epidemiology** and the observed health impact of the virus in Australia, both in terms of clinical outcomes and transmissibility.

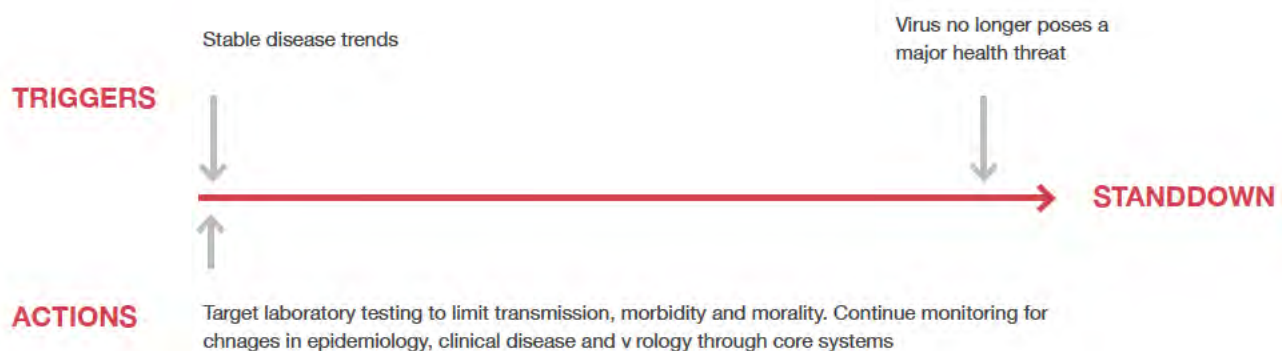
During *Initial Action*, border health surveillance protocols will be reviewed and maintained including incoming passenger contact tracing. Liaison activities with the DA regarding potential animal reservoirs and animal surveillance will continue.

Table 15: Reporting during Initial Action

Audience	Reporting
Minister's office	Counts of cases, hospitalisations, ICU admissions and deaths. Information on populations at risk of infection or severe disease. <u>Note:</u> This is the only pandemic surveillance stage in which these counts will be reported as they will be available from the enhanced data set.
Decision makers	Analyses of surveillance data, including epidemiological, clinical and virological characteristics.

Trigger for exiting Initial Action: The decision making process for ceasing enhanced case data will be outlined in the detailed methodology currently under development. Broadly, once the dataset has been deemed to have reached a relatively stable point, with the first few hundred cases covered, and the population health impact of the virus has been determined (or is in the process of being determined through academic studies), enhanced data collection will cease and the Plan will move to *Targeted Action*.

4b. Targeted Action



Trigger for entering Targeted Action

Sufficient data collected to describe the pandemic in Australia and to inform refinement of the pandemic response measures already implemented.

Surveillance aims

- Monitor course of pandemic and assess actions.

Surveillance activities

- Monitor for changes in epidemiology and virology.
- Maintain HCP awareness.
- Monitor and maintain targeted testing capacity.
- Maintain case notification system.
- Undertake limited ongoing enhanced data collection.
- Maintain sentinel and syndromic surveillance systems and studies.
- Analyse and report Australian and international epidemiology and virology.

During this stage, community transmission of the pandemic virus will likely become widespread across Australia. The main surveillance aim during this stage is to continue collecting core data from established surveillance systems to detect any changes in the **epidemiology** of those getting sick, the **clinical disease manifestations** of the disease or the characteristics of the virus (including the virology).

Throughout this stage, laboratory testing will be targeted towards more clinically severe probable cases and those with risk factors. In order to reduce the impact on health systems, cases with less severe disease may no longer be recommended for laboratory confirmation or encouraged to limit their health care attendance.

Academic studies for testing assumptions with the enhanced data set will continue throughout this phase. All results will be provided to decision makers as they become available.

Liaison activities with the Australian Government Department of Agriculture regarding potential animal reservoirs and animal surveillance will continue.

Table 16: Reporting during Targeted Action

Audience	Reporting
Minister's office	<p>Summary of current situation based on notifications and surveillance systems.</p> <p>Frequency of reporting to be determined and will likely reduce towards the end of this stage as activity returns to relatively normal levels.</p> <p><u>Note:</u> enhanced data for cases, hospitalisations, ICU admissions and deaths will NOT be available during this stage; trends and proportions will be reported.</p>
Decision makers	Analyses of surveillance data, including epidemiological, clinical and virological characteristics.

Trigger for exiting Targeted Action: Individual activities will be assessed and stood down when they no longer contribute to the AHMPPI's goals. The AHMPPI as a whole will move to Standdown when advice from CDNA indicated that the pandemic has reached a level where it can be managed under seasonal influenza arrangements.

5. Standdown

Trigger for entering Standdown

When the public health threat can be managed within normal arrangements and monitoring for change is in place.

Surveillance aims

- Evaluate actions and monitor for reappearance.

Surveillance activities

- Monitor for change in virus activity or potential new wave.
- Maintain HCP awareness.
- Maintain and monitor targeted testing capacity.
- Maintain case notifications system.
- Cease enhanced data collection.

During this stage, influenza activity returns to levels typical for the time of year. Surveillance and reporting activities will proceed as appropriate for the time of year.

The main surveillance aim during this stage is to assess the risk of secondary waves and to review the response.

Results from data analysis and any lessons learnt during the pandemic should inform a revised AHMPPI and Plan during *Prepare*.

Trigger for exiting Standdown: Once influenza activity returns to typical seasonal levels the Plan will move to *Preparedness*.

Attachment H. Evidence Compendium

The AHMPPI 2014 places an emphasis on flexibility and the tailoring of activities to the needs of the current situation. Part 3 of the AHMPPI supports decision makers in this process by providing a series of tools which contain additional detail about key issues and operational activities.

This Evidence Compendium, as a component of Part 3, contains a series of commissioned reports including literature reviews, modelling and an analysis of the assumptions underlying pandemic planning for the AHMPPI. The findings of these reports have been used to develop the approach taken in the AHMPPI, but as they may also be useful in their own right to provide greater detail of the evidence and analysis accumulated, they have been presented in this compendium in full.

These documents represent the best available information at the time of writing and will be periodically updated to ensure the evidence presented remains up to date.

Key findings from these reports relating to the effectiveness of individual public health measures have been made more readily accessible to decision makers by incorporating them into the Menu of Actions. This Menu provides decision makers with the key points to be considered when deciding whether to implement a specific measure.

A series of summaries have also been developed in which the key information from these reports has been brought together into each of the main thematic areas covered in the AHMPPI.

Commissioned reports

- Glass K, Davis S, Martich L, Mercer GN, *Development of decision support documents to assist decision making during a pandemic influenza response: evidence for personal protective equipment and antiviral measures*, Report commissioned by the Australian Government Department of Health and Ageing, Canberra, 2012.
- Martich L, Glass K, Mercer GN, Ross J, McVernon J, McCaw J, *Mathematical modelling and Research of Personal Protective Equipment for use in a Health Emergency*, Report commissioned by the Australian Government Department of Health and Ageing, Canberra, 2013.
- McCaw J, Moss R, McVernon J, Cheng A, *Review Current Evidence on the Use of Neuraminidase Inhibitors Held in the National Medical Stockpile, In A Pandemic, Reporting Deliverable 2*, Report commissioned by the Australian Government Department of Health, 2015.
- McVernon J, McCaw J, *Development of options on how to define the concept of pandemic impact for Australian purposes: Literature review*, Report commissioned by the Australian Government Department of Health and Ageing, Canberra, 2012.
- McVernon J, McCaw J, *Development of options on how to define the concept of pandemic impact for Australian purposes: Consultation and Workplan*, Report commissioned by the Australian Government Department of Health and Ageing, Canberra, 2012.
- McVernon J, McCaw J, *Development of options on how to define the concept of pandemic impact for Australian purposes: Report on simulation modelling*, Report commissioned by the Australian Government Department of Health and Ageing, Canberra, 2012.
- McVernon J, *Evidence and advice on candidate pandemic influenza vaccines for response to an influenza pandemic*, Report commissioned by the Australian Government Department of Health and Ageing, Canberra, 2013.

- McVernon J, McCaw J, *Mathematical modelling of antivirals for a public health response to an influenza pandemic Reporting Deliverable 1*, Report commissioned by the Australian Government Department of Health and Ageing, Canberra, 2013.
- McVernon J, McCaw J, *Mathematical modelling of antivirals for a public health response to an influenza pandemic Reporting Deliverable 2*, Report commissioned by the Australian Government Department of Health and Ageing, Canberra, 2013.
- McVernon J, McCaw J, *Mathematical modelling of antivirals for a public health response to an influenza pandemic Reporting Deliverable 3*, Report commissioned by the Australian Government Department of Health and Ageing, Canberra, 2013.
- McVernon J, Cheng A, McCaw J, Moss R, *Review Current Evidence on the Use of Neuraminidase Inhibitors Held in the National Medical Stockpile, In A Pandemic, Reporting Deliverable 1*, Report commissioned by the Australian Government Department of Health, 2015.
- McVernon J, Hurt A, *Review Current Evidence on the Use of Neuraminidase Inhibitors Held in the National Medical Stockpile, In A Pandemic, Reporting Deliverable 3*, Report commissioned by the Australian Government Department of Health, 2015.
- Rashid R, Ridda I, King C, Begun M, Tekin H, Wood JG, Booy R, *Evidence compendium and advice on social distancing and other related measures for response to an influenza pandemic*, Report commissioned by the Australian Government Department of Health and Ageing, Canberra, 2013. Review of pandemic planning assumptions (Australian Health Management Plan for Pandemic Influenza 2008/9, Department of Health and Ageing), 2012.
- Selvey L, Hall R, Antão C, *Development of an evidence compendium and advice on travel-related measures for response to an influenza pandemic and other communicable diseases*, Report commissioned by the Australian Government Department of Health and Ageing, Canberra, 2013.

Summaries

- Antivirals
- Assumptions
- Border measures
- Infection control
- Pandemic impact
- Pandemic vaccines
- Social distancing

Links to Menu of Actions entries

Infection control measures

- Communication strategies to improve public hand hygiene and cough/sneeze etiquette
- Personal protective equipment for workers in direct contact with symptomatic individuals
- Mask wearing by symptomatic individuals in the community

Border measures

- In-flight announcements/on-board announcements
- Communication materials
- Information for border staff

- Negative pratique
- Passenger locator documents
- Thermal scanners
- Border nurses
- Screening of passengers on cruise ships
- Voluntary isolation of ill travellers
- Voluntary quarantine of contacts of ill travellers
- Exit screening
- Internal travel restrictions

Social distancing measures

- Proactive school closures
- Reactive school closures
- Workplace closure
- Working from home
- Cancellation of mass gatherings
- Voluntary isolation of cases
- Voluntary quarantine of contacts
- Contact tracing

Pharmaceutical measures

- Antivirals for treatment of cases
- Antivirals for post-exposure prophylaxis of contacts
- Antivirals for post-exposure prophylaxis for at-risk groups
- Antivirals for pre-exposure prophylaxis for healthcare workers
- Candidate pandemic vaccine
- Customised pandemic vaccine
- Seasonal influenza vaccine

Attachment I. Governance Table

This table provides detailed guidance on roles and responsibilities. To meet the greater need for coordination and guidance at a national level in **Preparedness and Response**, this plan will focus primarily on these areas of activity.

The table below provides detailed guidance on the roles of the Australian Government and State and Territory Governments in the key areas of a combined public health and clinical response to support the outline provided in the Governance Chapter of this plan. It also identifies areas where governments will work together to:

- coordinate resources;
- provide guidance to support best practice implementation; and
- provide a consistent message to stakeholders and the broader community.

As this plan is intended to support government decision makers, this table focuses on the role of government. Government parties referred to in this table include, though involvement is not limited to, Australian Commission on Safety and Quality in Healthcare (ACSQHC), Australian Government Department of Health (Department of Health), Australian Technical Advisory Group on Immunisation (ATAGI), Communicable Disease Network Australia (CDNA), Chief Human Biosecurity Officers (CHBOs), the Department of Foreign Affairs and Trade, National Influenza Surveillance Committee (NISC), National Health and Medical Research Council (NHMRC), National Health Emergency Media Response Network (NHEMRN), Public Health Laboratory Network (PHLN), state and territory health departments (S/T HD) and the Therapeutic Goods Administration (TGA).

It is essential to recognise that other areas of the health sector will be integral to Australia's national response. A broad indication of the roles of other parts of the health sector has been included in this table to reinforce the importance of linkages with these areas.

Other health sector parties referred to in this table include, though involvement is not limited to, Aboriginal Community Controlled Health Services (ACCHSs), ambulance staff, paramedics and aeromedical retrieval, the Australasian College for Emergency Medicine (ACEM), General Practitioners (GPs), the Medical Technology Association of Australia (MTAA), Primary Health Networks (PHN), the nursing sector, the Royal Australasian College of Physicians, pharmacists, private and public hospitals (hosp) and laboratories (lab), Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG), residential aged care facilities (RACF), the WHO Collaborating Centre for Reference and Research on Influenza (WHOCC), and the WHO National Influenza Centres (NICs). (Other parties outside the health sector, such as the Department of Agriculture, airports, airlines, seaports and shipping agents may also need to be involved to support border measures.) This list is not intended to be complete, but to provide examples and guidance.

These tables represent activities within the **health sector only**. Responsible parties are identified within square brackets. In the other health sector parties column, it is assumed that comments relate to the majority of other health sector parties, unless specified.

To make it easier to relate activities to the stages of the AHMPPI the following colours have been allocated to each stage (as used throughout this plan):

Preparedness	Standby	Action (initial & targeted)	Standdown
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Table 17: Roles and responsibilities of the Australian Government, State and Territory Governments and the health sector during the Preparedness stage.

Preparedness roles:	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Overarching role	<p>Determine how national systems can be adapted or established to respond to an influenza pandemic.</p> <p>Formulate and maintain health care safety and quality standards and indicators. [ACSQHC].</p> <p>Maintain the National Incident Room (NIR) (including staff, equipment, management systems).</p>	<p>Determine how systems can be adapted or established to respond to an influenza pandemic.</p>	<p>Provide strategic advice to governments and other key bodies on public health actions to minimise the impact of communicable diseases in Australia and the region [CDNA].</p> <p>Develop and maintain guidance for public health units to respond to influenza infection (via the Series of National Guidelines (SoNGs) [CDNA].</p>	<p>Prepare organisations to adapt to the demands and circumstances of an influenza pandemic.</p> <p>Participate in activities designed to prepare the health sector to respond to an influenza pandemic.</p> <p>Contribute to the development of guidelines, to ensure they are useful and easily understood across the health sector.</p> <p>Provide advice on the feasibility and impact of pandemic control measures.</p>
Surveillance				
General surveillance	<p>Establish and maintain systems to collate and analyse jurisdictional data to identify emerging national trends.</p> <p>Establish and maintain systems to collate and analyse international data to show emerging trends.</p>	<p>Establish and maintain systems to collect data to inform the jurisdictional public health response and contribute to identification of national trends.</p>	<p>Provide public health coordination of communicable disease surveillance [CDNA].</p> <p>Establish and maintain mechanisms to discuss and advise on surveillance data that may indicate the threat of an influenza pandemic [CDNA].</p>	<p>Participate in influenza surveillance activities [GPs, labs, WHOCC, Aboriginal Health Workers, Emergency Departments (EDs)].</p>

Preparedness roles:	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Seasonal influenza surveillance	Coordinate surveillance of the impact on Australia as a whole	Monitor data to identify when seasonal influenza has the potential to overwhelm the capacity of jurisdictional systems to manage the response. The jurisdiction may request assistance through AHPPC and NCC.	Consider requests for assistance to respond to a severe season of influenza [AHPPC]. Consider harmonisation of data collection and reporting [NISC].	Participate in routine influenza surveillance activities [GPs, Aboriginal Health Workers, EDs].
Pandemic influenza surveillance planning	Develop and maintain a national surveillance plan for pandemic influenza.	Provide input into development of a national surveillance plan for pandemic influenza.	Provide input into development of a national surveillance plan for pandemic influenza [NISC/CDNA]. Consider and endorse a national surveillance plan for pandemic influenza [AHPPC].	Provide input into development of a national surveillance plan for pandemic influenza [through NISC].
Pandemic influenza surveillance	Monitor and investigate surveillance data for the emergence of potential influenza pandemics.	Monitor and investigate surveillance data for the emergence of potential influenza pandemics.	Consider and provide advice on surveillance data which may indicate the emergence of an influenza pandemic. Advise AHPPC if the data indicates a level of threat requiring action [CDNA].	Participate in influenza surveillance activities [GPs, Aboriginal Health Workers, EDs].
Groups at increased risk of influenza complications			Establish/advise on a national case definition for an at-risk individual for seasonal influenza (SoNGs) [CDNA].	Identify practice patients who are more likely to be at risk (e.g. GPs, ACCHSs, hospitals, RANZCOG, community health and aged care providers). Consider staff that may be at risk and possible methods of protection.

Preparedness roles:	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Planning				
Pandemic preparedness and response planning documents	Develop and maintain a national health sector plan to prepare for and respond to pandemic influenza. Develop and maintain plans to address the needs of special groups, such as aged care sector.	Participate in development of a national health sector plan. Develop and maintain jurisdictional plans relevant to an influenza pandemic. Develop and maintain plans to address the needs of special groups, such as Aboriginal and Torres Strait Islander peoples or immunocompromised people.	Assist with the development of a national health sector plan to prepare for and respond to pandemic influenza [CDNA/ATAGI/PHLN]. Consider and endorse the national health sector plan to prepare for and respond to pandemic influenza [AHPPC].	Provide input into the development of the national health sector plan, through professional associations and other representative bodies. Develop uniform templates that can be used for the clinical management of patients [hospitals, GPs].
Pandemic preparedness and response planning documents				Develop plans for emergencies relevant to the party e.g. incorporate planning for an influenza pandemic (or more broadly as part of emergency planning) into overall business plans and ensure they are reviewed and updated regularly (RACGP Managing Emergencies and Pandemics in General Practice: A Guide for Preparation, Response and Recovery is an example of guidance on this). Include human resource planning in business plans to ensure business viability during a pandemic response.

Preparedness roles:	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Whole of Government (WoG) pandemic plans	Participate in the development of WoG pandemic and emergency plans.	Participate in the development of jurisdictional WoG pandemic and emergency plans.	Provide input into the development of WoG pandemic and emergency plans.	Provide input into the development of WoG pandemic and emergency plans.
Infection Control				
Guidelines	Maintain infection control guidelines. [NHMRC].	Implement infection control guidelines.		Implement up-to-date infection control guidelines.
Personal Protective Equipment (PPE)	Assess requirement for a national PPE stockpile and maintain a stockpile appropriate to this determination.	Assess requirement for a jurisdictional PPE stockpile and maintain a stockpile appropriate to this determination.	Advise on appropriateness of PPE stockpiling [CDNA/PHLN].	Maintain respiratory hygiene products appropriate for infection control, and ensure that local agreements and arrangements are in place for stockpile requirements for PPE [e.g. GPs + nurses + hospitals + ambulance/paramedic organisations + ACCHSs + RACFs etc.].

Preparedness roles:	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Health Workforce				
GPs	Support promotion of feedback of GP Roundtable information regarding primary care into decision making fora.	<p>Work with PHN to</p> <ul style="list-style-type: none"> identify service gaps and vulnerable populations; and to support dissemination of communications and engagement in strategies. <p>Establish clear communication lines with health care providers both a state and local levels.</p>	Provide advice on management/treatment strategies and antiviral use.	<p>Support data collection and identification of gaps in services and vulnerabilities in patient populations relevant for their region [PHN + ACCHSs].</p> <p>Establish liaison and clear communication lines with other local health providers (such as pharmacists, community nurses, ambulance, hosp, mental healthcare workers, RACFs.)</p> <p>Advocate for and support the GP profession to plan and prepare for a pandemic, including through the RACGP Disaster Management Network [RACGP, NACCHO].</p>
Other health practitioners	Ensure involvement in planning and design of systems.	Ensure involvement in planning and design of systems.	Provide advice on management/treatment strategies and antiviral use [CDNA].	Support EDs in planning [relevant professional bodies]. Establish clear communication lines.

Preparedness roles:	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Primary healthcare providers	<p>Ensure involvement in planning and design of systems to respond to an influenza pandemic.</p> <p>Ensure inclusion of/ coordination with S/T HD when working with primary healthcare providers on pandemic issues.</p>	<p>Ensure involvement in planning and design of systems to respond to an influenza pandemic.</p> <p>Ensure inclusion of/ coordination with Health when working with primary healthcare providers on pandemic issues.</p>		<p>Liaise and communicate with primary healthcare providers.</p>
Immunisation	<p>Develop policy, procure vaccines and fund National Immunisation Program (NIP). This includes seasonal influenza vaccination program to support free vaccination for eligible Australians to protect against vaccine preventable diseases and communicate information related to the NIP to the general public and health professionals. Make arrangements with vaccine manufacturers to guarantee pandemic vaccine supply to Australia in the event of a pandemic.</p>	<p>Deliver NIP (including seasonal influenza program). Promote vaccination to the community. Educate vaccination services providers about influenza immunisation. Deliver vaccination services as appropriate.</p>	<p>Develop policy regarding immunisation during a pandemic or severe seasonal influenza outbreak, such as guidance for communications and coordinate implementation of state/territory immunisation programs. Plan resourcing required to implement use of vaccine [National Immunisation Committee]. Provide technical advice regarding pandemic influenza vaccine immunisation: priority groups; vaccination schedule and suitable vaccine [ATAGI].</p>	<p>Deliver NIP. Provide community education on the seasonal and pandemic immunisation program, led by local public health units [GPs, culturally and linguistically diverse (CALD) community groups, Aboriginal and Torres Strait Islander health sector].</p>

Preparedness roles:	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Adverse events following immunisation and antiviral use	Monitor the adverse events of antiviral drugs and pandemic vaccines and provide advice on safety of these products [TGA].	Report adverse events following immunisation to the TGA.	Consider adverse event profiles and advise on the use of vaccine/antivirals [ATAGI, CDNA].	Report adverse events following immunisation to the state health authority and/or TGA.
Medical Countermeasures Stockpiles				
Establish stockpiles	Establish and maintain national stockpile—see below.	Assess requirement for a jurisdictional stockpile and maintain a stockpile appropriate to this determination.	Provide advice regarding inventory of the stockpile, access to and use of stockpile items [AHPPC]. Establish written guidelines on use [CDNA].	Maintain stocks appropriate for infection control [GPs + hospitals + ambulance/paramedic organisations + ACCHSs + RACFs etc.].
National Medical Stockpile (NMS)	Coordinate development of policy, in consultation with states/territories regarding the inventory and deployment of the NMS (including conduct of any modelling/ research required to inform decisions). Provide guidance on how the NMS can be accessed. Consider measures to strengthen coordination of supply chains.	Provide input into the development of policy regarding the inventory and deployment of the NMS. Develop a jurisdictional NMS distribution plan.	Provide advice/clear policy regarding the inventory and deployment of the NMS [AHPPC, CDNA, PHLN]. Develop policy on use of pre- and post-exposure prophylaxis for Healthcare Workers [CDNA].	Provide input on needs related to stockpile and the deployment of the stockpile. [e.g. GPs through GP Roundtable, ACCHSs, pharmacists, hospitals through S/T HD].

Preparedness roles:	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Antivirals	Consider the effectiveness of antivirals and inform policy on use accordingly.	Consider any information provided on the effectiveness of antivirals and inform policy on use accordingly.	Comment on the quality of evidence obtained concerning the effectiveness of antivirals [CDNA].	Disseminate in accordance with policy. Support dissemination of national advice on when to use antivirals and who should receive them [hospitals + peak bodies, such as GP organisations, NACCHO, ACEM, RANZCOG, RACGP].
Laboratory				
Collaboration	Support a collaborative public health laboratory network. Maintain communication with private health laboratory networks [PHLN].	Maintain a public health laboratory network. Maintain communication with private health laboratory networks.	Provide leadership and consultation in aspects of public health microbiology and communicable disease control [PHLN].	Provide feedback on service provision.
Capacity	Build national laboratory capacity through the supply of laboratory equipment, tests and reagents, to meet identified gaps in capacity.	Build jurisdictional laboratory capacity through the supply of laboratory equipment, tests and reagents, to meet identified gaps in capacity.	Provide strategic advice to the AHPPC to identify gaps and needs in laboratory capacity [PHLN].	Support early detection and laboratory analysis of influenza viruses [labs, NICs, WHOCC].
Regulation	Register new pharmaceuticals and vaccines as approved for use in Australia, following assessment of quality, safety and efficacy [TGA].			

Preparedness roles:	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Public communication	Establish communications protocols for emergencies.	Contribute to establishment of communication protocols for emergencies. Ensure effective communication systems and processes are in place.	Endorse communication protocols for emergencies [AHPPC].	Contribute to public communication delivery. Support communications to CALD communities. Coordinate information delivery for the ACCHS sector and input feedback to decision making processes [NACCHO]. Establish capacity for sharing information within EDs and local medical officer waiting rooms (paper and television screen savers) [hosp + GPs + PHN]
Institutional Setting				
Overall	Establish standards to promote the safety and security of people in institutional settings.	Establish systems to promote the safety and security of people in institutional settings.	Consider and endorse standards to promote the safety and security of people in institutional settings [CDNA, AHPPC].	Develop emergency plans for individual institutional settings.

Preparedness roles:	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Residential Aged Care Facilities	Manage a system to promote the safety and security of people in aged care settings.	Establish systems to promote the safety and security of people in aged care settings. Respond to outbreaks of influenza with RACF (Public Health Units).	Develop policy for Public Health Unit response to RACF influenza outbreaks and develop guidance for RACFs for seasonal influenza outbreak prevention response [CDNA].	Meet Residential Aged Care Accreditation standards. Implement national guidance for RACF for seasonal influenza outbreak prevention and response. Develop and/participate in prevention and treatment response measures [Medication advisory committees in RACFs]. Develop emergency plans for Aboriginal aged care settings [NACCHO to support]. Liaise with S/T public health authorities.
International Borders				
Border control services	Establish arrangements to provide services by Australian Government border agencies and jurisdictional health departments.	Participate in arrangements for the provision of services to support border control measures.	Make recommendations for use of border security measures. Advise on efficient models to support border control measures [CHBOs].	
Legislative support	Develop and maintain legislation to support implementation of measures at Australia's international borders.	Apply powers of appointed human biosecurity officials as required.	Consider and advise on legislative changes and interaction with S/T public health legislation [CHBOs and AHPPC].	

Preparedness roles:	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
IHR	Maintain IHR core capacities. Maintain National Focal Point (NFP) under IHR.	Maintain IHR core capacities. Maintain communications with NFP according to IHR reporting requirements and quarantine service provision agreements.	Contribute to IHR core capacities.	Contribute to IHR core capacities.
Australian Medical Assistance Team (AUSMAT)	Maintain a system to manage activation and deployment of AUSMAT for international support.	Maintain a jurisdictional register of responders (for AUSMAT).		Establish and maintain a list of GPs, nurses, paramedics and allied health staff available to support services in areas overwhelmed by the emergency through short term relief [relevant professional bodies, e.g. RACGP Disaster Management Network].
International obligations	Regional support to capacity building (planning) and to response [coordinated by DFAT].	Contribute expertise to regional programs.	Technical advice from a range of national health sector bodies may be shared regionally (on request).	Contribute expertise to regional programs.

Table 18: Roles and responsibilities of the Australian Government, State and Territory Governments and the health sector during the Standby stage.

Standby Roles:	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Overarching role				
	<p>Prepare national resources that may be needed to manage the pandemic.</p> <p>Coordinate information gathering and sharing about the virus and the emerging pandemic.</p> <p>Manage international obligations and borders.</p>	<p>Prepare jurisdictional resources that may be needed to manage the pandemic.</p> <p>Coordinate communication at state and local levels according to national guidance.</p> <p>Support management of international borders by providing disease control expertise and health care services to ill travellers.</p>	<p>Share information on resource availability [AHPPC].</p> <p>Prepare guidance on case and contact management; chemoprophylaxis and education; vaccination; quarantine/isolation; risk assessment; infection control and use of antivirals [CDNA].</p> <p>Prepare advice where relevant on interventions outside the health sector, such as social distancing measures [CDNA/AHPPC].</p>	<p>Prepare organisational personnel and resources for changes in demand and service use that may be required to manage the pandemic.</p> <p>Raise awareness of communication channels [peak bodies].</p>

Standby Roles:	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Surveillance				
Domestic surveillance	Coordinate collection of jurisdictional data to monitor for the first cases of the new virus.	Collect data to monitor for the first cases of the new virus. Share information with the Australian Government (specifics of data sharing arrangements negotiated in Surveillance Plan). Share jurisdictional data with State/Territory Minister and state and local level stakeholders.	Interpret surveillance data and provide expert advice on status of pandemic [CDNA]. Develop and update surveillance case definitions. Case definitions will include a probable case, a confirmed case and a contact [CDNA]. Provide other guidance, may include duration of incubation and infectious period, and estimates of infectiousness (R) [CDNA]. Establish testing priorities (who should be tested) [CDNA/PHLN]	<p>To support detection of the first cases, provide input into</p> <ul style="list-style-type: none"> state/territory surveillance systems [GPs + hospitals] National Notifiable Disease Surveillance System. [GPs + hospitals + laboratories] <p>To support detection of the first cases, provide input into</p> <ul style="list-style-type: none"> sentinel systems (e.g. influenza hospitalisations; testing of influenza-like-illness [participating GPs + hospitals] identification of outbreaks in RACFs [RACFs] and other institutions including schools and childcare centres. Coordinate communication around case incidence and detection across the ACCHS sector [NACCHO].

Standby

Standby Roles:	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
International Surveillance				
At-risk groups	Collate and analyse international data to show emerging trends. Share information with the offices of the Minister for Health, Minister for Mental Health and Ageing, decision makers, WHOCC, public health professionals and the public.	Share international data with relevant state and territory government agencies and other health sector parties	Consider international data and advise on implications for Australia [CDNA].	Share data with healthcare members through representative organisations.
	Analyse implications of international surveillance data in terms of at-risk groups to inform national level decision making. Reflect the needs of at-risk groups in national level decision making.	Reflect the needs of at-risk groups in jurisdictional level decision making.	Identify (confirm) at-risk groups [CDNA, possibly with additional expertise]. Establish a national case definition for an individual at risk of complications. Define the minimum data set so agreed parameters are collected across jurisdictions (taking into account jurisdictional capacity). Work in conjunction with other experts to provide tailored guidance for at-risk groups (e.g. work with Health Senior Clinical Advisor and Health Quality and Monitoring Branch to develop guidelines for RACFs and childcare centre operators). [CDNA].	Raise awareness of anticipated at-risk groups and their needs [peak bodies].

Standby Roles:	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Infection Control				
Infection control standards	Confirm application of standard infection control standards, or advise of any recommended modifications.	Confirm application of standard infection control strategies, or advise of any recommended modifications.	Tailor Infection Control Guidelines to the risks relevant to this virus (if required) [CDNA with the support of additional expertise].	Confirm application of standard infection control standards, or advise of any recommended modifications [peak bodies].
PPE	Prepare PPE in stockpiles for deployment (if held).	Prepared to distribute PPE if made available from stockpiles. Prepared to support appropriate use of PPE as part of coordinated response.		Prepare stocks of PPE for use, revise usage practices. Provide information and support education regarding supply of articles such as PPE and hand sanitiser [MTAA].
Health workforce	Ensure health workforce is aware of status of the pandemic, proposed approaches and any public health activities being undertaken during this stage.	Ensure health workforce is aware of status of the pandemic, proposed approaches and any public health activities being undertaken during this stage.		Ensure health workforce is aware of status of the pandemic, proposed approaches and any public health activities being undertaken during this stage [peak bodies].

Standby

Standby Roles:	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Public Health Measures				
	Coordinate and facilitate preparation of nationally consistent and agreed countermeasures to protect public health.	Prepare jurisdictional response activities such as influenza services, assessment & treatment centres, and other wider community interventions.	Advise which public health measures should be implemented at this stage [CDNA/ PHLN/ Health]. Share information on resource availability. Consider, select and organise implementation of public health measures appropriate to this stage [AHPPC].	Prepare to participate in public health measures to manage the pandemic, while maintaining business continuity for essential services. Prepare arrangements for triaging [primary care]. Prepare arrangements for cohorting of patients [e.g. GPs (if appropriate), hospitals]. Prepare arrangements for reducing non-urgent work.
Immunisation				
Pandemic vaccine program	Develop pandemic specific immunisation program delivery strategy. Ensure needs of at-risk groups are incorporated. Consider whether to activate existing Deeds for pandemic vaccine supply. Liaise with suppliers to ensure readiness to commence manufacture. Pre-deploy vaccination equipment (if appropriate).	Provide input into development of pandemic specific immunisation program. Receive and manage distribution of vaccination equipment.	Advise on development of pandemic specific immunisation program, including priority groups. [ATAGI/ NIC].	

Standby Roles:	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Candidate vaccines			<p>Provide advice on appropriateness of candidate vaccines to current pandemic, and appropriate target groups. [ATAGI + relevant experts].</p> <p>Decide whether to commence candidate vaccine and which groups will be targeted [AHPPC].</p>	Isolate potential pandemic vaccine viruses [WHOCC].
Medical Countermeasures Stockpiles	Coordinate pre-positioning of NMS items.	Receive and manage pre-positioned stockpile items.	Consider need to pre-position stockpile items early in response [CDNA/AHPPC].	Businesses/organisations to consider protective needs of staff (PPE, management practices).
Antivirals	Monitor international sources for information concerning antiviral resistance.		Monitor international sources for information concerning antiviral resistance [CDNA].	Monitor antiviral resistance [WHOCC. NIC].

Standby

Standby Roles:	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Laboratory				
Case definition			<p>Develop and maintain the laboratory case definition (LCD). The LCD will provide definitive and suggestive criteria that must be met to report a laboratory confirmed diagnosis.</p> <p>The LCD is also likely to provide guidance on:</p> <ul style="list-style-type: none"> the type of clinical specimen required and sample collection guidance; detection methodologies, such as culture, molecular methods such as polymerase chain reaction, molecular characterisation (typing and sub-typing methods) and serology; quality assurance considerations. <p>The LCD will be developed by PHLN and is likely to be included in CDNA case definition information.</p>	Educate members on the laboratory case definition and support its application [Peak bodies].

Standby Roles:	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Testing protocols	Support the needs of laboratories to develop pandemic PCR and serological testing	Develop and validate pandemic virus PCR tests.	<p>Acquire relevant isolates (most likely through WHOCC) and sequencing data for test development; distribute this information. (If well-established elsewhere, may acquire test itself) [PHLN].</p> <p>Share isolates with WHOCC for characterisation [PHLN].</p> <p>Develop laboratory testing protocols.</p> <p>Determine triggers for authorising laboratory testing in the early phase; transferring testing from reference laboratories to general laboratories; restricting testing to clinically relevant patients only i.e. when it is no longer necessary to test all suspect cases.</p> <p>Determine point during pandemic at which it is no longer necessary to test all suspect cases and inform stakeholders. Advise on likely turnaround times for testing [PHLN].</p>	<p>Obtain representative viruses from other countries and/or Australia [WHOCC].</p> <p>Share testing technologies [WHOCC, NICs, labs].</p>

Standby Roles:	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Public Communication				
Consistent messaging	Convey high level messaging to general public [Chief Medical Officer]. Provide advice on high risk destinations. Prepare messaging appropriate for special groups (such as at-risk groups, remote communities, CALD).	Convey high level messaging to general public related to jurisdiction specific measures [Chief Health Officer]. Prepare messaging appropriate for special groups (such as at-risk groups, remote communities, CALD).	Share information and approaches to coordinate a consistent public message (such as hygiene, PPE) [AHPCC/ CDNA]. Advise on messaging appropriate for special groups (such as at-risk groups, remote communities, CALD).	Support provision of quality health information. Communicate about anticipated risks and encourage behaviours which contribute positively to managing the risk of infection, such as respiratory etiquette, hand washing, mask wearing and vaccination [public and mental health experts + RANZCOG]. Inform general public of at-risk destinations if consulted re travel [GPs + travel medicine practitioners].
Media engagement	Liaise with S/T re media.	Liaise with Australian Government re media.	Keep the public and the media informed of emerging information about the pandemic, providing consistent and coordinated media and public responses [NHEMRN].	
Institutional settings	Support preparations in institutional settings to manage the pandemic.	Support preparations in institutional settings to manage the pandemic.	Support preparations in institutional settings to manage the pandemic.	Prepare to commence activities required to manage the pandemic.

Standby Roles:	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
International borders				
International borders	<p>If recommended, coordinate and implement border agency heightened activities [Health]</p> <ul style="list-style-type: none"> • identification • awareness raising. <p>Liaise with airports, airlines, seaports and shipping agencies.</p> <p>If recommended, coordinate and implement border agency heightened activities [Health]</p> <ul style="list-style-type: none"> • identification • awareness raising. 	<p>Contribute expertise to implementation of border activities [e.g. human biosecurity officials].</p> <p>Support implementation of border measures by providing health care to ill travellers identified by border measures.</p>	<p>Determine the purpose of border measures under current circumstances and types of border measures to be implemented [AHPPC with advice from CHBOs].</p> <p>Advise on border related disease management strategies such as allowance of on-travel of identified ill travellers [CHBOs].</p>	<p>Work with state and territory governments to manage and treat ill travellers identified at the border.</p>
Legislative support	Undertake any legislative processes required to support implementation or modification of border measures.	Undertake any state based legislative processes required to support implementation of border measures.	Consider and advise on legislative changes and interaction with S/T public health legislations [CHBOs and Chief Health Officers].	
International obligations	Communicate with WHO to obtain details regarding disease.	Gather information through international relationships at state and territory level.		

Standby

Table 19: Roles and responsibilities of the Australian Government, State and Territory Governments and the health sector during the Preparedness stage.

Initial and Targeted Action Roles	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Overarching role				
Tailoring of measures	Support coordination and communication when jurisdictional capacity is overwhelmed OR when an incident is multi-jurisdictional.	Undertake primary responsibility for the management of the public health response in jurisdictions, including management of cases; clinical care; contact management and public health measures. Request assistance if jurisdictional capacity is overwhelmed. Coordinate response and communication at state and local levels according to national guidance.	Share information on resource availability and coordinate access to resources to maximise the effectiveness of the response [AHPPC]. Provide guidance on case and contact management; chemoprophylaxis and education; vaccination; quarantine/isolation; risk assessment; infection control and use of antivirals [CDNA]. Provide advice where relevant on interventions outside the health sector, such as social distancing measures.	Maintain business continuity for essential services AND/OR deliver pandemic measures and distribute information. Provide input into decision making fora. Triage and coordinate care for patients between other service providers [GPs, Emergency Departments (EDs), ACCHS, pharmacists, mental health workers etc.] Help to ensure communication is in a format that is useful and easily understood by their part of the health sector [peak bodies]. Advise on the timing and impact of reducing enhanced clinical influenza services.

Initial and Targeted Action Roles	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Tailoring of measures (cont.)	Adjust any measures taken to take into account changes in surveillance information, equity and resource issues. Mitigate inequities where possible through planning processes.	Adjust any measures taken to take into account changes in surveillance information, equity and resource issues. Mitigate inequities where possible through planning processes.	Adjust any guidance given to taken to take into account changes in surveillance information, equity and resource issues.	Adjust any measures taken to take into account changes in guidance provided, equity and resource issues.
Surveillance				
International Surveillance	Collate and analyse international data to show emerging trends. Share information with the offices of the Minister for Health, decision makers, WHOCC, public health professionals and the public.	Share international data with relevant state and territory government agencies and other health sector parties.	Consider international data and advise on implications for Australia [CDNA].	Share data with healthcare members through representative organisations. Confirm initial cases for WHO [WHOCC].

Initial and Targeted Action

Initial and Targeted Action Roles	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Domestic Surveillance:	Collate and analyse jurisdictional data to report on emerging national trends. Share information with the offices of the Minister for Health, state and territory health departments, decision makers, clinicians, WHOCC, public health professionals and the public.	Collect data to inform the jurisdictional public health response. Share information with the Australian Government (specifics of data sharing arrangements negotiated in Surveillance Plan). Share jurisdictional data with State/Territory Minister and state and local level stakeholders.	Interpret surveillance data and provide expert advice on status of pandemic [CDNA]. Review testing priorities (who should be tested) [CDNA/PHLN].	<p>Provide input into</p> <ul style="list-style-type: none"> state/territory surveillance systems [GPs + hospitals] National Notifiable Disease Surveillance System. [GPs + hospitals + laboratories] sentinel systems (e.g. influenza hospitalisations; testing of influenza-like-illness [participating GPs + hospitals]) identification of outbreaks in RACFs [RACFs] and other institutions including schools and childcare centres. Coordinate communication around case incidence and detection across the ACCHS sector [NACCHO]. <p>Monitor antigenicity, antiviral resistance and other viral characteristics [WHOCC].</p>

Initial and Targeted Action Roles	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
At-risk groups	Monitor and analyse surveillance data in terms of at-risk groups to inform national level decision making. Reflect the needs of at-risk groups in national level decision making.	Monitor and analyse surveillance data in terms of at-risk groups to inform jurisdictional level decision making. Reflect the needs of at-risk groups in jurisdictional level decision making.	<p>Establish/advise on a national case definition for an individual at risk of complications. Define the minimum data set so agreed parameters are collected across jurisdictions (taking into account jurisdictional capacity).</p> <p>Work in conjunction with other experts to provide tailored guidance for at-risk groups (e.g. work with Health Senior Clinical Advisor and Health Quality and Monitoring Branch to develop guidelines for RACFs)[CDNA].</p>	<p>Identify, monitor and support the needs of at-risk groups [GPs + ACCCHSs + RACF + RANZCOG + hospitals + community nurses + ambulance organisations etc.].</p> <p>Support communication to CALD communities.</p>

Initial and Targeted Action Roles	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Escalation to national response	Activate and manage National Incident Room.	Report issues to the NIR which might foreshadow the requirement for a coordinated response. Escalate measures according to risk assessment appropriate to individual jurisdiction.	Consider clinical, laboratory and epidemiological surveillance, resource and political information to determine whether a national response is required (escalate plan) [AHPPC]. Advise on thresholds for escalation [CDNA/PHLN].	<p>Provide input into GP Roundtable.</p> <p>Provide input into clinical expert groups.</p> <p>Provide input through RACGP's endorsed Disaster Management Network.</p> <p>Provide input through Public Health Medical Officers Network.</p> <p>Representative aged care providers/peak bodies to come together to provide input.</p> <p>Provide input into the Clinical Stakeholders Forum.</p>

Initial and Targeted Action Roles	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Infection Control				
Infection control standards		Maintain appropriate infection control standards.		Maintain appropriate infection control standards.
PPE	Coordinate allocation of PPE within or between jurisdictions if overwhelmed.	<p>Distribute PPE made available from stockpiles.</p> <p>Support appropriate use of PPE as part of coordinated response.</p> <p>Advise AHPPC of PPE needs if stocks threatened.</p>	<p>Provide guidance on PPE use to coordinate a consistent approach.</p> <p>Provide advice to organisations and the public re infection control appropriate to the virus [CDNA].</p>	<p>Maintain respiratory hygiene products appropriate for infection control [e.g. GPs + nurses + hosp+ ambulance/ paramedic services + ACCHSs + RACF].</p> <p>Businesses/organisations to consider protective needs of staff. (PPE, management practices)</p> <p>Provide information and support education regarding supply of articles such as PPE and hand sanitiser [MTAA].</p> <p>Advise on concerns regarding use of nebulisers and non-invasive ventilation unless in negative pressure rooms [ACEM].</p>

Initial and Targeted Action Roles	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Point of care testing	Consider Medical Benefits Scheme funding of Point of Care tests.	Undertake point of care testing. Coordinate data management & reporting.	Develop guidelines for use and interpretation of results for point of care testing [CDNA and PHLN].	Support Point of Care testing, if recommended for flow and patient management.
Health workforce				
GPs	<p>Seek input from GPs through GP Roundtable and RACGP Disaster Management Network. Ensure input is shared with S/T health departments.</p> <p>Provide GPs with information and seek their input through PHN.</p>	<p>Provide GPs with information and seek their input through the RACGP Disaster Management Network. Share input received with Australian Government.</p>	<p>Support RACFs [GPs, PHN]</p> <p>Support health practitioners as spokespeople by ensuring communication of relevant information [through GP Roundtable, RACGP Disaster Management Network and PHN].</p>	<p>Provide input into GP Roundtable [GPs].</p> <p>Coordinate input from ACCHSs [NACCHO].</p> <p>Disseminate information from consultative fora to general public, as appropriate.</p> <p>Communicate access and demand circumstances in EDs (EDs + ACEM).</p>

Initial and Targeted Action Roles	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Primary Health Networks	Coordinate linkage of PHN into communication strategies.	Communicate with PHN. Collaborate with PHN to fill identified service provision gaps.	Support health practitioners as spokespeople by ensuring communication of relevant information [through GP Roundtable, RACGP Disaster Management Network and PHN].	PHN to support data collection and identification of gaps in services, additional resource requirements and vulnerabilities in patient populations relevant for their region [PHN to work together with local ACCHSs and other key groups]. PHN to have dedicated staff and call line to support health practitioners including resource coordination. PHN to liaise with local hospitals/EDs re demand, access and expectations.
Hospitals	Consider widening prescription rights for nurses during the emergency, to include antivirals and other key medications.	Establish and maintain public hospital system. Support hospitals in coping with increased admissions, increased acuity and access block. Consider opening more beds, cancellation of non-essential procedures. Support hospital systems to maintain essential services.		Resuscitate and treat the sickest patients. Disseminate information to the general public [hospitals]. Implement triage, coordinate between services, manage patients and after-hours care [hospitals—EDs particularly central].

Initial and Targeted Action Roles	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Other health practitioners	Seek input through professional associations. Liaison with RACFs. Consider widening prescription rights for nurses during the emergency; to include antivirals and other key medications.	Liaison with healthcare providers to provide information and seek their input on trends and the effectiveness of approaches.	Support health practitioners as spokespeople by ensuring communication of relevant information [through relevant professional associations].	Provide input on the effectiveness of measures and emerging issues through professional associations. Disseminate information to general public. Community nurses, pharmacies and pharmacists will have a key role in information distribution.
Public Health Measures				
Public Health Countermeasures	Auspice the coordination and facilitation of nationally consistent and agreed countermeasures to protect public health.	Coordinate jurisdictional response activities such as influenza services, assessment & treatment centres, and other wider community interventions.	Share information on resource availability and coordinate access to resources to maximise the effectiveness of the response [AHPPC].	Deliver pandemic measures as part of coordinated response and/or maintain business continuity for essential services. Telephone support of patients who choose to or are advised to undertake home quarantine, if this measure is recommended.

Initial and Targeted Action Roles	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Immunisation				
Pandemic vaccine program	Develop pandemic specific immunisation program. Ensure needs of at-risk groups are incorporated.	Coordinate pandemic immunisation program.	Coordinate implementation of state/territory immunisation programs [NIC].	Provide immunisation services. Identify individuals at risk that would be most likely to benefit from immunisations [GPs, health care nurses, hospitals, ACCHSs, pharmacies may also be used to provide immunisation services.]
Medical Countermeasures Stockpiles				
Deployment	Coordinate operational management of the NMS when activated (through NIR). Respond to national deficits, where possible.	Coordinate distribution of stockpile materials and support use by public and health professionals (NMS or jurisdictional).	Consider whether agreed triggers for deployment are present. Determine priority groups if there are areas of short supply [AHPPC].	Support distribution and use of stockpile items (particularly antivirals) potentially through PHN, hospitals, pharmacies, home nursing services (to facilitate easy acquisition and decrease time spent trying to obtain supplies.) Provide respiratory hygiene products and equipment to the general public for infection control [pharmacists].
Maintaining stockpiles	Liaise with other Australian Government departments, such as Department of Finance or Department of Foreign Affairs and Trade (for needs of embassy staff) regarding the NMS.	Share information with other jurisdictional government and health sector parties. Liaise with clinical sector.	Consider and agree on prioritisation of stockpile if required [AHPPC].	Coordinate to identify a clear message on needs and provide this input through professional associations [e.g. RACGP, NACCHO, ACEM, ambulance services, RACF].

Initial and Targeted Action

Initial and Targeted Action Roles	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Antivirals	Use national and international antiviral resistance patterns, disease severity data and data on at-risk populations to inform policy on NMS.	Coordinate administration of antivirals. Use national guidelines and health service capacity assessment to inform policy on jurisdictional stockpile items.	Facilitate antiviral resistance testing [PHLN]. Conduct surveillance of antiviral adverse event monitoring [TGA/CDNA]. Provide advice concerning the use and distribution of antivirals [CDNA/ AHPPC]. Provide advice concerning the use of antivirals in infants and children, pregnant and lactating women [CDNA/ AHPPC].	Prescribe and deliver antivirals according to NMS and state policy. Conduct resistance tests [WHOCC, NICs]. Provide input into discussions concerning effectiveness, side-effects and dissemination of antivirals [GPs, hospitals, pharmacists, WHOCC]. Use existing trial networks/ academic collaborations to assemble and analyse evidence concerning current and best practice [academia].

Initial and Targeted Action Roles	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Laboratory				
Testing	<p>Support the needs of a public health laboratory network.</p> <p>Promote higher quality testing by making available (or restricting) subsidisation under the Medical Benefits Scheme /Pharmaceutical Benefits Scheme</p>	<p>Undertake testing, surge [public health labs].</p> <p>Implement testing protocol developed by PHLN.</p>	Share testing technologies, including with private laboratories [PHLN]	<p>Undertake pandemic testing, surge to increase testing [labs]</p> <p>Provide surveillance information to Public Health Units including denominator data on testing [labs]</p> <p>Implement testing protocols developed by PHLN [GPs + hospitals + ACCHSs].</p> <p>Support case management and surveillance needs.</p> <p>Support dissemination of direction on pathology testing and consistent messages about surveillance by front-line health workers [e.g. GP organisations, NACCHO, ACEM, RACPI].</p> <p>Develop and test POC testing to facilitate hospital flow and patient management, where appropriate.</p> <p>Provide reference material to public health laboratories to aid the development of diagnostic assays [WHOCC].</p>

Initial and Targeted Action Roles	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Laboratory staff use of antivirals		Distribute antivirals for use as per guidelines developed by PHLN	Develop and maintain guidance for pathology and research staff regarding antiviral prophylaxis [PHLN].	Distribute guidance to pathology and research, hospital staff and GPs (and other relevant health sector parties) [peak bodies].
Public Communication				
Consistent messaging	Convey high level messaging to general public [Chief Medical Officer].	Convey high level messaging to general public related to jurisdiction specific measures [Chief Health Officer].	Share information and approaches to coordinate a consistent public message (such as hygiene, PPE) [AHPHC/CDNA].	Support provision of quality health information. Communicate about risks and encourage behaviours which contribute positively to managing the risk of infection, such as mask wearing or vaccination [public and mental health experts]. Inform general public of high risk destinations if consulted re travel [GPs + travel medicine practitioners].
Media engagement	Liaise with S/T re media.	Liaise with Australian Government re media.	Keep the public and the media informed during national health emergencies by providing consistent and coordinated media and public responses [NHEMRN].	

Initial and Targeted Action Roles	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Institutional Settings				
Overall	Work with state and territory governments to monitor the impact of the pandemic in institutional settings.	Investigate and support outbreak management. Disseminate relevant information.	Consider the need for additional action specific to institutional settings. Identify the appropriate bodies to undertake provision of this action/advice [AHPPC on advice from CDNA, jurisdictions, the GP Roundtable].	Work with state and territory governments and healthcare providers concerning outbreak management [as relevant].
Residential Aged Care Facilities	Work with approved providers and regulatory structures of aged care to disseminate relevant tailored information. Liaise with S/T HD units with responsibilities related to the pandemic.	Investigate and support outbreak management. Disseminate relevant information.	Develop and maintain guidance concerning management of influenza outbreaks in RACFs [CDNA].	Provide additional support relevant to Influenza-like-illness. Distribute information. Liaise with S/T HD public health units, including reporting respiratory outbreaks and risks to residents from outbreaks. Consider advice and adapt practices accordingly [RACFs]. Develop and/participate in prevention and treatment Response measures [Medication advisory committees in RACFs]. Consider use of POC testing for early diagnosis, treatment and cohorting.

Initial and Targeted Action Roles	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Educational facilities	Liaise with Australian Government education authorities.	Investigate and support outbreak management. Disseminate relevant information. Liaise with state/ territory government education authorities.	Provide advice through WoG processes on social distancing measures relevant to the school environment [CDNA, with other expertise as required].	Provide education on request [GPs, school nurses].
Military facilities	Investigate and support outbreak management. Disseminate relevant information.	Disseminate relevant information. Support outbreak investigation and management.		Liaise with Australian Government.
Correctional facilities		Investigate and support outbreak management. Disseminate relevant information.	Liaise with justice bodies on relevant best-practice guidance with respect to control measures [CDNA].	Use knowledge of clients to identify individuals at risk of complications, support surveillance [e.g. GPs, NACCHO].
International borders	If recommended, coordinate and implement border agency heightened activities [Health] <ul style="list-style-type: none"> • identification • awareness raising. Liaise with airports, airlines, seaports and shipping agencies. Provide officers to participate in implementation of border measures.	Contribute expertise to implementation of border activities [e.g. human biosecurity officials]. Support implementation of border measures by providing health care to ill travellers identified by border measures.	Determine the purpose of border measures under current circumstances and types of border measures to be implemented [AHPPC with advice from CHBOs]. Advise on border related disease management strategies such as allowance of on-travel of identified ill travellers [CHBOs].	Work with state and territory governments to manage and treat ill travellers identified at the border.

Initial and Targeted Action Roles	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
International obligations				
International Health Regulations (IHR)	Undertake IHR reporting requirements. Maintain core capacities.	Report IHR issues within jurisdictions to Australian Government. Contribute to provision of core capacities.	Contribute to provision of core capacities.	Contribute to provision of core capacities.
International liaison	Communicate with WHO to obtain details regarding disease.	Gather information through international relationships at state and territory level.		
Australian Medical Assistance Team (AUSMAT)	Coordinate provision of AUSMATs in response to a request for international assistance.	Contribute expertise to the AUSMAT.	Consider requests for health assistance (domestic or international) and identify the appropriate mechanism for providing the response [AHPPC].	Contribute expertise to AUSMAT.
Exit screening	Manage any requests for exit screening from WHO or other state parties.	Manage people identified through exit screening by integrating them into state and territory health systems.	Develop and maintain a protocol outlining how people identified under exit screening should be managed. This will include indications regarding funding. Public health specifics developed by CDNA, wider policy implications decided by AHPPC.	Support management of people identified in exit screening.

(Information about products, such as surveillance case definitions is indicative only.)

Initial and Targeted Action

Table 20: Roles and responsibilities of the Australian Government, State and Territory Governments and the health sector during the Standdown stage

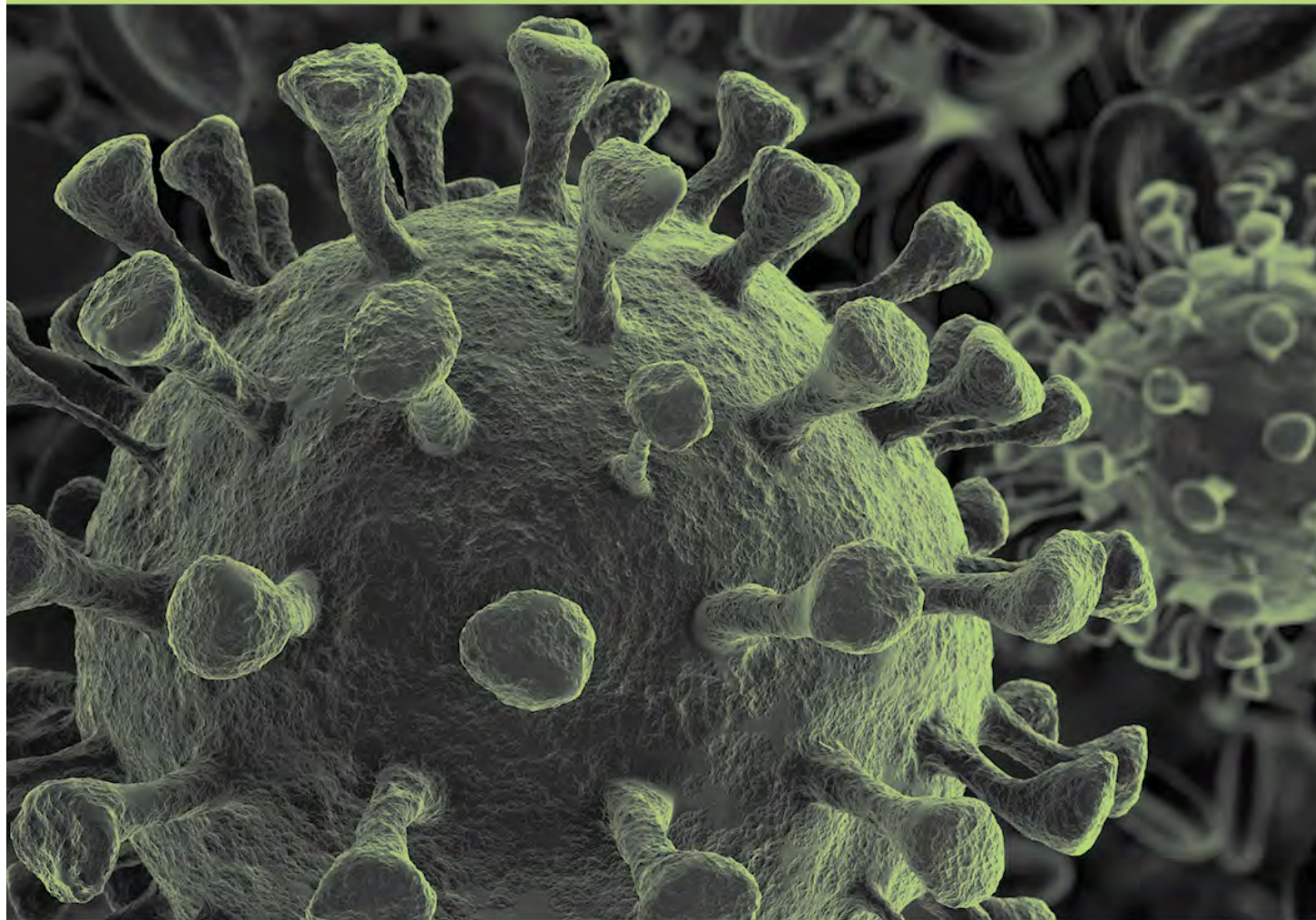
Standdown roles	The Australian Government role is to:	The State and Territory Governments role is to:	The joint role of Australian Government and State and Territory Governments is to:	The role of other health sector parties is to:
Standdown of activities	<p>Coordinate the development and implementation of an exit strategy to stand down enhanced measures.</p> <p>Consult across the Australian Government concerning scaling back of measures.</p> <p>Manage transition of processes into seasonal arrangements.</p>	<p>Implement exit strategy relevant to measures taken on by state and territory government officers and agencies.</p> <p>Consult across jurisdictional government concerning scaling back of measures.</p> <p>Manage transition of services and processes into seasonal arrangements.</p>	<p>Determine when to cease or alter enhanced measures [AHPPC].</p> <p>Provide advice regarding stand-down of measures [CDNA].</p> <p>Advise on appropriate messaging for responders and public concerning scaling down of measures [AHPPC/NHEMRN].</p>	<p>Explain reasons for scaling back and how this will happen to practitioners [peak bodies].</p> <p>Explain reasons for scaling back and how this will happen to public.</p> <p>Support implementation of exit strategy.</p> <p>Manage transition of services into normal arrangements (if altered).</p>
Evaluation	Evaluate Australian Government pandemic processes. Implement changes as appropriate.	Evaluate jurisdictional pandemic processes. Implement changes as appropriate.	Evaluate committee and governance processes. Implement changes as appropriate.	Evaluate organisation/ practice/business processes. Implement changes as appropriate.

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All information in this publication is correct as at August 2019



Australian Government
Department of Health



AUSTRALIAN HEALTH SECTOR EMERGENCY RESPONSE PLAN FOR NOVEL CORONAVIRUS (COVID-19)

Australian Health Sector Emergency Response Plan for Novel Coronavirus (COVID-19)

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PART 1

Overview of the National Approach

1. Executive Summary

Context

Viral respiratory diseases have the greatest potential to cause pandemics and the key threat of emergence of a pandemic strain of virus lies at the human-animal interface. Every so often there has been emergence of novel influenza strains in animals such as birds and pigs, such as H5N1, H1N1 and H7N9, and these viruses have caused significant morbidity and mortality in humans. To date none of these viruses have caused sustained human to human transmission.

Pandemic influenza remains a key global health threat and the Australian Government and the broader Australian health sector is well prepared to respond to an influenza pandemic. The Australian Health Management Plan for Pandemic Influenza (the AHMPPI) is the key nationally agreed document to guide Australia's response.

In December 2019, China reported cases of a viral pneumonia caused by a previously unknown pathogen that emerged in Wuhan, a city of 11 million people in central China. The initial cases were linked to exposures in a seafood market in Wuhan where a large range of live animal and animal products were sold. The pathogen was identified as a novel (new) coronavirus (recently named Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)), which is closely related genetically to the virus that caused the 2003 outbreak of Severe Acute Respiratory Syndrome (SARS). SARS-CoV-2 causes the illness now known as Coronavirus disease 2019 (COVID-19). Currently, there is no specific treatment (no vaccine and no antiviral) against the new virus.

Given what we know about pandemic preparedness, response and the significant global impacts of the SARS outbreak in 2003, the influenza pandemic in 2009 and the Middle East respiratory Syndrome (MERS) in 2013 and again in 2015, we cannot afford to be complacent.

Due to heightened global concerns around the pandemic potential of COVID-19, following a meeting of the World Health Organization (WHO) International Health Regulations Emergency Committee, the Director-General declared the outbreak of COVID-19 a Public Health Emergency of International Concern on 30 January 2020.

Australia is well prepared and has excellent health systems to deal with this virus. All areas of the health sector are well informed and actively engaged in the national response.

While there is still much we don't know about the characteristics of SARS-CoV-2, Australia has taken a precautionary approach in line with preparedness and response guidance for a pandemic, working collaboratively with state and territory and whole of government partners to implement strategies to minimise disease transmission through strong border measures and widespread communication activities.

The plan

This, the first Australian Health Sector Emergency Response Plan for Novel Coronavirus (the COVID-19 Plan) is designed to guide the Australian health sector response. It should be considered a living document that will be periodically updated. As we learn more about the virus and its key at risk groups, and as potential treatments become available such as antiviral drugs and vaccine, we can target resources and public health interventions to most effectively protect the health of all Australians.

The novel coronavirus outbreak represents a significant risk to Australia. It has the potential to cause high levels of morbidity and mortality and to disrupt our community socially and economically. The national approach to this plan has been based on the AHMPPI, noting that the response to the novel coronavirus outbreak is now in the Initial Action stage. Accordingly, the preparedness and standby stages have not been included.

Australia will approach this novel coronavirus outbreak by undertaking activities to:

- monitor and investigate outbreaks as they occur;
- identify and characterise the nature of the virus and the clinical severity of the disease;
- research respiratory disease-specific management strategies;
- respond promptly and effectively to minimise the novel coronavirus outbreak impact;
- undertake strategies to minimise the risk of further disease transmission; and
- contribute to the rapid and confident recovery of individuals, communities and services.

The activities required to support our community during this novel coronavirus outbreak will involve state and territory governments, the Australian Government and many other health sector parties. Coordination and communication at the national level will be particularly important during our current active response.

Response stages

To clearly show how the approach will change over the course of responding to a novel coronavirus outbreak, the COVID-19 Plan is divided into several stages.

The following table outlines the key activities in each of the COVID-19 Plan stages.

Table 1: Key activities in each of the COVID-19 Plan stages

COVID-19 Plan STAGES	ACTIVITIES
Action	<p>Action is divided into two groups of activities:</p> <p><i>Initial (when information about the disease is scarce)</i></p> <ul style="list-style-type: none"> • Minimise transmission; • Prepare and support health system needs; • Manage initial cases and contacts; • Identify and characterise the nature of the disease within the Australian context; • Provide information to support best practice health care and to empower the community and responders to manage their own risk of exposure; and • Confirm and support effective governance arrangements. <p><i>Targeted (when enough is known about the disease to tailor measures to specific needs)</i></p> <ul style="list-style-type: none"> • Ensure a proportionate response; • Support and maintain quality care; • Communicate to engage, empower and build confidence in the

COVID-19 Plan STAGES	ACTIVITIES
	community; and <ul style="list-style-type: none"> • Provide a coordinated and consistent approach.
Standdown	<ul style="list-style-type: none"> • Support and maintain quality care; • Cease activities that are no longer needed, and transition activities to normal business or interim arrangements; • Monitor for a second wave of the outbreak; • Monitor for the development of resistance to any pharmaceutical measures (if being used); • Communicate to support the return from emergency response to normal business services; and • Evaluate systems and revise plans and procedures.

Once response activities are completed arrangements will return to the Preparedness stage, to monitor for any future novel coronavirus outbreaks; maintain plans and response agreements; research novel coronavirus-specific management strategies; and ensure resources are available and ready for a rapid response.

Objectives and activities

The **strategic objectives** across all stages and activities proposed in this plan will be to:

- Identifying and characterising the nature of the virus and the clinical severity of the disease in the Australian context;
- Minimise transmissibility, morbidity and mortality;
- Minimise the burden on/ support health systems; and
- Inform, engage and empower the public.

The activities which should be implemented will be selected by the Australian Health Protection Principal Committee (AHPPC), in consultation with relevant parties and on advice from expert bodies.

Reflecting a flexible approach, choices on implementation of public health measures may vary across states and territories to reflect the jurisdictional context, particularly in relation to timing of implementation and stand down, however negotiation within AHPPC will ensure a coordinated and consistent approach.

Proportionate response

A key goal of the decision making process is to achieve a response that is proportionate to the level of risk, acknowledging that the risk is not the same across population groups. A response that is appropriate to the level of impact the novel coronavirus outbreak is likely to have on the community, and on vulnerable populations within the community, will make the best use of the resources available and minimise social disruption.

Although it will only be possible to quantify the overall impact of the outbreak once it has run its course, to assist planners, an estimate of the anticipated level of impact will be developed early in the response, and updated as new data becomes available. This estimate will be used to:

- guide the allocation of resources, to ensure resources are not wasted and are conserved for use as long as possible (including anticipation of when they are needed, as this will change over time);
- put in place strategies to supplement likely shortfalls (e.g. innovative options);
- reduce the risk to vulnerable people.

The level of impact that the novel coronavirus has on the Australian community will depend on a number of factors. The most influential will be the clinical severity and transmissibility of the disease, and the capacity of the health system to cope with the demand and the need for specialist services.

Communication and consultation

The management of a novel coronavirus outbreak will require governments, health sector industry and the community to work together. Communication will be a priority under this plan, to ensure responders are provided with timely, accurate and comprehensive clinical information and advice in order to effectively manage patients; implement novel coronavirus control measures and minimise their own risk of exposure. Consultation with responders and with the public will be essential to inform decision-making.

Public communication will be used to provide an opportunity both to address any public concern caused by the novel coronavirus outbreak and to engage the public in strategies to manage the impact of the disease. By giving the public up to date, consistent and accurate information about the status of the disease overseas and in Australia they can participate in managing the outbreak by taking steps to reduce the risk to themselves and their families. They can also make more informed decisions about work and travel, taking up health recommendations and planning for people in at-risk groups. Information about the implementation of activities and arrangements will be used to build public confidence in the capacity of health services to manage the response.

2. Introduction

This section outlines the aims of this plan, key factors in the approach taken, the context within which it has been developed and methods of achieving a response proportionate to the risk posed by the current novel coronavirus outbreak.

This plan has been developed specifically to manage the national response to the outbreak of novel coronavirus which commenced in China in 2019. It is heavily based on the AHMPPI, as discussion of key committees and expert groups have agreed the approach and activities of the AHMPPI are relevant and broadly applicable to the novel coronavirus outbreak.

Much is still unknown about the novel coronavirus, however our understanding is growing daily. This plan is a living document which will be updated as needed and as new information becomes available.

2.1 Aims of the national response to the novel coronavirus outbreak 2019/20

Australia's whole-of-government communicable disease frameworks, at Australian, state and territory government levels, aim to protect Australia's social function and economy.

During the novel coronavirus outbreak, the health sector will aim to minimise the outbreak's impact on the health of Australians and our health systems. This, the COVID-19 Plan, is the Australian national health sector plan for the outbreak of novel coronavirus 2019/20, and contributes to these aims by:

- clarifying the roles and responsibilities within the health sector of the Australian Government and state and territory governments;
- identifying areas where national guidance and coordination will be provided, and how this will be achieved; and
- supporting decision makers to respond in a manner that is flexible, informed and proportionate to the circumstances at the time.

2.2 Key aspects of this plan

The key factors in this plan's approach include:

- the use of **existing systems** and governance mechanisms, particularly those for other respiratory diseases (such as influenza) and human biosecurity;
- a **flexible** approach that can be scaled and varied to meet the needs experienced at the time;
- **evidence-based decision making**;
- strong linkages with **emergency response** arrangements;
- clear strategic approaches to the collection of national **surveillance** data; and
- an emphasis on **communication** activities as a key tool in management of the response.

2.3 Comprehensive approach

This plan takes an emergency response approach as its framework. This approach will allow it to be readily integrated into broader emergency arrangements. It will also assist those who are implementing activities during a health emergency to communicate more easily with others outside the health sector.

Consistent with Australia's strategic approach to emergency management, the COVID-19 Plan acknowledges the importance of seeing the management of all hazards within an ongoing cycle of activities in the four areas of:

- **P**revention;
- **P**reparedness;
- **R**esponse; and
- **R**ecovery.

(Use of these terms with the initial letter in bold will indicate these areas of the emergency management cycle in this plan.)

This plan will focus primarily on the area of **R**esponse, to meet the greater need for coordination and guidance at a national level for COVID-19. To reflect the changes in priorities as the outbreak response progresses and facilitate the more detailed planning required, Response activities will be further divided into two stages:

- Initial Action and Targeted Action; and
- Standdown.

Table 2 indicates the general focus of activities in each stage of the COVID-19 Plan. The current status of the virus in each stage is noted in italics. To ensure that flexibility is maintained, these stages are deliberately broad. To make it easier to relate activities to these stages, colours have been allocated to each and used as markers in this plan.

Table 2: Key activities in each stage of the COVID-19 Plan, commencing in Action, as Australia already has cases.

COVID-19 Plan STAGES	ACTIVITIES
Action <i>Cases detected in Australia</i>	<p>Action is divided into two groups of activities:</p> <p><i>Initial (when information about the disease is scarce)</i></p> <ul style="list-style-type: none"> • minimise transmission; • prepare and support health system needs; • manage initial cases and contacts; • identify and characterise the nature of the disease within the Australian context; • provide information to support best practice health care and to empower the community and responders to manage their own risk of exposure; and • confirm and support effective governance. <p><i>Targeted (when enough is known about the disease to tailor measures to specific needs)</i></p> <ul style="list-style-type: none"> • ensure a proportionate response; • support and maintain quality care; • continue to communicate to engage, empower and build confidence in the community; and • provide a coordinated and consistent approach.

COVID-19 Plan STAGES	ACTIVITIES
<p>Standdown</p> <p><i>The public health threat can be managed within normal arrangements and monitoring for change is in place.</i></p>	<ul style="list-style-type: none"> • Support and maintain quality care; • cease activities that are no longer needed, and transitioning activities to seasonal or interim arrangements; • monitor for a second wave of the outbreak; • monitor for the development of resistance to any pharmaceutical measures being used; • communicate to support the return from pandemic to normal business services; and • evaluate systems and revise plans and procedures.

2.4 Whole of government planning to support the novel coronavirus response

This plan outlines the health sector approach to responding to the novel coronavirus outbreak. It is supported by the Emergency Response Plan for Communicable Diseases Incidents of National Significance: National Arrangements (National CD Plan) (<https://www1.health.gov.au/internet/main/publishing.nsf/Content/ohp-nat-CD-plan.htm>).

The National CD Plan outlines how non-health sector agencies will support the health sector response and how agencies across Australian, state, territory and local governments will work together to protect Australia from the threat of a major communicable disease outbreak.

Guidance on the public health management of novel coronavirus is available in the Communicable Diseases Network Australia (CDNA) National Guidelines for Public Health Units in the Series of National Guidelines (SoNGs) (<https://www1.health.gov.au/internet/main/publishing.nsf/Content/cdna-song-novel-coronavirus.htm>).

The COVID-19 Plan acknowledges that the primary responsibility for managing the impact of the novel coronavirus lies with the state and territory governments and that each jurisdiction will have its own plans and protocols. Therefore the majority of operational detail will be found in these plans.

2.5 Legal framework

Although Commonwealth biosecurity legislation and state and territory public health and emergency response laws provide a legislative framework to underpin actions that may be required, measures will rely on voluntary compliance rather than legal enforcement wherever possible. The principal areas of legislation available to support response actions are described in the following subsections.

The Biosecurity Act 2015

The *Biosecurity Act 2015* authorises activities used to prevent the introduction and spread of target diseases into Australia. People reasonably suspected to have a listed human disease (LHD) specified under the Act are required to comply with a range of biosecurity measures and requests for information as directed by the Director of Human Biosecurity (DHB), Australia's Chief Medical Officer (CMO); Minister for Health; or a biosecurity official or human biosecurity officer as stipulated in the Act. The Governor-General also has the power to declare a human biosecurity emergency, which authorises the Health Minister to implement a broad range of actions in response. These could be applied to respond to a serious infectious disease outbreak or a pandemic. 'Human coronavirus with pandemic potential' is an LHD. Diseases can be added to the list of LHDs (as declared in the *Biosecurity (Listed Human Diseases) Determination 2016*) at any time by the DHB at short notice.

The National Health Security Act 2007

The *National Health Security Act 2007* (NHS Act) authorises the exchange of public health surveillance information (including personal information) between the Australian Government, states and territories and the WHO. The National Health Security Agreement supporting the NHS Act formalises decision-making and coordinated response arrangements that have been refined in recent years to prepare for health emergencies.

State and territory government legislative powers

States and territories have legislative powers that enable them to implement biosecurity arrangements within their borders and that complement Australian Government biosecurity arrangements. They also have a broad range of public health and emergency response powers available under public and emergency legislation for responding to public health emergencies.

International legislative obligations

The *International Health Regulations 2005* (IHR) is an international public health treaty that commits signatory countries to take action to prevent, protect against, control and provide a public health response to the international spread of disease. As a signatory, Australia has a range of obligations, including reporting and maintaining certain core capacities at designated points of entry and informing the WHO if any measures implemented interfere with international trade or travel.

Therapeutic Goods Act 1989

The *Therapeutic Goods Act 1989* establishes a framework for ensuring the timely availability of therapeutic goods (i.e. medicines, medical devices and biological products) that are of acceptable quality, safety and efficacy/performance. There are provisions within the legislation that operate at an individual patient level and at a program level (such as the maintenance of a National Medical Stockpile (NMS)) to allow for the importation and supply of products and the use of new, disease-specific in vitro medical diagnostic tests that have not been approved for use in Australia. These products may be required to deal with an actual threat to individual and public health caused by an

emergency that has occurred or to create a preparedness to deal with a potential threat to health that may be caused by a possible future emergency.

2.6 Ethical framework

In 2008, AHPPC agreed on an ethical framework to guide health sector responses. These values will be taken into account when planning and implementing actions under this plan, and can be outlined as:

Equity - Providing care in an equitable manner, recognising special needs, cultural values and religious beliefs of different members of the community. This is especially important when providing health services to vulnerable individuals, such as Aboriginal and Torres Strait Islander peoples and people who are culturally and linguistically diverse.

Individual liberty - Ensuring that the rights of the individual are upheld as much as possible

Privacy and confidentiality of individuals - Is important and should be protected. Under extraordinary conditions during a pandemic, it may be necessary for some elements to be overridden to protect others.

Proportionality - Ensuring that measures taken are proportional to the threat.

Protection of the public - Ensuring that the protection of the entire population remains a primary focus.

Provision of care - Ensuring that health care workers (HCWs) are able to deliver care appropriate to the situation, commensurate with good practice, and their profession's code of ethics.

Reciprocity - Ensuring that when individuals are asked to take measures or perform duties for the benefit of society as a whole, their acts are appropriately recognised and legitimate need associated with these acts are met where possible.

Stewardship - That leaders strive to make good decisions based on best available evidence.

Trust - That health decision makers strive to communicate in a timely and transparent manner to the public and those within the health system.

2.7 Proportionate response

Prior to 2009, planning for pandemics and major communicable disease outbreaks was aimed at responding to a worst case scenario. The 2009 influenza A(H1N1) pandemic showed clearly the need for the flexibility to scale the response to be proportionate to the risk associated with the current disease.

2.7.1 Outbreak Impact

The level of impact that the outbreak has on the Australian community will depend on a number of factors.

The **clinical severity** of the disease will affect the number of people that present to primary care, and who need to be hospitalised (and consequently the burden on the health system). The clinical severity also affects the number of deaths and the level of concern within the community. As clinical severity increases, the visibility of the disease (i.e. how easy it is to be aware of cases) is likely to increase. Greater visibility of cases to medical services makes them more amenable to measures to manage the disease's impact.

The **transmissibility** of the virus between humans will affect the breadth and speed of spread across the globe and the Australian community. The transmissibility of the novel coronavirus is as yet unknown. As at 6 February 2020, the World Health Organization has estimated the virus to have a preliminary reproduction number (R_0) of 1.4 to 2.5.

The **capacity of the health system** will influence the way that healthcare is provided. Australia has an excellent health system. However, there is a limit to the services that are able to be provided, which may well be tested during an outbreak of a novel coronavirus with pandemic potential. In some areas, the health system already reaches capacity at peak times, such as during severe influenza seasons. A major outbreak will increase the demand on specialist expertise, particularly in acute care, such as intensive care nursing, emergency medicine and ambulance services. It may also increase the demand on specialist equipment, some of which requires specialist training to implement and is of limited availability, such as extracorporeal membrane oxygenation (ECMO). Demand on primary health care will also increase, exacerbated by the need to attend to patients affected by the changes in availability of services at hospitals.

The **effectiveness of interventions** will affect individual health and the levels of morbidity and mortality that need to be managed by the health system. Currently there are no effective antivirals available and there is no vaccine. Availability of a customised novel coronavirus vaccine would be the greatest tool in reducing the impact. It is not known if or when this might be available. There is still no vaccine available for the other major coronaviruses SARS and MERS. Interventions that change behaviours, such as hand hygiene, isolation and social distancing will also influence the impact of the disease. Early clinical trials of candidate antiviral drugs in severe cases will be of great importance to determine if any of them have clinical efficacy.

The **vulnerability** of our population will influence the spread and clinical severity of the disease. Vulnerability is unique and will make comparisons with the experience of the outbreak overseas indicative only. As the outbreak is caused by a novel virus, the lack of immunity in the population will make it more vulnerable than would be the case with diseases such as seasonal influenza (where there is usually some cross-immunity from previous seasonal strains). Case information to date has indicated that people with underlying illness or immunocompromised conditions are likely to experience more severe outcomes.

2.7.2 Application of outbreak impact levels to decision making

Although it will only be possible to quantify the overall impact of the outbreak once it has run its course, informed by surveillance activities, an estimate of the anticipated level of impact will be made early in the response, and continually updated as data availability allows, and used to help planners:

- allocate resources where they are needed (including anticipation of when they are needed, as this will change over time);
- put in place strategies to supplement likely shortfalls (e.g. innovative options);
- reduce the risk to vulnerable people;
- minimise the disruption to the community; and
- provide a response that is proportionate to the level of impact.

Characterisation of the virus will be undertaken as early as possible in the outbreak, including ongoing analysis of sequencing information that could indicate viral mutation, and revised regularly as more information becomes available. While all the factors mentioned above will be considered as part of the decision making process, they will have different degrees of influence.

Clinical severity:

Clinical severity is likely to be critically important in making an estimate of impact. It will strongly impact on the morbidity and mortality at an individual and population level, the burden on the health system and the concern within the community. Explanations of impact in terms of clinical severity are also easily understood at a personal and public health level. As clinical severity increases, the following will also increase:

- the demand for high end services, such as Intensive Care Unit (ICU), paediatric and respiratory care (associated with this will be increased demand for specialized equipment

and health care professionals, such as ECMO and ICU nurses). High end services are areas likely to increase the demand on support services, such as laboratories, much more than increased demand in general wards;

- the demand for services associated with management of the deceased;
- the importance of informing and supporting at-risk groups;
- the importance of measures to promote prompt presentation and diagnosis, while minimising opportunities for transmission;
- the importance of building confidence within the community;
- the proportion of infected individuals seeking treatment, which means the public health interventions to reduce ongoing transmission that rely on identification of cases will likely be more effective.

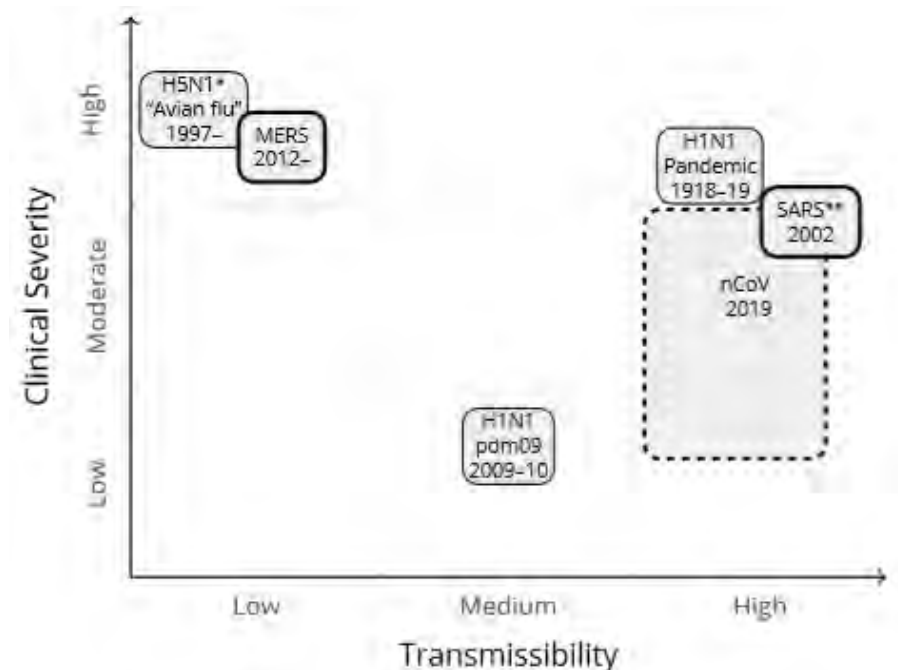
Transmissibility:

Following clinical severity, transmissibility will be considered, to help determine the likely speed of spread and the timing of the demand on health services, and further define the impact of the pandemic on the population as a whole. As transmissibility rises:

- the timeliness of measures to limit spread becomes more critical (as the window of opportunity is smaller);
- the demand for health services rises more quickly;
- health services and response measures need to be scaled up more quickly;
- the peak burden and final total burden on the health system will be higher;
- the overall duration of the pandemic will be shorter;
- assessments and decisions will need to be made more quickly (epidemiological and individual).

Figure 1 provides an example of how previous respiratory disease outbreaks could be characterised in terms of clinical severity and human-to-human transmissibility.

Figure 1: Contribution of transmissibility and severity on population impact of estimated range of COVID-19 to other respiratory outbreaks



The significance of transmissibility will vary depending on the stage of progress of the outbreak. It should also be considered that, as the novel coronavirus outbreak is caused by a new virus, there will be high vulnerability in the population to the virus. There is no evidence of sustained human-to-human transmission in Australia and this is being carefully monitored and could change. The window of opportunity for measures aimed at controlling transmission are proving successful but may become more limited.

It is suspected that individuals with the novel coronavirus may be less infectious prior to the onset of symptoms than those with influenza. This would make isolation of identified cases more effective at reducing onward spread.

The capacity of the health system will also be considered to determine the degree to which systems will be able to manage the increased demand and which measures would need to be put in place to best use available resources.

Indicators such as notifications, hospitalisations and availability of ICU beds may be used to determine the transmissibility, clinical severity and health system capacity respectively.

2.7.3 A qualitative description of three different levels of outbreak impact

Each outbreak is unique and the clinical severity and transmissibility is likely to vary each time. Health system capacity will vary between and within jurisdictions, according to the season and between different health services. To illustrate how differences in these three factors may impact differently on the community, and therefore require different approaches and levels of resources, three scenarios have been described in the following sections.

Scenario one

If clinical severity is low

The majority of cases are likely to experience mild to moderate clinical features. People in at-risk groups and those with comorbidities may experience more severe illness. Strategies to support at-risk groups, once they are identified, may be required (e.g. people with underlying illness, people with immunocompromised conditions, aged care, infants, Aboriginal and Torres Strait Islander peoples, remote communities). At the peak of the outbreak, and increasingly when transmissibility is higher, primary care and hospital services may become stretched in areas associated with respiratory illness and acute care. Existing legislation is likely to be sufficient to support activities. The level of impact on the community may be similar to severe seasonal influenza or the 2009 influenza A(H1N1) pandemic.

Scenario two

If clinical severity is moderate

People in at-risk groups may experience severe illness. As the number of cases grows the number of people presenting for medical care is likely to be higher than for severe seasonal influenza and primary care and hospital services will be under severe pressure, particularly in areas associated with respiratory illness and acute care. Non-urgent procedures and activities may need to be scaled back. Surge staffing and alternate models of clinical care, such as cohorting and/or establishment of flu-like clinics may need to be employed to cope with increased demands for healthcare. Pressure on health services will be more intense, rise more quickly and peak earlier as the transmissibility of the disease

increases. Healthcare staff may themselves be ill or have to care for ill family members, further exacerbating pressures on healthcare providers.

Additional strategies to support at-risk groups may be required (e.g. people with underlying illness, people with immunocompromised conditions, aged care, infants, Aboriginal and Torres Strait Islander peoples, remote communities). New and/or existing health emergency legislation may be needed to support outbreak response specific activities.

Scenario three

If clinical severity is high

Widespread severe illness will cause concern and challenge the capacity of the health sector. Areas such as primary care, acute care, pharmacies, nurse practitioners and aged care facilities will be stretched to capacity to support essential care requirements. Heavy prioritisation will be essential within hospitals to maintain essential services and mortuary services will be under pressure. The demand for specialist equipment and personnel is likely to challenge capacity. Pressure on health services will be more intense, rise more quickly and peak earlier as the transmissibility of the disease increases. Healthcare staff may themselves be ill or have to care for ill family members, further exacerbating pressures on healthcare providers.

Secondary care services, such as blood services and diagnostic services will be challenged to maintain capacities and the community focus will be on maintaining essential services. Health emergency legislation may be needed to support outbreak specific activities. The level of impact may be similar to that of the 1918 H1N1 'Spanish flu'.

These scenarios characterise the impact on the Australian community as a whole.

2.8 Participating parties

This plan is written for government decision makers and will be used to inform operational planning in state and territory governments and the broader Australian Government.

The primary parties to the COVID-19 Plan will be the Australian Government Department of Health (Department of Health) and State and Territory Health Departments.

The participation of, or coordination with other government agencies at Australian Government and State and Territory Government level will also be necessary to implement many of the activities in this Plan. Commitment to this process is captured in the National CD Plan. The Australian Government Department of Agriculture, Water and the Environment will be particularly important in the implementation of border health measures. The Department of Home Affairs (including Emergency Management Australia) and the Department of Prime Minister and Cabinet will also be involved.

Non-government parties, such as general practitioners (GPs), nurses and pharmacists will also be involved in responding to a pandemic. It is acknowledged that healthcare practices will rely on the hard work of teams of individuals to implement pandemic measures and that these teams will be made up of people with a broad range of skills.

2.9 Review and amendment

The CMO, after appropriate consultation, may approve amendment to the COVID-19 Plan as needed to meet the current circumstances.

3. Escalation

This chapter explains when arrangements under the COVID-19 Plan will be used and how escalation through the COVID-19 Plan stages will occur.

3.1 Existing communicable disease arrangements

The novel coronavirus is a respiratory illness. GPs and other health providers, such as nurses, Aboriginal Community Controlled Health Services (ACCHSs), pharmacists and aged care providers manage the bulk of people with respiratory illnesses within the community. Public health units and communicable disease control services in state and territory health departments manage outbreak response, collect public health surveillance data, administer vaccination programs, develop and implement health promotion and public communications, and provide significant support to clinical services and aged care facilities. Ambulance services, hospital emergency and respiratory wards, and intensive care units support people with complications. Laboratories provide testing services, advise on management of resources and public health approaches, and participate in research. Surveillance systems and public health units investigate and support management of outbreaks and provide important public information on risk reducing strategies.

These systems are well developed and processes are refined continuously as outbreaks are managed each year.

3.2 Escalation from existing arrangements

These existing arrangements form the basis for the clinical and public health management of the novel coronavirus. Emergency management processes, in particular the Australian Government Crisis Management Framework (AGCMF), will be used as the basis of governance arrangements. Existing surveillance systems will be updated and adapted to monitor the emergence of novel coronavirus, and form the basis for gathering information to guide decision making throughout the outbreak.

While there are many similarities to pandemic influenza, there are also differences in managing a novel coronavirus outbreak. Common objectives to minimise transmission, morbidity and mortality will remain, but key areas in which the implementation of activities would differ are:

- ongoing characterisation of the virus and the clinical severity of the disease in the Australian context;
- increased importance of identification of cases and isolation activities (as it is suspected that individuals may be less infectious prior to the onset of symptoms, making isolation of identified cases more effective at reducing onward spread).
- coronaviruses spread more slowly than influenza, allowing a window of several days to identify and isolate cases while they are still infectious.
- case isolation will continue to be important to reduce spread through the whole course of the response.
- the likelihood that, due to the longer serial interval (time between successive cases in a chain of transmission), it will be necessary to sustain the response for longer. This will have significant implications for the sustainability of resources. It will also increase the importance of looking at alternative methods for control of transmission and carefully monitoring when actions should be scaled back or ceased.

Existing systems will need to be adapted and enhanced to support new priorities. Some systems may be extended (such as through surge staffing) and, where outside the normal scope, some will be augmented (through methods such as recruitment of additional expertise). The greater complexity of systems required to respond to the novel coronavirus outbreak will increase the need for national coordination.

The COVID-19 Plan provides an agreed approach to provision of a coordinated and consistent response and a decision to escalate under the COVID-19 Plan from existing arrangements will signal that participating parties should:

- commence use of agreed governance and communication arrangements to manage this type of threat;
- undertake their roles and responsibilities as detailed in this plan;
- advise stakeholders of the approach that will be taken by national, state and territory health departments to respond to the situation; and
- put in place a process to allocate resources and justify re-prioritisation of existing activities to support the outbreak response.

3.3 Escalation across stages

The plan is currently in the phase of Initial Action and can be elevated to Targeted Action stage if AHPPC considers this warranted by the circumstances.

Triggers

Examples of events that might warrant escalation include:

- declaration of a Public Health Emergency of International Concern (PHEIC) or a pandemic by the WHO; and
- advice from a credible source that sustained community transmission of a novel virus with pandemic potential has occurred.

The National Incident Room (NIR) in the Department of Health will function as the National Health Sector Emergency Operations Centre and the National Focal Point (NFP) under the International Health Regulations.

3.4 Activation of other plans

The COVID-19 Plan stages will be independent of activation of whole-of-government or jurisdictional plans.

While the COVID-19 Plan remains in Initial/Targeted Action or Standdown stages:

- the NFP in the Department of Health will liaise with the WHO;
- the NIR will provide agencies with regular Situation Reports;
- the NIR will advise relevant Australian Government and state and territory health services of any change of stage;
- the NIR will coordinate communications;
- The Department of Health will coordinate liaison with other Australian Government agencies;
- The Department of Health will advise the Minister for Health of progress under the Plan;
- S/T HD will coordinate liaison with other government parties and response stakeholders in their jurisdiction; and
- Communications will be conducted as outlined in 'Communications' below.

4. Governance

This chapter outlines the roles and responsibilities of stakeholders and key committees, and describes decision-making and consultation processes.

4.1 Roles and responsibilities

A clear understanding of the roles and responsibilities between parties responding to a novel coronavirus outbreak will support quick decision making and efficient, coordinated use of resources. This section summarises the roles and responsibilities of the Australian Government in key aspects of managing a novel coronavirus outbreak, the roles and responsibilities of the state and territory governments, and where roles and responsibilities are jointly shared by these two parties. To reinforce important linkages with these stakeholders, this chapter also outlines the broad roles of other health sector parties.

4.1.1 Planning

Minimising the impact of a novel coronavirus outbreak on Australian communities and on the health system requires coordinated and careful planning of measures to control the spread of the disease. The Australian Government maintains the COVID-19 Plan to prepare for and respond to a novel coronavirus outbreak, with input from states and territories, and other health sector stakeholders. This plan will be regularly reviewed and updated as more information about the novel coronavirus is determined.

States and territories also develop consistent and comprehensive operational plans for the public health response, and the health service response within their jurisdictions.

Other health sector stakeholders are responsible for developing their own response plans in accordance with national and jurisdictional arrangements and for incorporating communicable disease outbreaks into overall business continuity plans.

At all levels, planning will consider what is needed to protect the most vulnerable members of our communities, and address the needs of special groups, such as the aged care sector and Aboriginal and Torres Strait Islander peoples.

4.1.2 Surveillance

The Australian Government is responsible for developing and maintaining systems to monitor communicable disease activity domestically and internationally and for communicating relevant information. Once a novel coronavirus with pandemic potential has arrived in Australia, these systems will be used for monitoring and analysis. Working together with state and territory representatives, the Australian Government will assess the risk of any potential outbreak threats to inform decision making about appropriate actions.

State and territory governments are responsible for collecting surveillance data to contribute to the national picture and to inform the jurisdictional public health response.

Other health sector stakeholders will also play a key role in surveillance activities and contributing to the national characterisation and understanding of the novel coronavirus of concern.

4.1.3 Provision of clinical services

The Australian Government will coordinate allocation of available national resources required for clinical care.

The Australian Government and state and territory governments will work together to develop new models of care to manage patients and agree on novel coronavirus triage criteria (if required); tailor infection control guidelines to the risks relevant to the virus as required; ensure provision of primary

health care is adapted to any changes in the needs of vulnerable groups during the outbreak; and consider and respond to requests for health assistance.

State and territory governments have primary responsibility for establishing and maintaining public health services, public hospitals and laboratories. They are responsible for the operational aspects of clinical care responses and have primary responsibility for the management of cases. They will collaborate with relevant organisations to fill identified service provision gaps; support hospitals in coping with increased demand by considering opening more beds, changing staff to patient ratios; cancelling elective procedures or working in partnership with local private hospitals to manage urgent cases where appropriate; implement new models of care as required; coordinate allocation within their jurisdiction of available resources required for clinical care; and where possible, share clinical resources where and when needed.

Other health care stakeholders are responsible for service provision and linking with and participating in the clinical care network by sharing resources; implementing national care guidelines (including triage protocols if required) and delivering outbreak control measures where required. They will implement patient triage, manage patients and provide after-hours care as required; coordinate locally between services; collaborate with state and territory health authorities to identify and fill local gaps in services, particularly where there are vulnerable populations and implement new models of care according to a novel coronavirus outbreak policy.

4.1.4 Implementation of public health measures

The Australian Government is responsible for ensuring the resources and systems required to mount an effective national response are readily available; for international border activities; and for ensuring that Australia meets its international obligations. This includes maintaining the NIR, the NMS and IHR core capacities including maintenance of the NFP.

The Australian Government will also be responsible for residential aged care facilities; working with other healthcare providers to set standards to promote the safety and security of people in aged care and other institutional settings; and establishing and maintaining infection control guidelines, healthcare safety and quality standards. The Australian Government will fast-track assessment and approval of a customised vaccine, should this become available; procure vaccines; develop a national novel coronavirus vaccination policy and a national novel coronavirus immunisation program; and communicate immunisation information on the program to the general public and health professionals.

The Australian Government and state and territory governments will work together to provide advice and leadership on the appropriate methods and timing for implementing public health measures. They will develop communication strategies and resources for novel coronavirus immunisation and coordinate implementation of novel coronavirus immunisation programs. They will also contribute to building linkages between human and animal health resources and activities.

State and territory governments are responsible for the operational aspects of public health responses. They will undertake contact tracing; coordinate distribution of antiviral drugs and disseminate protocols on the use of antivirals; implement social distancing measures as per national recommendations and local risk assessment; and implement infection control guidelines and healthcare safety and quality standards. They will establish systems to promote the safety and security of people in aged care and other institutional settings and support outbreak investigation and management in residential aged care facilities, schools, prisons and other institutions.

State and territory governments will develop and validate specific novel coronavirus tests; undertake novel coronavirus laboratory testing as required to monitor the outbreak and for individual patient care; implement testing protocols to support case management, surveillance needs and to preserve laboratory capacity; support and undertake novel coronavirus point of care testing if recommended.

State and territory governments will maintain IHR core capacities and communicate public health events of national significance to the NFP; support implementation of border measures by providing disease control expertise and health care services to ill travellers; implement the national novel coronavirus immunisation program (should one become available); manage jurisdictional distribution of the NMS and assess the need for a jurisdictional medical stockpile and, if relevant, establish and maintain it.

Other health sector stakeholders will contribute to IHR core capacities; provide input on needs related to national stockpile items; maintain stocks and use of, personal protective equipment as appropriate for infection control requirements; and report adverse events following immunisation or following the administration of antiviral drugs (should relevant antivirals become available) to the state health authority and/or the Therapeutic Goods Administration (TGA).

Other health sector stakeholders will implement infection control guidelines and healthcare safety and quality standards; and implement protocols and procedures to promote the safety and security of people in aged care and other institutional settings according to national standards. They will also administer novel coronavirus vaccine according to national guidelines (should one become available); and provide community education on novel coronavirus vaccination programs including education with hard-to-reach groups and at-risk populations.

4.1.5 Researching, planning and building specific novel coronavirus outbreak control strategies

The Australian Government will commission research on the effectiveness and impact of public health measures. National, state and territory governments will use this information to inform their plans. Other health sector stakeholders will provide advice on the feasibility and impact of novel coronavirus outbreak control measures; and support dissemination and implementation of national advice on the measures, such as the use of antiviral drugs and novel coronavirus vaccines.

4.1.6 Communication

The Australian Government is responsible for national communications to the public and the health care sector at a national level, with direct responsibility for communications with the primary care sector and at our international borders. It is also responsible for reporting to and liaison with the WHO as required under the IHR and sharing information from the WHO, from surveillance and other sources with relevant stakeholders. The Australian Government will also disseminate relevant tailored information to aged care and other residential facilities through approved providers and regulatory processes and liaise with Australian Government education authorities concerning public health measures related to schools.

The Australian Government and state and territory governments are jointly responsible for the sharing information on resource availability and providing advice on case and contact management, antiviral drug utilisation (if shown to be of benefit), quarantine/isolation and outbreak risk assessment.

State and territory governments are responsible for jurisdictional and local communications to the public and the health care sector. They are also responsible for reporting issues to the NIR which might require a coordinated response and/or as required for reporting under the IHR.

Other health care stakeholders have a responsibility to provide input into decision-making and to communicate novel coronavirus outbreak information and key messages to the public.

4.1.7 Coordination

The Australian Government will coordinate national novel coronavirus outbreak measures and allocate available national health resources across the country. It will support the health response in any jurisdiction, through AHPPC to coordinate assistance, if jurisdictional capacity becomes overwhelmed.

The Australian Government and state and territory governments will work together to consider surveillance, resource and political information to determine whether and when a national response is required; advise on thresholds for escalation; share information on resource availability and coordinate access to resources to maximise the effectiveness of the response.

State and territory governments will coordinate and provide novel coronavirus healthcare services including assessment and treatment centres as required.

Other health care stakeholders will deliver novel coronavirus outbreak health measures as part of the coordinated response and maintain business continuity of essential services.

4.1.8 Standdown and evaluation

The Australian Government will coordinate the stand down of enhanced measures; manage the transition of novel coronavirus outbreak specific processes into normal business arrangements; and undertake public communication regarding changing risk and the stand down of measures.

The Australian Government and state and territory governments will work together to determine when to cease or reduce measures and agree appropriate messaging for responders and the public concerning scaling down of measures.

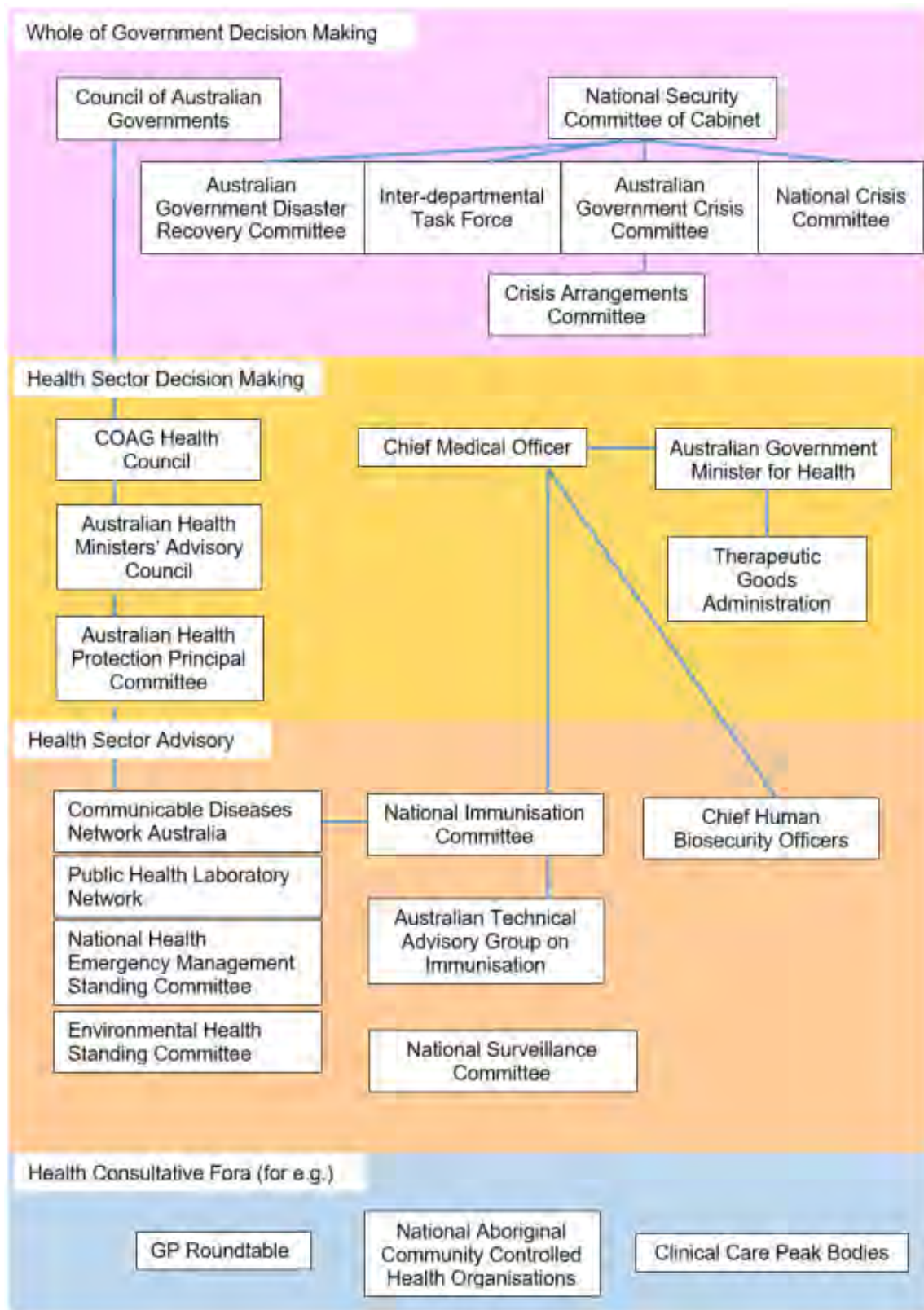
State and territory governments will implement stand down of measures taken within the state or territory; manage the transition of novel coronavirus outbreak specific processes into normal business arrangements; and undertake jurisdictional public communication regarding changing risk and stand down of novel coronavirus outbreak measures.

Other health care stakeholders will advise on the timing and impact of reducing enhanced clinical novel coronavirus outbreak services; support stand down of measures and manage the transition of novel coronavirus outbreak specific processes into business as usual arrangements; and participate in communicating public messages regarding changing risk and stand down of novel coronavirus outbreak measures.

All parties will be responsible for evaluating novel coronavirus outbreak processes and implementing changes as appropriate.

4.2 Decision making and consultation

Figure 2: Whole of Government, health sector, health advisory and consultative committees involved in decision making for a novel coronavirus outbreak.



The management of a novel coronavirus outbreak will require governments, health sector industry and the community to work together. Consultation will be essential to inform decision making, which will need to be rapid and coordinated.

4.2.1 Whole of Government (WoG) decision making structure

A severe novel coronavirus outbreak will disrupt Australia's social and economic functioning. Maintaining essential services may require a whole-of-government response, incorporating agencies at the Australian Government and state and territory government level. For a novel coronavirus outbreak, decision making and consultation at this level will be in line with existing emergency arrangements described in the AGCMF. The primary forum for coordinating the cross-government response will be the National Crisis Committee (NCC). The NCC will consolidate information and coordinate information exchange and advice to ministers. It will also coordinate ministerial decisions across the Australian Government, State and Territory and local governments. The Australian Government Crisis Committee (AGCC) will coordinate the response across the Commonwealth.

The National CD Plan outlines the roles and responsibilities of the Australian Government, States and Territories and Local Governments. It also details agreed coordination arrangements for the management of communicable diseases of national significance and their consequences.

When information obtained and activities implemented under the COVID-19 Plan may have implications outside the health sector, advice regarding this will be forwarded to the NCC for consideration.

4.2.2 Ministerial responsibilities

Under the AGCMF, the Australian Government Minister for Health is the lead minister for the Australian Government response to a serious infectious disease outbreak. As a member of the COAG Health Council (CHC), the Minister for Health is also involved in the approval of response activities, through the endorsement of plans and arrangements.

The Australian Government Minister for Health also has powers under the *Biosecurity Act 2015* to assist with managing the risk of an LHD entering, emerging or establishing itself in Australian territory. These include:

- Determining international entry requirements (and exit requirements)
- Determining preventative biosecurity measures
- Recommending the declaration of a human biosecurity emergency under the Act (and utilising the emergency powers once an emergency has been declared)

Should circumstances warrant it, the AGCMF notes that the Prime Minister may assume primary responsibility for leading the Government's response. Under these circumstances, the Prime Minister is also likely to consult with the leaders of affected states and territories to ensure a coordinated national response.

4.2.3 Health sector decision making structure

For the development of policy related to management of a novel coronavirus outbreak, the CHC represents the highest decision making body. AHPPC will manage implementation of the national health sector response, in consultation with relevant stakeholders, and provide health sector advice to the AGCC and NCC as appropriate.

4.2.4 Health sector advisory groups

The following key committees will support decision-making:

- PHLN will provide leadership in guiding human health microbiology and laboratory practice;
- CDNA will provide leadership in surveillance, the analysis of epidemiological information and strategies related to management of communicable disease;

- National Surveillance Committee (a standing committee under CDNA) will provide leadership in guiding the implementation of novel coronavirus specific surveillance activities and strategies;
- the National Immunisation Committee will provide leadership in guiding implementation of immunisation measures;
- Australian Technical Advisory Group on Immunisation will provide technical advice on immunisation issues; and
- Chief Human Biosecurity Officers (CHBOs) will provide advice to the CMO (as the DHB) on human biosecurity matters at the international border.

4.2.5 Health sector consultation

Consultation will be integral to decision making regarding the approach to managing a novel coronavirus outbreak. Wherever possible, this will be conducted through existing channels. Key advisory committees, in addition to providing expert advice will also be used as vehicles for consultation in their field of expertise.

Consultative fora and peak bodies, such as aged care peak bodies, key national primary care organisations, national nursing organisations, representatives of medical specialist colleges and pharmaceutical organisations will be used to reach key non-government health sector areas. Feedback from these organisations - which will reflect the on-the-ground experience of health sector and public concerns, and evidence of the effectiveness of approaches and specific interventions - will be input into decision-making processes to better tailor the response to community needs.

4.2.6 Decision making processes under the COVID-19 Plan

The COVID-19 Plan will guide the management of a novel coronavirus outbreak at the national health sector level, representing an approach agreed between the Australian Government and state and territory governments.

Key decisions within the scope of the COVID-19 Plan will primarily concern the following issues:

- the overall response approach;
- the appropriate stage for the COVID-19 Plan, according to the current circumstances;
- the selection of measures appropriate for implementation at that stage (including standdown of existing activities);
- key messages for communication measures; and
- coordination of sharing of resources.

Reflecting a flexible approach, choices may vary to reflect the jurisdictional context, particularly in relation to timing of implementation and stand down, however negotiation within COVID-19 Plan will ensure a coordinated and consistent approach.

4.2.7 Selection of public health measures

The selection of public health measures will be one of the most important functions of COVID-19 Plan. The following questions may be used to guide selection:

1. Will this action contribute to meeting the strategic objectives?
2. Will it be the best use of current resources?
3. Will this be proportionate to the likely impact of the novel coronavirus outbreak?
4. When would it be most effective to implement this measure?

To ensure that the appropriate expertise is available to support AHPPC, relevant health advisory bodies such as CDNA, PHLN or the Department of Health, will provide a set of recommendations for consideration at key decision points. Only a broad recommendation will be made for question 2, as this will depend on the resources available at the time in the Australian Government or relevant jurisdiction.

The continuing appropriateness of measures will be regularly reviewed as more information becomes available across the progress of the novel coronavirus outbreak. A regular set time for review (frequency will depend on the progress of the pandemic), such as weekly, will assist building awareness of changes made.

5. Implementation

This chapter identifies the recommended approach to managing a novel coronavirus outbreak in the emergency management areas of **Response**:

- Initial and Targeted Action; and
- Standdown.

Additional detail to support implementation at an operational level is provided in the Operational Plan at Part 2 of the COVID-19 Plan.

5.1 Response activities

5.1.1 Initial Action stage

Initial activities will focus on:

- **minimising transmission;**
- **preparing and supporting health system needs;**
- **managing initial cases and contacts;**
- **identifying** and characterising the nature of the virus and the clinical severity of the disease within the Australian context;
- providing **information to support best practice health care** and to **empower the community and responders** to manage their own risk of exposure; and
- supporting effective **governance**.

By definition, a novel coronavirus would be associated with a relative lack of immunity within communities. Though the transmissibility of the disease will be an important limiting factor, the combination of this lack of immunity with the rapid movement possible through modern international transport systems make it likely that once a novel coronavirus achieves efficient human to human transmission, it will spread across the globe including the Australian population.

Many of the measures which can be applied in response to a novel coronavirus with pandemic potential must be implemented early to be most effective. Action should be taken before there is evidence of sustained transmission of the novel coronavirus disease within the Australian community, it will be important to commence measures as quickly as possible, even though, due to the novel nature of the virus, it is unlikely that we will yet have a good understanding of the epidemiology, clinical severity and virology of the disease. Action to identify and isolate early cases and quarantine contacts can minimise the risk of further spread and may control the outbreak.

Though information will initially be scarce, some predictions of the course of the disease and the demands it may make on our health systems and wider society can be made in comparison with past outbreaks of international concern (pandemic influenza, SARS, MERS in particular). Using this information, a list has been developed (see the Operational Plan) of measures which would be likely to effectively meet the objectives of the COVID-19 Plan in the absence of detailed knowledge of the disease.

As all outbreaks are different, at the time of implementation, the appropriateness of these recommended measures should be examined in the light of what is known of the current novel coronavirus, the vulnerability of the Australian population (particularly at-risk groups), and current resource constraints. To support and maintain health system capacity, consideration of measures to protect the healthcare workforce will be of key importance.

5.1.1.1 *Proportionate response: Initial measures*

When initial measures are commenced, the likely lack of information about the disease will make it difficult to predict the level of impact. Evidence from overseas will give some indication, however this will not take into account the Australian context, and international reports of epidemiology, clinical severity and virology of the disease from overseas may be unreliable.

As the potential consequences of initially implementing measures aimed too low are more significant, the initial measures recommended below should be implemented at a level appropriate for a disease of moderately high impact. Measures will then be scaled up or down as more information becomes known. By reviewing measures regularly and early the consequences of aiming too high will be mitigated.

The risk of aiming at novel coronavirus outbreak of low impact and needing to scale up is that:

- the opportunity to manage the spread of the disease is lost; and
- death or severe morbidity (especially in at-risk groups) may be greater (as measures to reduce transmission, reduce clinical severity and raise awareness of symptoms by healthcare workers and the general public have not been fully employed).

The risk of aiming at a novel coronavirus outbreak of high impact and needing to scale down is that:

- resources may be wasted (used without much gain, or diverted to pandemic activities where they could have been better used elsewhere);
- undue stress and concern may be imposed on Healthcare workers and the community; and
- perception of having over-reacted may make stakeholders less willing to participate in future.

Activities which could be considered for the Initial Action Stage are outlined in the Operational Plan at Part 2 of the COVID-19 Plan.

5.1.1.2 *Novel Coronavirus Vaccination*

Vaccination is an effective way to prevent infection with respiratory viruses such as influenza. However, with a novel coronavirus there is no vaccine currently available. As yet, there is also still no vaccine available for SARS or MERS. It is unlikely that a vaccine will be available during the course of a novel coronavirus pandemic, unless the pandemic is long lasting and vaccine development is extraordinarily fast. Developments in this area will be closely watched.

5.1.2 Targeted Action stage

The Targeted Action stage will commence when there is sufficient information collected during the Initial Action stage to inform refinement of the novel coronavirus outbreak response measures already implemented. Measures will be regularly reviewed as more information becomes available.

Data on the clinical severity, transmissibility, epidemiology and antiviral resistance pattern (if antivirals are available) of the virus will inform decisions on effective and proportionate novel coronavirus outbreak response measures. CDNA/PHLN will provide advice to AHPPC on which individual measures should be:

- continued;
- modified (including scaled up or down); or
- wound down and ceased.

CDNA/PHLN will also provide a recommendation of any new measures which should be commenced. Where measures are to be ceased, an exit strategy will be included.

Targeted measures will focus on:

- ensuring a **proportionate response**;
- supporting and maintaining **quality care**;
- communications to **engage, empower and build confidence in the community**; and
- providing a **coordinated and consistent approach**.

The flexible approach of the COVID-19 Plan means Targeted Action measures need not be adopted by all jurisdictions concurrently. Similarly, measures may be implemented differently within different geographic regions of jurisdictions. Each jurisdiction will consider the recommendations made by CDNA/PHLN and select measures which meet their own requirements, reflecting the differing progress of the novel coronavirus outbreak, resource parameters and community needs in their jurisdiction.

As the outbreak becomes more widespread and the demands on resources increase, close tailoring of the selection of response measures to current needs and regular review of their effectiveness in contributing to the strategic objectives will be essential to promote the efficient use of available resources. Measures that fail to demonstrate this will be ceased.

Assessments of effectiveness will be based on available research, and on feedback from health sector stakeholders and the public. Review will be considered at key milestones, or as indicated by feedback received.

Identification measures will move to collecting core data from established surveillance systems in order to detect any changes in the epidemiology of those getting sick, the clinical severity of the disease or characteristics of the virus. Jurisdictions will continue to collect enhanced data and monitor for outbreaks in new settings.

Communication measures will continue to be important, following the same approach as outlined in the Initial Action section above. Key messages should be timely and consistent and reviewed regularly to ensure they reflect current information about the response, the disease itself and recommended management strategies (both for responders and the public).

Activities which could be considered for the Targeted Action Stage are outlined in the Operational Plan at Part 2 of the COVID-19 Plan.

5.1.2.1 Proportionate response: Targeted measures

Regularly **reviewing** measures **and tailoring** their use during this stage as more becomes known about the disease in the Australian context will allow measures to be adjusted to be more **appropriate to the level of risk**. It will also be possible and important to better tailor measures to the specific needs of our most vulnerable populations.

As Initial measures are aimed at responding to a novel coronavirus outbreak with a moderately high impact level, tailoring of measures in the Targeted Action stage is likely to involve scaling back.

5.1.3 Standdown Stage

Individual activities will be regularly assessed and stood down when they no longer contribute to the COVID-19 Plan's goals. The **trigger** for the COVID-19 Plan as a whole to move into the Standdown stage will occur when advice from CDNA indicates that the outbreak has reached a level where it can be managed under normal business arrangements. As the risk and impact experienced will not be homogenous across Australia enhanced activities may need to continue longer with some vulnerable populations.

Standdown activities will focus on:

- supporting and maintaining **quality care**;
- **ceasing** activities that are no longer needed, and **transitioning** activities to normal business or interim arrangements;
- monitoring for a **second wave** of the outbreak;
- monitoring for the **development of resistance** to any pharmaceutical measures, if any are being used;
- communication activities to support the **return** from emergency response **to normal** business services; and
- **evaluating** systems and **revising** plans and procedures.

Enhanced arrangements place an additional burden on health systems and individuals and should be scaled back when no longer necessary. The purpose of the Standdown stage will be to manage the smooth withdrawal of enhanced arrangements and transition to seasonal systems and procedures.

Communication measures will be important to:

- reassure stakeholders that they will still have access to the support they need;
- shape awareness of the possibility of further outbreaks and the continuity into the following two to three years of seasonal influenza; and
- ensure that the public understand the virus is still circulating and that they therefore need to continue to be aware of measures to protect themselves at an individual level.

The evaluation of the response, and updating of/adaptation of systems, which is part of this stage ensures that as much as possible, the lessons from the pandemic can be applied to future outbreaks. As subsequent waves of the outbreak may occur, rapid implementation of evaluation processes is essential to preparedness.

It is likely that the health sector will continue to require support to enable services to “catch up”. The community may also require additional services to enable full psychological, social, economic, environmental and physical recovery from the effects of the novel coronavirus outbreak. At-risk groups may need additional support.

At some point the Department of Health will advise AHPPC that all enhanced measures have been transitioned to normal business arrangements. While acknowledging that Recovery activities will be taking place within the health sector, this will be the trigger for AHPPC to consider de-escalating the COVID-19 Plan to preparedness and monitoring activities, which will be ongoing until there is again a need to respond to a novel coronavirus outbreak.

Activities which could be considered for the Standdown Stage are outlined in the Operational Plan at Part 2 of the COVID-19 Plan.

5.2 Recovery activities

Wherever possible during the novel coronavirus outbreak, response activities will be selected and implemented in a manner most likely to promote robust recovery. Some communities and systems may be able to commence **Recovery** activities sooner than others.

The primary responsibility for managing the recovery process within the health sector will rest with state and territory governments. National coordination and support required during this stage will occur through existing emergency management channels.

The Australian Government Disaster Recovery Committee, chaired by the Department of Home Affairs will coordinate **Recovery** efforts at a whole of government level if required. Governments will work together with affected individuals, community groups and industry to restore services and community wellbeing.

5.3 Resilience

Building preparedness within Australia's health systems will contribute to the resilience and sustainability of our systems. The resilience of individuals will be promoted by empowering them to manage their own exposure to the disease through public messaging about:

- the status of the disease in Australia and internationally;
- hygiene and cough/sneeze etiquette;
- disease transmission;
- understanding of how to recognise the signs and symptoms of the disease and when to seek medical assistance; and
- access to support and advice, including mental health services.

To build resilience within our most vulnerable populations, communications within the health sector will be used to raise awareness of at-risk groups and their associated needs. Measures will also be implemented with consideration of necessary adaptations to meet the needs of these individuals and communities. The needs and challenges of communicating with low socio-economic communities, which may have reduced access to healthcare, will also be considered.

6. Communications

This chapter provides a guide to communication activities across stakeholders.

A comprehensive communications strategy, implemented across all stages of the outbreak, is a key component of a successful response to a novel coronavirus outbreak. As the presentation of a novel coronavirus outbreak in Australia will inevitably be complex and varied it will be a priority to put in place arrangements to support a consistent, informative message. The communications strategy described in this chapter is designed to reach the broad range of stakeholders involved in and affected by an outbreak, from health authorities and the medical profession, to the public and the media.

Sharing information between those managing the response will enable the coordination of resources, better inform decision makers and provide access to expert guidance on the application of response measures.

Communication with the public, through the media and other sources, will shape the public perception of risk and the way in which the public is engaged in measures to address the novel coronavirus outbreak.

6.1 Key principles:

The following key principles will be applied across all our communication activities:

- openness and transparency;
- accurate risk communication, including where there is uncertainty;
- communications as a two-way process;
- use of existing communication channels and protocols, where possible;
- consistent, clear messages;
- regular, timely provision of tailored information;
- early release of public messages;
- timely response to queries;
- use of social media where appropriate;
- use of specific communication methods to facilitate communication with vulnerable populations;
- flexible selection of methods appropriate to the situation at the time; and
- use of a wide range of communication methods to reach a broad audience.

It should be noted that, while this chapter makes reference to communication activities in different stages of the outbreak response, it is the goal of the COVID-19 Plan to maintain and enhance flexibility. Items from different stages may therefore be used concurrently or non-sequentially as their purpose demands.

6.2 Information gathering

Information about novel viruses in Australia and in other countries is collected routinely every year by the Australian Government and State and Territory Governments. Sources of such information may include seasonal influenza surveillance systems, Australian embassies, other governments, Australian international disease experts and the WHO, which provides information about novel viruses, or other viruses with pandemic potential, through communication systems such as the WHO Event Information Site.

As agreed under the IHR, Australia reports to the WHO any event of potential international public health concern, including specifically if there is novel coronavirus outbreak within Australia.

The information gathered from these sources is used to advise Australians who may be travelling abroad, those considering overseas travel, and to inform surveillance and control of the disease in Australia. Disease information will also be shared with stakeholders.

During the novel coronavirus outbreak, information will be gathered about the health sector itself, such as current health service capacity; whether the management of acutely unwell people with novel coronavirus has meant that other routine services have been ceased temporarily; and absenteeism among HCWs and/or support staff due to illness, caring for family or fear of infection, where possible. The information gathered will be critical to informing decisions about novel coronavirus outbreak response measures and for prioritising health services locally and at the state and national levels.

6.3 Sharing information between those involved in managing the response

Audience: This section is aimed at communication between Australian Government agencies, state and territory government agencies and other key stakeholders involved in providing a health sector response to a novel coronavirus outbreak.

Purpose: To support coordination of resources, better inform decision makers and provide access to expert guidance on the application of response measures.

Aims:

Action (Initial & Targeted):

- build awareness across the health sector of the most up-to-date and accurate information about the disease, to support effective diagnosis and treatment, and better informed management decisions;
- promote a consistent approach by ensuring all key parties have the same information, though recognising that disease spread may be variable across the country;
- support best practice by disseminating guidance in key areas developed by expert bodies, such as CDNA/PHLN;
- share effective strategies, avoiding the need for them to be developed separately by all parties;
- input feedback on the effectiveness of treatment options, side effects and other clinical/ public health information into decision making processes to support refining the approach;
- input feedback on how well the health care system is coping; and
- maintain trust and confidence.

Standdown

- continue to support awareness of the most up-to-date and accurate information about the disease, to support more effective diagnosis and treatment, and better informed management decisions; and
- clarify arrangements for transitioning to normal business.

6.3.1 Challenges:

- Sharing information in a timely manner;
- Ensuring people are getting access to the information they need;
- Ensuring a consistent message across media and authorities;
- Consistent messaging within a flexible response where the response strategies are at different stages across the country;
- Communication of initial decisions even though information about the virus may be sparse and/or unreliable;
- Communication of the uncertainty of what the impact of the novel coronavirus outbreak will be;

- Initial information may be based on the behaviour of the disease in another country and not 100% relevant to the Australian context;
- Making sense of feedback, consolidating this and incorporating it into messaging; and
- Managing stakeholder expectations of when and how to receive information.

6.3.2 Australian Government and state and territory governments

The Australian Government and state and territory governments will share information, via existing channels, about:

- the situation overseas;
- advice from international bodies, such as the WHO;
- the status and impact of the novel coronavirus outbreak in Australia;
- the epidemiology, severity and virology of the disease; the implementation and impact of measures to manage the response to the novel coronavirus outbreak; and
- deployment of the NMS.

Communication between Australian Government agencies relevant to the response will be coordinated by the Department of Health. Communication between relevant state and territory government agencies will be coordinated by state and territory health departments.

Cross government linkages are also supported by representation on the NCC, which would be convened by the Australian Government in the event of a major communicable disease outbreak.

Specific information on the status of the outbreak and key response documents will be posted on the [Department of Health homepage \(www.health.gov.au\)](http://www.health.gov.au).

6.3.3 National Incident Room

The Department of Health's NIR provides a point of communication with the Australian Government for health incidents.

During the Initial Action, Targeted Action and Standdown stages the NIR will provide timely situation reports to relevant Australian Government agencies, state and territory health authorities and other relevant stakeholders.

6.3.4 Other key health stakeholders (healthcare workers, health and social service providers)

Healthcare workers and providers need access to timely, accurate and comprehensive clinical information and advice in order to effectively manage patients; implement novel coronavirus outbreak control measures and minimise their own risk of exposure. Such advice will be provided by CDNA and other clinical groups as appropriate and endorsed by AHPPC.

National communication with healthcare workers will primarily be through existing channels via their relevant peak body. Peak body websites will be particularly important vehicles for disseminating information. Additionally, S/T HD will consolidate communication with healthcare workers and providers (both government and non-government, such as private hospitals) and include state and local level information via their own communication channels. Communication may either target clinical and/or administrative aspects of health services, according to the nature of the information to be delivered.

Novel coronavirus outbreak planning support and advice is available for GPs and other primary health care providers in fact sheets available on the Department of Health website.

Information from health service providers to the Department of Health and S/T HD about the impact of the novel coronavirus outbreak on their service capacity is essential to inform pandemic response decision making. These perceptions and experiences will be input into decision-making processes via surveys, consultation with peak bodies and broader consultative forums.

6.4 Public communications

Audience: This section considers communication by governments with the general public, businesses, the non-government sector, industry groups, and a range of other relevant stakeholders and audiences.

Purpose: To provide information to the public to inform their understanding of the risk, engage them effectively in public health measures and guide their own management of their exposure to risk.

As the key communication channels to the public are via television, radio, print, online and social media outlets, effective media engagement strategies will be required to ensure the key public messages are conveyed to the public.

Aims:

Initial & Targeted Action:

- Build and maintain public trust and support by providing consistent, clear, informative public messaging;
- Ensure messages include: this is what we know; this is what we don't know; this is what we are doing; and this is what you can do;
- Encourage behaviours and attitudes that will contribute positively to reducing the spread of disease and minimise the psychological, social and economic impacts including assisting others (neighbours, family, friends etc.);
- Manage the disease threat by increasing uptake of recommended actions;
- Build public confidence by keeping people informed of the current situation and what is being done to address the impact of the outbreak and through transparency around resourcing and success of interventions; and
- Empower individuals by increasing their understanding of the seriousness of the disease; knowledge of what to do to avoid/minimise exposure; ability to recognise symptoms and knowledge of what to do if symptoms present.
- Ensure individuals, communities and specific stakeholders understand the reasons why interventions might be modified and tailored to best meet the needs of the situation and/or specific population groups;
- Support essential services; and
- Provide information to at-risk groups.

Standdown:

- Support transition to business as usual services; and
- Shape expectations of services and circumstances, such as the possibility of further outbreaks.

6.4.1 Challenges

- Public concern may be high;
- Scientific knowledge will be limited at the beginning of the novel coronavirus outbreak;
- Uncertainty will be high;
- Balancing early release of public messages with accuracy of information;
- Balancing public release of information with privacy/confidentiality for those involved;
- Accurate communication of risk in a situation of uncertainty that is rapidly changing;
- Consistent messaging within a flexible response where the response strategies are at different stages across the country;
- Coordination and consistency of messaging where there are multiple spokespeople;
- Ensuring two-way communication;
- Meeting media requests in time to meet the needs of 24 hour news media; and
- Media outlets are commercial agencies and their prime purpose is not necessarily to provide consistent public health information.

Public communication provides an opportunity both to address any public concern caused by the pandemic and to engage the public in strategies to manage the impact of the disease. The dissemination of up to date, consistent and accurate information about the status of the disease outbreak overseas and in Australia can help people understand the real risk and make more informed decisions about work and travel, taking up health recommendations and planning for people in at-risk groups. Information about the implementation of activities and arrangements can build public confidence in the capacity of health services to manage the response.

Providing the public with information about the nature of the disease can empower individuals to take steps to reduce the risk to themselves and their families. This will both alleviate concern and lead to more appropriate use of recommended measures. Increasing rapid presentation of appropriate cases to a medical practitioner will lead to reduced morbidity and mortality. Reducing presentation of the 'worried well' will decrease the burden on health systems. Information gathered from the public about concerns, issues with measures and information gaps is also important to inform decision-making.

To take steps to manage their risk during a novel coronavirus outbreak, people will need to:

- Understand the seriousness of the disease;
- Know what to do to avoid/minimise exposure;
- Recognise symptoms; and
- Know what to do if symptoms present.

6.4.2 Coordination: Developing a consistent message

A wide range of information will be available to the public should a novel coronavirus outbreak occur. The Australian Government and State and Territory Governments will have to position themselves as authoritative sources from very early on in the outbreak. Enlisting the cooperation of key spokespeople in the non-government sector (e.g. university academics, the Australian Medical Association) will be important for building confidence in the response strategies.

A number of coordination mechanisms have been put in place to ensure consistency of public messaging. Guidelines and processes for the coordination of public information representing broad whole of government issues are outlined in the National CD Plan.

Key health sector novel coronavirus outbreak messages and advice regarding requirements for changes of communication strategies to reflect the progress of the outbreak will primarily be determined by AHPPC. AHPPC will develop these messages using recommendations from CDNA, PHLN and other advisory bodies.

The Department of Health will work closely with S/T HD Communication and Media Units; relevant Australian Government agencies, national medical colleges and associations, the National Aboriginal Community Controlled Health Organisation (NACCHO) and select parts of the private sector directly involved in emergency health management. It is coordinated by the Communication Branch of the Department of Health. Its role is to keep the public and the media informed during national health emergencies by providing consistent and coordinated media and public responses.

Communication regarding issues outside the health sector, such as school closures, will be managed by the NCC.

The Media Unit within the NIR will be a contact point for coordination with states and territories. Coordination of public communications within jurisdictions will be in accordance with jurisdictional arrangements.

Media communication regarding the Australian Government activities related to management of the novel coronavirus outbreak will be coordinated by the Department of Health Communication Branch, which will work with relevant Australian Government agencies to ensure a consistent, whole of government message.

6.4.3 Media engagement strategies

The media will be the main source of information for the public during a novel coronavirus outbreak. Building strong relationships with media contacts is essential to foster positive representation of response efforts and accurate relay of public health messages.

Media contacts will be notified early in the novel coronavirus outbreak of a media enquiry phone number managed by the NIR Media Unit, which will be available 24 hours a day, seven days a week. A shared email address will be established for quick response to media enquiries.

Key media engagement strategies that will be used in the various stages of the novel coronavirus outbreak may include:

- during the Initial Action and Targeted Action stages:
 - regularly update the [Department of Health homepage](http://www.health.gov.au) (www.health.gov.au) with situational information, important health messages, updates of case numbers and deaths, media alerts, media releases, transcripts of media interviews, streaming of commercials, print resources, communications materials, questions and answers, information on relevant social media links etc.;
 - use the Department of Health's existing social media accounts (Facebook, Twitter and YouTube) to provide up to date notifications on health emergency media opportunities and novel coronavirus outbreak information;
 - make available appropriate spokespeople for media interview;
 - develop and disseminate via the Internet pre-recorded broadcast quality radio and TV grabs using existing media release audio mailbox;
 - apply similar strategies within S/T HD;
 - procure a creative agency;
 - activate a media campaign targeting people affected and at high risk of infection with information on appropriate hygiene practices and prevention from contracting the disease;
 - paid advertising, including television, radio, print, out of home (GP clinics, transit media and shopping centres), and social/digital search (e.g. could consider a national QR code);
 - develop content for placement in community service radio (including ABC radio), in-flight announcements, airports, boarding passes, taxis and digital screens;
 - Consider communications through airline phone apps and any relevant health apps;
 - Television announcement banner alerts;
 - Partnership with radio stations (e.g. ABC Radio);
 - Updated information for travellers on the Smart Traveller website;
 - Information for ED and GP waiting room television screens;
 - Regular videos from the CMO or relevant health officials to be provided to media outlets which will be addressing things that arise, the use of masks, good hygiene and specifics for health professionals; and
 - Develop an online toolkit for S/T HD to access key resources (e.g. social media tiles, factsheets etc.); and
 - Key messages communicated to border agencies and airports/ airlines/ seaports/ shipping and cruise lines.
- during stand down, provide advice to the media of the transition to normal media engagement arrangements.

To promote presentation of a consistent message between government statements and media commentary, information will be made available regularly to the media from government sources both at regular predictable intervals and upon request. Information tailored to key audiences will also be produced where priority needs are identified.

6.4.4 Spokespeople

A range of spokespersons will be available during the response to the outbreak, including all Health Ministers, the CMO, Chief Health Officers, media unit representatives and spokespersons identified at the local level.

The relevant spokesperson will depend on the stage of the novel coronavirus outbreak and the aim of communications. When the focus of the message is related to events and activities in a specific jurisdiction, the spokesperson will be determined by that state/territory. When content is confined to Australian Government activities, the spokesperson will be identified by the NIR Media Unit. Where key groups are to be targeted, peak and representational bodies will be consulted, for example, NACCHO will assist in nominating appropriate spokespersons for Aboriginal and Torres Strait Islander communities.

Under the AGCMF, the Prime Minister may assume primary responsibility for leading the Government's response, including acting as primary Government spokesperson. Under these circumstances, the Prime Minister is also likely to consult with the leaders of affected states and territories to ensure a coordinated national response.

6.4.5 Ensuring two way communication

It is essential that public awareness and attitudes be monitored to inform refinement of public messaging. This is critical to achieving the right balance between motivating risk-mitigating behaviours by raising public awareness of potential risks, and reassurance that the situation is under control. It may be that different groups within the community are at opposite ends of this spectrum, and messages may then have to be targeted appropriately to manage this. Listening to the public also helps to identify community concerns, information gaps and misconceptions or misinformation, which can then be addressed within public communications. Communication with at-risk groups, such as Aboriginal and Torres Strait Islander or aged care communities, is particularly important to tailor measures to the needs of people with greater vulnerability.

Methods to gauge public awareness and attitudes that may be used include:

- market research on knowledge and attitudes to a novel coronavirus outbreak threat;
- comprehensive market research undertaken by the Department of Health at the outset and throughout the novel coronavirus outbreak;
- feedback from peak bodies via usual communication channels, such as the GP Roundtable, Clinical Stakeholders Forum, Aged Care providers' peak bodies, Primary Health Networks and NACCHO;
- monitoring of media sites by Media Units in NIR and S/T HD;
- monitoring of social media, including large, open social media sites;
- use of social media or an interactive health emergency website where members of the public can share content, comment and ask questions which will be answered online, based on an agreed "question and answer" formula; and
- feedback from a wide range of stakeholders regarding the impact and effectiveness of the pandemic response measures that have been undertaken obtained by the Department of Health and S/T HD.

6.4.6 Other communication methods

Information tailored to key audiences will be produced where priority needs are identified. Dissemination of this information will also be tailored to the specific audience, e.g. use of specialised Aboriginal and Torres Strait Islander media outlets to communicate key messages targeting people in remote Aboriginal and Torres Strait Islander communities.

Paid advertising may be used, particularly if there is a need to rapidly mobilise the community, such as for novel coronavirus outbreak vaccination.

Print resources which can be distributed directly to stakeholders who interact with the public will also be used widely, including information for patients from HCWs; information for families distributed via schools; information for travellers made available at travel agencies and airports; information distributed through organisations associated with mass travel for specific purposes such as international sporting events and religious gatherings etc. Printed and electronic information may also be displayed at targeted places such as GP clinics, travel agencies and airports. Materials can also be made readily available for responders and the public at a centralised web location e.g. Australian Government and S/T HD websites.

Social media messages can be used to deliver key messages (e.g. disease information, behaviours to be promoted, situation changes) in a timely manner to responders and the public. Social media messages can be updated on a regular basis to ensure currency of information. The use of existing social media trending tags may be considered to maximise the reach of social media messages.

The Department of Health and the Australian Government Department of Foreign Affairs and Trade will work together to provide information for Australians considering overseas travel and for Australians overseas when considering whether to return home.

HCWs play an important role in explaining and reassuring their clients about the novel coronavirus outbreak. Information provided to HCWs will include key messages for the public as well as provide greater detail about the rationale behind outbreak decisions to enable HCWs to appropriately counsel their clients.

6.4.7 Supporting at-risk groups

Communication will also be tailored to meet the needs ranging across our community, particularly those with a higher risk of complications from the disease. Support for mental health needs of vulnerable individuals and the community as a whole will also be considered. As important as tailoring of messages will be careful selection of channels of communication to ensure that messages are reaching as many groups across the population as possible. Engaging and supporting community leaders in relevant target groups will be a key strategy to promote implementation of desired practices and involvement in public health measures.

In the aged care sector the Department of Health will work closely with aged care providers. Aboriginal Medical Services and other services for Aboriginal and Torres Strait Islander peoples will support the needs of this vulnerable group. An Aboriginal and Torres Strait Islander clinical advisory group will be brought together and used to support communications to the Aboriginal and Torres Strait Islander community and to provide an avenue for feedback to inform decision making processes. The need for provision of advice in other languages, at the border, and domestically will also be considered. As infants are also likely to be a high risk group and a vector of disease, coordination with child care facilities is also important. Community outreach services, such as non-government organisations and churches will be used to support communication with vulnerable people who may not have access to mainstream health services.

PART 2

Operational Plan

This Operational Plan has been adapted from the AHMPPI Operational Plan. Though an influenza pandemic plan, the detailed guidance in the AHMPPI is used regularly as the basis for Australia's broader communicable disease planning. It is particularly relevant for respiratory disease outbreaks, such as the novel coronavirus and preliminary consultation supports that it remains broadly applicable.

The considerable investment in pandemic preparedness in the AHMPPI benefits from studies and mathematical modelling conducted on influenza and Sudden Acute Respiratory Syndrome (SARS), another coronavirus. Although the novel coronavirus is behaving differently in some ways to both influenza and SARS, the principles behind the response measures used to manage the response to the SARS outbreak and pandemic influenza are useful to inform this response.

The objective of the Operational Plan is to provide additional detail to support the implementation of activities under the COVID-19 Plan at an operational level. It can be used by planners prior to or during an outbreak as an operational checklist of activities that could be considered for implementation.

Across all activities the **Strategic Objectives** of this response will be to:

- Identifying and characterising the nature of the virus and the disease in the Australian context;
- Minimise transmissibility, morbidity and mortality;
- Minimise the burden on/ support health systems; and
- Inform, engage and empower the public.

Initial action stage

Initial activities will focus on:

- **minimising transmission;**
- **preparing and supporting health system needs;**
- **managing initial cases;**
- **identifying** and characterising the nature of the virus and the disease within the Australian context;
- providing **information to support best practice health care** and to **empower the community and responders** to manage their own risk of exposure;
- **border measures;** and
- **supporting effective governance.**

In the Initial Action stage, the following measures could be considered for implementation:

Minimising transmission

Minimising transmission through:	<ul style="list-style-type: none"> • Border measures (see below); • Isolation of confirmed cases; • Quarantine of close contacts and suspected cases; • Case and contact management; and • Quarantine of repatriated nationals and approved foreign nationals upon arrival into Australia.
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Preparing and supporting initial Health System needs & managing initial cases

Resources (HR & stockpile)	<ul style="list-style-type: none"> • Provide PPE, as appropriate (healthcare workers/ border workers); • Organise delivery to points of use (states and territories); • Consider prioritisation of resources; • Maintain the NIR (staff, equipment, management systems); • Deploy stockpile items from storage sites to State and Territory delivery sites ready for use; • Monitor health system capacity; • Health system to prepare for potential need to engage surge staff. • Consider needs for additional support to health systems in remote communities; • Maintain essential health system activities.
Clinical care & public health management	<ul style="list-style-type: none"> • Manage cases and contacts; • Encourage voluntary isolation of cases and quarantine of close contacts and suspected cases; • Monitor and support needs of at risk groups (when identified); • Encourage advance planning directives of aged care providers and residents; • Health system to prepare for potential need to engage surge staff; • Consider strategies to reduce routine hospital demand such as different models of healthcare provision; • Develop and disseminate triage algorithm; • Develop cohort strategy.
Clinical care & public health management (cont.)	<ul style="list-style-type: none"> • Support outbreak investigation and management in residential care facilities, schools, prisons and other institutions; • Consider the need to implement alternative models of care to

	minimise the burden on the health system for example, fever clinics.
Infection control	<ul style="list-style-type: none"> • Confirm with responders the application of standard infection control strategies (or provide alternate advice if appropriate); • Provide advice to the public on respiratory hygiene and hand-washing.

Identification

Surveillance	<ul style="list-style-type: none"> • Identify and describe the epidemiology, clinical severity and virology of the disease in Australia through enhanced surveillance of confirmed cases. • Conduct contact tracing (where need is identified); • Develop and refine case definitions as needed; • Confirm identification of at risk groups; • Analyse and report Australian and major trends in international data; • Maintain case notification system; • Activate academic studies using enhanced data to test assumptions; and • Monitor sustainability of surveillance systems.
Laboratory Capacity	<ul style="list-style-type: none"> • Isolate the virus; • Undertake laboratory testing as required to monitor the outbreak and for individual patient care; • Implement testing protocols to support case management, surveillance needs and to preserve laboratory capacity; • Maintain laboratory capacity/capability to detect/test for novel virus; and • Undertake specialist characterisation and genomic sequencing of the virus to understand its evolution and enable studies on antiviral susceptibility and vaccine development to occur.

Communications

Information should be provided as early as possible and acknowledge any associated uncertainty.

Sharing information between responders	<ul style="list-style-type: none"> • Provide public health management guidance (e.g. Series of National Guidelines); • Provide clinical health management guidance (primary care and hospital based); • Share information on the status of disease spread and the current response; • Raise awareness of at risk groups (when identified); • provide any information to WHO required under International Health Regulations (IHR) reporting arrangements; and • Liaise with other international counterparts.
Public Communications	<ul style="list-style-type: none"> • Coordinate Whole-of-Government messaging to provide information on the status of disease spread and the current response. • Provide specific information for groups at risk or with specific needs when identified.(e.g. culturally and linguistically diverse (CALD),

	<p>aged care or Aboriginal and Torres Strait Islander people, schools, suspected cases, universities and vocational education training sector, hospitality and tourism industry, employers, airline and air/seaport, health professionals).</p> <ul style="list-style-type: none"> • Monitor feedback and refine communications to address issues and concerns identified; • Provide media with access to daily updates on the status of disease spread and the current response; • Provide access to background information. • Make spokespeople available; • Respond to media requests; • Provide advice on: <ul style="list-style-type: none"> ○ respiratory hygiene and hand-washing; ○ mask wearing (if appropriate); ○ how to find out more information; and • Hotline details.
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Border measures

Border measures	<ul style="list-style-type: none"> • Implement enhanced border measures, such as enhanced entry screening, non-automatic pratique, preventative biosecurity measures
Communications	<ul style="list-style-type: none"> • Provide information to travellers through <ul style="list-style-type: none"> ○ in-flight and on-arrival announcements ○ fact sheets (incoming travellers, border workers, airlines, cruise industry) ○ communication materials (e.g. printed and electronic media) at the border; and ○ social media. • Provide guidance for border workers, the airline and maritime industry on: <ul style="list-style-type: none"> ○ the disease and personal risk ○ respiratory hygiene and hand-washing ○ appropriate use of PPE while assessing ill travelers; and ○ where to find more information.
Traveller clearances	<ul style="list-style-type: none"> • Maintain requirements for customs, immigration and biosecurity clearances (including for Australian Defence Force Personnel); • Enhance for travellers identified as potentially higher risk.

Governance

AHPPC	<ul style="list-style-type: none"> • Coordinate allocation of national resources to support quality care and public health measures, as needed; • Consider whether any social distancing or border measures should be implemented and advise NCC as appropriate; • Support the repatriation of Australians from overseas, as required; • Manage requests for exit screening; and • Coordinate provision of Australian Medical Assistance Teams in response to requests for international assistance (if appropriate).
Whole of government	<ul style="list-style-type: none"> • Convene the NCC and other relevant expert committees as required; and • Minister for Health assumes emergency powers under the <i>Biosecurity Act 2015</i>, if required to support pandemic response measures.
Legislation	<ul style="list-style-type: none"> • Declare a human biosecurity emergency under the <i>Biosecurity Act 2015</i>, if required to support pandemic response measures (Governor General); and • Undertake any state based legislative processes required to support implementation of disease control measures.
International obligations	<ul style="list-style-type: none"> • Meet IHR reporting requirements.

Targeted action stage

The Targeted Action stage of response will commence when there is sufficient information collected about the virus to inform the refinement of the outbreak response measures already implemented, such as the scaling down or ceasing of some measures. The key objective of the Targeted Action stage is ensuring a **proportionate response** to the outbreak, so scarce resources are properly allocated where most needed and that the risk to susceptible people in the community is mitigated.

The effectiveness and appropriateness of measures taken will be regularly reviewed by the Australian Government in consultation with key committees and stakeholders, as more information on the characteristics of the virus becomes available.

Targeted measures will focus on:

- ensuring a **proportionate response**;
- supporting and maintaining **quality care**;
- communications to **engage, empower and build confidence in the community**; and
- providing a **coordinated and consistent approach**.

Identification measures will move to collecting core data from established surveillance systems in order to detect any changes in the epidemiology of those getting sick, the clinical severity of the disease or characteristics of the virus. Jurisdictions will continue to collect enhanced data on up to 10 cases per week and for outbreaks in new settings, to preserve the sustainability of laboratory testing capacity and other surveillance resources.

Communication measures will continue to be important, following the same approach as outlined in the Initial Action stage. Key messages should continue to be reviewed regularly to ensure they reflect current information about the response, the disease itself and recommended management strategies (both for responders and the public).

In the Targeted Action stage, the following measures could be considered for implementation:

Ensuring proportionate response

Border measures	<ul style="list-style-type: none"> • Regularly reassess border measures implemented during the Initial Action stage for countries deemed high risk, in consultation with key committees and stakeholders such as CHBOs and AHPPC.
Minimising transmission	<ul style="list-style-type: none"> • Supporting isolation of identified cases and quarantine of suspected cases and close contacts; and • Ongoing case and contact management, as required.

Supporting and maintaining quality care

Resources (HR & Stockpile)	<ul style="list-style-type: none"> • Monitor health system capacity and establish triggers and thresholds for when capacity will be overwhelmed; • Health services will implement surge staff arrangements as needed (and where possible); • Health services will prioritise services to best meet demand for acute care; • State and territory health departments will undertake urgent assessment and coordination of available specialist equipment based on outbreak predictions and geographic spread; • Maintain the NIR (staff, equipment, management systems).
Resources (HR & Stockpile) (cont.)	<ul style="list-style-type: none"> • Provide PPE and/or vaccines (if available) as appropriate to healthcare workers and other approved stakeholders as deemed

	<p>necessary;</p> <ul style="list-style-type: none"> • Distribute items from the NMS; • Provide additional support to health systems in remote communities as needed (and where possible); and • Tailor measures to the needs of remote communities (including remote Aboriginal and Torres Strait Islander communities)¹. This may include arrangements for additional healthcare workers.
Clinical care & public health management	<ul style="list-style-type: none"> • Isolation of confirmed cases; • Encourage voluntary quarantine of close contacts and suspected cases; • Triage and cohort patients, as necessary; • Manage contacts as agreed by CDNA and AHPPC; • Support outbreak investigation and management in residential care facilities, schools, prisons and other institutions; • Consider using different strategies to treat mild cases where resources are overwhelmed; • New models of care may be instituted to manage novel coronavirus patients, for example: <ul style="list-style-type: none"> ○ innovative methods for contact tracing and diagnostic testing (call centres, at-home specimen collection etc.); ○ home based care, which may require contingency community services support (potentially telephone support); ○ fever clinics staffed predominantly by nurses via management protocols, with onsite or telephone medical support; and • Adjustment of ICU staffing ratios and opening of new ICU beds or negative pressure rooms, where available.
Infection control	<ul style="list-style-type: none"> • Isolation of confirmed cases, and quarantine of repatriated nationals and approved foreign nationals as required; • Encourage voluntary quarantine of close contacts and suspected cases; • Continue application of agreed infection control strategies appropriate to increasing knowledge of transmissibility; and • Continue to provide advice to the public on respiratory hygiene and hand-washing.

Governance

AHPPC	<ul style="list-style-type: none"> • Services in each jurisdiction will provide information on their capacity to State and Territory Chief Health Officers (CHOs) to
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¹ Note: Great distances will present difficulties for transport of resources, personnel, patients and communications. Some remote health care services will already be challenged by poor health hardware and high rates of overcrowding. The additional burden of even a mild pandemic will stress capacity. In combination with higher rates of chronic illness these factors predispose people in these areas to more severe outcomes from influenza. Cultural and environmental differences will influence the effectiveness of certain measures, such as home quarantine. This remoteness may however give greater opportunities for effectively managing transmission into the community.

	<p>allow state level coordination. In turn, CHOs will report to AHPPC to enable national coordination and sharing/allocation of resources where needed and where possible;</p> <ul style="list-style-type: none"> • AHPPC members will work together to coordinate the availability of resources and to develop strategies for alternate sources where needed; • Where possible, AHPPC members will work together to ensure all needs are met and a consistent approach and message is maintained; • Discussion and negotiation through CDNA and AHPPC will achieve coordination of measures and provide a vehicle through which jurisdictions can negotiate approaches and ensure that when different strategies are operating across jurisdictions they are still supportive of each other; • Consider whether any border or social distancing measures should be implemented and advise AGCC/NCC as appropriate; and • Continue supporting the repatriation of Australians from overseas, if required.
WoG	<ul style="list-style-type: none"> • Make recommendations through WoG channels when implementation of measures outside the health sector should be considered, such as school or workplace closures, or cancellation of mass gatherings.
International obligations	<ul style="list-style-type: none"> • Meet IHR reporting requirements.

Standdown stage

Individual activities will be regularly assessed and stood down when they no longer contribute to the COVID-19 Plan's goals of the outbreak response. The **trigger** for the COVID-19 Plan response as a whole to move into the Standdown stage will occur when advice from CDNA indicates that the novel coronavirus outbreak has reached a level where it can be managed under normal healthcare arrangements.

Standdown activities will focus on:

- supporting and maintaining **quality care**;
- **ceasing** activities that are no longer needed, and **transitioning** activities to normal business or interim arrangements;
- monitoring for a **second wave** of the outbreak;
- monitoring for the development of resistance to any pharmaceutical measures, if any are being used;
- communication activities to support the **return from emergency response to normal** business services; and
- **evaluating** systems and **revising** plans and procedures.

In the Standdown stage, the following measures could be considered for implementation:

Communications

Sharing information between responders	<ul style="list-style-type: none"> • Advise of the commencement of transition to normal arrangements and how this will be managed; • Thank responders for their engagement in the response; • Acknowledge the Recovery efforts that will be occurring; • Provide information about the review process; and • (At the end of Standdown) notify stakeholders of the transition to ongoing vigilance to ensure we are well placed to respond in future.
Public communications	<ul style="list-style-type: none"> • Coordinate public messaging through media networks; • Notify the public that services will transition to normal arrangements and the reason for this; • Provide specific information for groups at high risk or with specific needs (e.g. CALD, aged care or Aboriginal and Torres Strait Islander peoples) about the transition of services; • Thank the public for their engagement in the response; • Provide information about the review process; • (At the end of Standdown) notify of the transition to ongoing vigilance to ensure we are well placed to respond in future; • Monitor feedback and refine communications to address issues and concerns identified; • Provide the media with access to information regarding the change of the status of disease spread and the transition of the response; • Make spokespeople available; and • Respond to media requests.

Supporting and maintaining quality care

Resources (stockpile)	<ul style="list-style-type: none"> • Assess the status of stockpiles and equipment (PPE and antivirals, if used);
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	<ul style="list-style-type: none"> • Review processes and policies; • Replenish stocks as appropriate; and • Update plans and protocols in line with lessons observed.
Resources (HR)	<ul style="list-style-type: none"> • Implement interim arrangements if required; and • Support any resources that are depleted, in order to meet remaining demand.
Clinical care and public health management	<ul style="list-style-type: none"> • Implement interim arrangements if required; • Transition triage and cohorting systems; • Resume elective procedures (hospitals); • Resume non-urgent work (primary and secondary care); • Review processes and policies; and • Update plans and protocols in line with lessons observed.
Legislation	<ul style="list-style-type: none"> • Prepare and action any legislative instruments required to return legislative powers to normal.

Identification

Surveillance	<ul style="list-style-type: none"> • Monitor for a second wave or change in the virus; • Continue academic studies and analysis of data from both enhanced and routine surveillance systems as necessary; • Review processes and policies; and • Update surveillance plans in line with lessons observed.
Laboratory capacity	<ul style="list-style-type: none"> • Monitor for a second wave or change in the virus, including monitoring the genomic evolution of the virus; • Review processes and policies; and • Update plans and protocols in line with lessons observed.

Border activities

Border measures	<ul style="list-style-type: none"> • Stand down enhanced border measures and return to business as usual human biosecurity arrangements.
Communications	<ul style="list-style-type: none"> • Update in-flight and airport announcements to reflect transition; • Implement signage (such as crawlers on customs screens or posters) explaining transition; • Update social media messages for travellers (if used); • Review any disease-specific communication materials; • Review processes; and • Update plans and protocols in line with lessons observed.
Liaison	<ul style="list-style-type: none"> • Advise airline/airport, seaport/shipping industries and border agencies of transition to normal business arrangements.

Governance

AHPPC	<ul style="list-style-type: none"> • Services in each jurisdiction will provide information on their capacity to State and Territory Government CHOs to allow state level coordination. In turn, CHOs will report to AHPPC to enable national coordination and sharing and allocation of resources where needed and where possible; • Coordinate the availability of resources and develop strategies for alternate sources where specific areas are depleted;
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	<ul style="list-style-type: none"> • Ensure a consistent message is maintained; • Coordinate the transition to Standdown, as this may differ among jurisdictions; • Direct and participate in review processes; and • Consider updating plans and protocols.
Whole of Government	<ul style="list-style-type: none"> • Make recommendations through WoG channels where implementation of measures outside the health sector should be stood down, such as school or workplace closures and enhanced border measures; and • Participate in WoG review processes.
International obligations	<ul style="list-style-type: none"> • Meet IHR reporting requirements.

PART 3

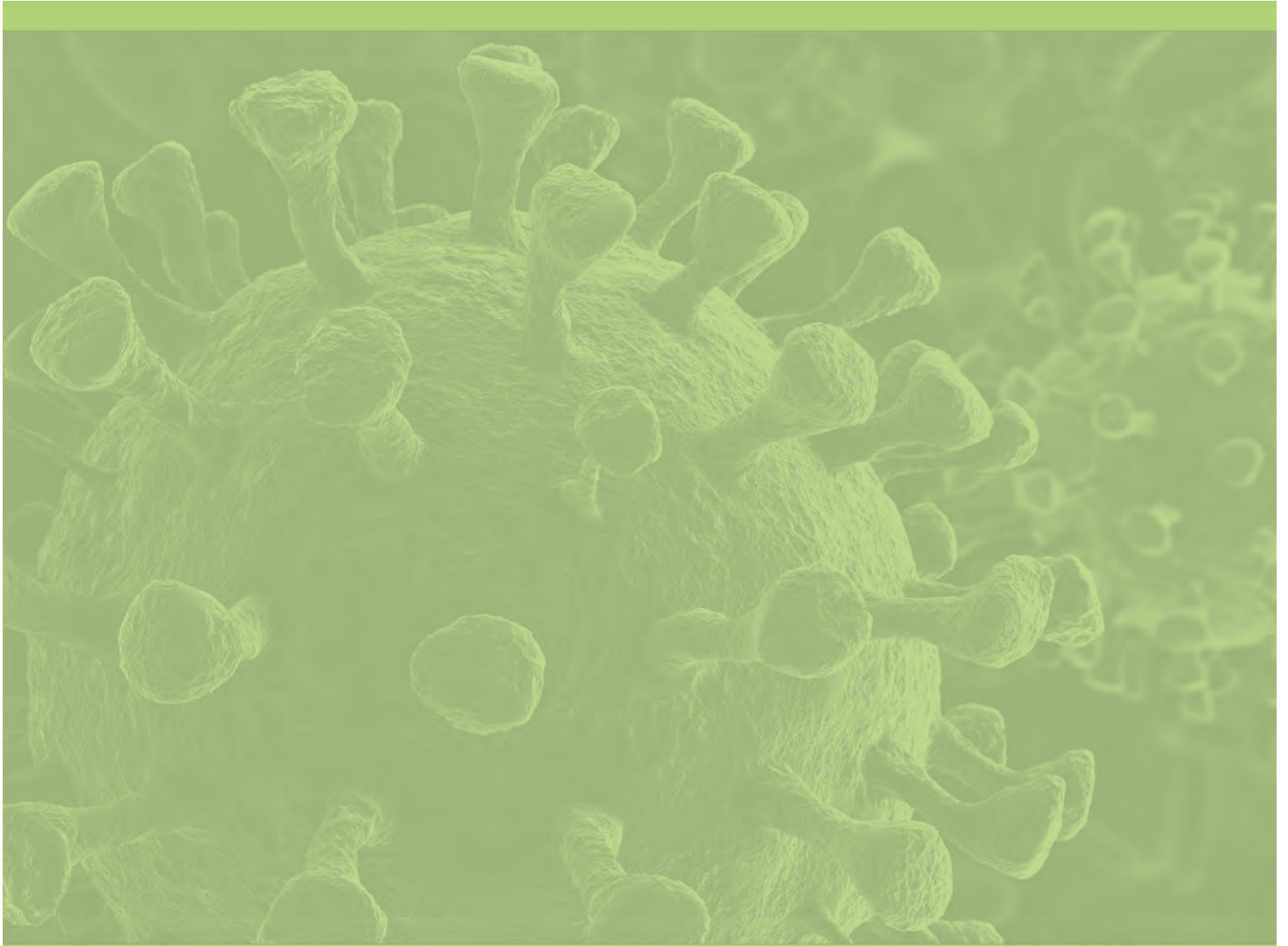
Attachment A – Glossary

Term	Definition
ACCHS	Aboriginal Community Controlled Health Services. ACCHSs operate in the metropolitan, regional, rural and remote areas of all states and territories in Australia. ACCHSs are controlled by, and accountable to, Aboriginal people in those areas in which they operate. ACCHSs aim to deliver holistic, comprehensive and culturally appropriate health care to the community that controls it.
Acute Care	Health services (usually hospitals) that provide care or treatment of people with short-term serious injury or illness. Medical conditions requiring acute care are typically periodic or temporary in nature, rather than long term.
AGCC	Australian Government Crisis Committee
AGCMF	Australian Government Crisis Management Framework
Aged Care Peak Bodies	Associations of groups or industries that advocate for and provide quality support, services, representation and policy development in the aged care sector.
AHMPPI	Australian Health Management Plan for Pandemic Influenza
AHPPC	Australian Health Protection Principal Committee
At-Risk groups	Groups at increased risk of experiencing complications from COVID-19.
Australian Government	The Federal Government of Australia
CALD	Culturally and linguistically diverse communities
Case definition	A set of uniform criteria used to define a disease for public health surveillance
CDNA	Communicable Diseases Network Australia
CDPLAN	Emergency Response Plan for Communicable Disease Incidents of National Significance
CHBO	Chief Human Biosecurity Officer
CHC	COAG Health Council
CHO	Chief Health Officer
CMO	Chief Medical Officer of Australia
COAG	Council of Australian Governments
Commonwealth	The governments of Australia – Australian Government and state and territory governments collectively
Community transmission	Community transmission is the passing of a disease

Term	Definition
	from an infected individual to another individual outside of a known group of contacts, and outside health care settings.
Communicable	Capable of spreading disease or a disease that is capable of spreading (also known as infectious).
Contact tracing	The process of identifying and managing people who have been 'in contact' with someone who has an infectious illness.
Cough and sneeze etiquette	Measures individuals can take when we cough, sneeze or blow our nose, to reduce the chance of spreading the virus. This is sometimes referred to as respiratory hygiene.
COVID-19	Coronavirus disease 2019. An illness caused by the SARS-CoV-2 virus that was first identified in December 2019. Formerly known as 2019-nCoV.
CSF	Clinical Stakeholders Forum
Department of Health	Australian Government Department of Health
DHB	Director of Human Biosecurity (Australia's CMO)
ECMO	Extracorporeal membrane oxygenation
Epidemic	An outbreak or unusually high occurrence of a disease or illness in a population or area
Fever clinic	Fever clinics are specially planned facilities that will be set up during an outbreak for safe medical assessment and management of people with suspected COVID-19.
GP	General Practitioners
GP Roundtable	A consultative forum made up of GPs organised by the Department of Health.
HCW	Health Care Worker (defined as doctors, nurses, paramedics and other front line medical personnel)
Health sector	The health sector is government departments responsible for health, the public and private health system, in addition to the private and public health system, and health professionals.
High Risk groups	Groups at increased risk of experiencing complications from COVID-19.
HR	Human resources
ICU	Intensive Care Unit
IHR	<i>International Health Regulations 2005</i>
Infectious	Capable of spreading disease or a disease that is capable of spreading (also known as communicable).
Isolation	Separating people who are ill from those who are healthy to help stop the spread of an infectious/ communicable disease.

Term	Definition
LHD	Listed human disease. A disease which the DHB considers may be communicable and cause significant harm to health. LHDs are determined in the <i>Biosecurity (Listed Human Diseases) Determination 2016</i> , enabling a range of powers and measures to become available to manage the risk under the <i>Biosecurity Act 2015</i> .
MERS	Middle East respiratory syndrome. A viral respiratory illness caused by Middle East respiratory syndrome coronavirus (MERS-CoV).
Morbidity	State of disease. The term morbidity rate refers to the numbers of cases of illness in a population divided by the total population considered at risk of that illness.
Mortality	Mortality rate is the measure of the number of deaths (in general, or due to a specific cause) in a population scaled to the size of that population, per unit time.
NACCHO	National Aboriginal Community Controlled Health Organisations
National	The Australian Government, and State and Territory governments
National CD Plan	Emergency Response Plan for Communicable Disease Incidents of National Significance: National Arrangements
National Surveillance Committee	A standing committee under CDNA.
NCC	National Crisis Committee
NFP	The area or areas within the Department of Health, designated under the Act, as the IHR National Focal Point to liaise with and facilitate actions by national and international bodies to prevent, protect against, control and respond to a Public Health Event of National Significance or a Public Health Emergency of International Concern.
NHS Act	<i>National Health Security Act 2007</i>
NIR	Department of Health National Incident Room
NMS	The National Medical Stockpile. Administered by the Department of Health.
NNDSS	National Notifiable Diseases Surveillance System
Non-automatic (negative) pratique	Aircraft commanders must report the health status of passengers on board before landing, rather than the normal reporting by exception.
Novel coronavirus	A novel (new) coronavirus that has not been previously identified in humans or animals.
NSC	National Security Committee of Cabinet
Pandemic	An epidemic on a global scale.

Term	Definition
PHLN	Public Health Laboratory Network
Point of care	The place where three elements come together: the patient, the HCW, and care or treatment involving contact with the patient or his/her surroundings (WHO Guidelines on hygiene in healthcare)
Post-exposure prophylaxis	A dose or doses of a drug (usually antibiotic or antiviral) given immediately after exposure to a disease (such as influenza), but before onset of illness.
PPE	Personal Protective Equipment (gowns, gloves, masks)
Primary care	Health services providing initial care of a patient before they are referred to transferred elsewhere. General practice surgeries and emergency departments are common sites for primary care.
Primary Health Networks	Organisations that link and integrate parts of the health system to improve health outcomes, delivery of and access to health services for their local area.
Public health unit	Teams of specially qualified people who prevent or limit the spread of illness and disease, and improve the health of the community.
Quarantine	The limitation of freedom of movement for a period of time of well persons who are likely to have been exposed to the virus (contact) to prevent their contact with people who have not been exposed.
Resilience	The capacity to cope with stress or change, and capacity to adapt.
S/T HD	State and territory health departments
SARS	Severe acute respiratory syndrome. A viral respiratory illness caused by a coronavirus called SARS-associated coronavirus (SARS-CoV).
SARS-CoV-2	Severe acute respiratory syndrome coronavirus 2. The virus that causes COVID-19.
Serial interval	Average length of time between an initial primary case developing symptoms and subsequent secondary cases developing systems.
SoNGs	SoNGs Series of National Guidelines. CDNA National Guidelines for Public Health Units on the control of communicable diseases.
TGA	Therapeutic Goods Administration
WHO	World Health Organization
WoG	Whole of Government





Isolation guidance

If you have travelled from mainland China, Iran, Republic of Korea or Italy, or been in close contact with a confirmed case of coronavirus, special restrictions apply. This information sheet should be read in conjunction with the 'What you need to know' and 'Isolation guidance' information sheets at www.health.gov.au/covid19-resources

Who needs to isolate?

To help limit the spread of coronavirus, you must isolate yourself in the following circumstances:

- If you have left, or transited through mainland China or Iran in the last 14 days, you must isolate yourself for 14 days from the date of leaving mainland China/Iran.
- If you have left, or transited through the Republic of Korea on or after 5 March 2020 you must isolate yourself for 14 days after the date of leaving the Republic of Korea.
- If you have been in close contact with a proven case of coronavirus, you must isolate yourself for 14 days from the date of last contact with the confirmed case.

Travellers from Italy must present for health screening upon arrival in Australia, as directed at the border.

Stay at home or in your hotel

When travelling home or to your hotel to start isolation use personal transport, such as a car, to minimise exposure to others. If you need to use public transport (e.g. taxis, ride-hail services, trains, buses and trams), follow the precautions outlined in the public transport guide at www.health.gov.au/covid19-resources

During the 14 days of isolation, you must stay at home or in your hotel and don't go to public places including work, school, childcare, university or public gatherings. Only people who usually live with you should be in the home. Do not see visitors. If you are in a hotel, avoid contact with other guests or staff.

If you are well, there is no need to wear surgical masks at home. Ask others who are not in isolation to get food and necessities for you. If you must leave home, such as to seek medical care, wear a surgical mask. If you don't have a mask, take care to not cough or sneeze on others. For more information about when to wear a mask, visit: www.health.gov.au/covid19-resources

Monitor symptoms

When in isolation, monitor yourself for symptoms including fever, cough or shortness of breath. Other early symptoms include chills, body aches, sore throat, runny nose and muscle pain.

What do I do if I get sick?

If you develop symptoms (fever, a cough, sore throat, tiredness or shortness of breath) within 14 days of leaving mainland China, Iran, Republic of Korea or Italy, or within 14 days of last contact of a confirmed case, you should arrange to see your doctor for urgent assessment.

You should telephone the health clinic or hospital before you arrive and tell them your travel history or that you may have been in contact with a potential case of coronavirus.

You must remain isolated either in your home or a healthcare setting until public health authorities inform you it is safe for you to return to your usual activities.

How can I prevent the spread of coronavirus?

Practising good hand and sneeze/cough hygiene is the best defence against most viruses. You should:

- wash your hands frequently with soap and water, before and after eating, and after going to the toilet
- cover your cough and sneeze, dispose of tissues, and use alcohol-based hand sanitiser
- and if unwell, avoid contact with others (stay more than 1.5 metres from people).

Going outside

If you live in a private house, it is safe for you to go into your garden or courtyard. If you live in an apartment or are staying in a hotel, it is also safe for you to go into the garden but you should wear a surgical mask to minimise risk to others and move quickly through any common areas.

Advice for others living with you

Others that live with you are not required to be isolated unless they meet one of the isolation criteria outlined above. If you develop symptoms and are suspected to have coronavirus, they will be classified as close contacts and will need to be isolated.

Cleaning

To minimise the spread of any germs you should regularly wash surfaces that are frequently touched such as door handles, light switches, kitchen and bathroom areas. Clean with household detergent or disinfectant.

Managing the 14 day isolation

Being in isolation can be stressful and boring. Suggestions include:

- Keep in touch with family members and friends via telephone, email or social media.
- Learn about coronavirus and talk with others.
- Reassure young children using age-appropriate language.
- Where possible, keep up normal daily routines, such as eating and exercise.
- Arrange to work from home.
- Ask your child's school to supply assignments or homework by post or email.
- Do things that help you relax and use isolation as an opportunity to do activities you don't usually have time for.

More information

For the latest advice, information and resources, go to www.health.gov.au

Call the National Coronavirus Health Information Line on 1800 020 080. It operates 24 hours a day, seven days a week. If you require translating or interpreting services, call 131 450.

The phone number of your state or territory public health agency is available at www.health.gov.au/state-territory-contacts

If you have concerns about your health, speak to your doctor.



Australian Government
Department of Health

Novel coronavirus (COVID-19)

Information for international travellers

There is currently a global outbreak of novel coronavirus (COVID-19).

Symptoms of COVID-19 are similar to other respiratory illnesses and can include fever, sore throat, cough, tiredness and shortness of breath. This information sheet should be read in conjunction with the 'What you need to know' and 'Isolation guidance' information sheets. Go to www.health.gov.au/covid19-travellers.

Who is required to stay at home?

All travellers must isolate for a period of 14 days after they have entered Australia. If you need to transit domestically, you may complete this transit and then begin your precautionary 14 day self-isolation period. If you have a layover, you must remain in the airport or self-isolate in your accommodation for the transit period. Refer to the 'Isolation guidance' information sheet for further information.

You may also be required to undergo enhanced health screening on arrival in Australia.

What do I do if I am sick right now?

If you are experiencing symptoms of COVID-19, let a member of the airline or ship crew know now. If you are in the airport or seaport contact a biosecurity officer now.

What do I do if I get sick while in Australia?

If you become unwell, you must:

- Stay in your home or hotel.
- Isolate yourself from others and use a separate bathroom if available.
- Put on a surgical mask if you are near other people. If you don't have one, cover your cough and sneeze.
- Wash your hands frequently with soap and water and use alcohol-based hand rub.
- Call a doctor and tell them your recent travel history.

If you have serious symptoms such as difficulty breathing, call 000, ask for an ambulance and notify the ambulance officers of your recent travel history.

How can I prevent the spread of coronavirus?

Practising good hand and sneeze/cough hygiene is the best defence against most viruses:

- Wash your hands frequently with soap and water, including before and after eating, and after going to the toilet.
- Cover your cough and sneeze, dispose of tissues, and wash your hands.
- If unwell, avoid contact with others (stay more than 1.5 metres from people).

More information

For the latest advice, information and resources, go to www.health.gov.au

Call the National Coronavirus Help Line on 1800 020 080. It operates 24 hours a day, seven days a week. If you require translating or interpreting services, call 131 450.

The phone number of each state or territory public health agency is available at

www.health.gov.au/state-territory-contacts

If you have concerns about your health, speak to a doctor.



Australian Government
Department of Health

NATIONAL PROTOCOL FOR MANAGING NOVEL CORONAVIRUS DISEASE (COVID-19) RISK FROM CRUISE SHIPS

March 2020

Version	Date of Publication	Reason	Approved By
V1.0	6 March 2020	Initial publication	Rhonda Owen, Assistant Secretary, Health Emergency Management Branch, Office of Health Protection

This protocol was endorsed by the Chief Human Biosecurity Officers (CHBO) on 3 March 2020.

CONSULTATION

The following were consulted in the development of the protocol:

- Australian Government Department of Agriculture, Water and Environment
- Australian Government Department of Home Affairs
- Australian Government Department of Infrastructure, Transport, Cities and Regional Development
- Australian Health Protection Principal Committee
- Chief Human Biosecurity Officers
- Cruise Lines International Association (CLIA)

PURPOSE

The purpose of this protocol is to clarify the intent, responsibility, and required action in responding to coronavirus disease 2019 (COVID-19) risk from cruise ships. It is primarily a border operations protocol.

Cruise ships may carry domestic or international travellers who pose human biosecurity risks. This may also lead to the spread of diseases to other travellers, particularly given the population density, the duration of cruises and the mixing patterns of people on board. It is therefore necessary to enhance surveillance and control measures among travellers to:

- protect the health of travellers on vessels;
- minimise the likelihood of large numbers of infected people returning to Australia and further spreading diseases among the community;
- manage the impact on the Australian health system; and
- prevent the spread of diseases among populations in cruise voyage destinations.

This protocol is limited to COVID-19 and has specific measures for assessing the risk of COVID-19 on the ship, screening of passengers and crew if required, and initial management of suspected cases. It is recognised that as the outbreak situation evolves, additional measures may become necessary and this protocol may be reviewed and revised as required.

This protocol does not address when a passenger or crew member is confirmed to have COVID-19 by laboratory testing, which will be managed on a case-by-case basis by jurisdictional public health authorities in close coordination with border agencies, the cruise ship operator and senior ship officers (see INFORMATION SHARING section).

While response protocols for confirmed COVID-19 cases will likely include requiring some passengers and crew identified as contacts to undergo a period of quarantine, where possible it is not intended that this occur on board the ship.

LEGISLATION

- *Biosecurity Act 2015* (the Act) - Under section 44 of the Act, the Health Minister may determine entry requirements to prevent the entry, emergence, establishment and spread of a Listed Human Disease.
- The Biosecurity (Entry Requirements) Determination 2016 provides that an individual may be screened by a biosecurity officer or human biosecurity officer via a questionnaire or equipment to identify signs and symptoms of a Listed Human Disease (LHD).
- State and territory public health acts mandate the reporting of certain diseases to the relevant state or territory communicable diseases unit.

NOVEL CORONAVIRUS DISEASE (COVID-19)

An outbreak of respiratory disease caused by a novel coronavirus (SARS-CoV-2) was first detected in Wuhan City, Hubei Province, China, and is ongoing. On 11 February 2020, the World Health Organization (WHO) named the disease caused by the virus Coronavirus Disease 2019 (COVID-19). Sustained human-to-human community transmission has been demonstrated in parts of China, largely in Wuhan city, and some human-to-human spread of the virus has been detected outside of China, including in Australia. On 30 January 2020, the International Health Regulations Emergency Committee of the WHO declared the outbreak a public health emergency of international concern (PHEIC). The WHO emphasised the urgent need to coordinate international efforts to reduce the risk of further international spread. Australia declared the then named 'human coronavirus with pandemic potential' as a LHD on 3 February 2020, enabling powers under the *Biosecurity Act 2015* to be used to manage the entry, spread and establishment of COVID-19.

The symptoms of COVID-19 include fever, sweats and chills, fatigue, rhinorrhoea, sore throat, cough, and difficulty breathing. Symptoms can take up to 14 days to develop after a person has been infected.

PROTOCOL

This protocol has been developed for use by personnel on international cruise vessels, biosecurity agencies and local port health authorities when there is a suspected or confirmed case of COVID-19 on-board. All individuals, groups and authorities involved in the cruise ship industry including crew, health care staff, cruise line operators, owners, and port health authorities should be aware of these procedures.

For the purposes of this protocol, a **traveller** means a **passenger** or **crew member**

RISK ASSESSMENT

Respiratory illnesses (common cold and influenza) are some of the most common infections affecting people on cruise ships, and cases of COVID-19 aboard passenger ships have occurred. Because cases of seasonal influenza often occur on ships and sustained community transmission of COVID-19 has been observed, it is possible that passenger ships carrying thousands of people would have travellers with COVID-19. In the context of the PHEIC relating to COVID-19, assessing the public health risk of each vessel arrival to Australia from international ports is important before advice is given on implementation of control measures. Public health risk assessment involves appraisal of threats to travellers on board the ship, as well as to the population in the community.

Some jurisdictions may conduct a public health risk assessment for every ship, while in other jurisdictions a risk assessment for every ship may not be necessary if no illness has been reported and a standing risk assessment for the global situation may suffice in this circumstance. Assessing the risk of any reported event is necessary before proceeding with the enforcement of public health measures.

No single criterion will dictate any specific action in relation to the overall management of a vessel; however, each public health unit can use these criteria to inform their risk management strategy:

- the itinerary of the vessel, specifically
 - whether the vessel has visited a higher or moderate risk country¹ in the last 14 days
- the travel history of any person on-board the vessel, specifically
 - whether the traveller has visited a higher or moderate risk country² in the last 14 days

¹ Per the Australian Government Department of Health's '[COVID-19: Countries considered to pose a risk of transmission](#)'

² As above.

- the contact history of any person on-board the vessel, specifically whether any person on the vessel has been in contact with a confirmed case of COVID-19 within the last 14 days
- the healthcare capability available on the vessel, specifically the ability to assess presenting travellers, facilities available for isolation, and availability of point of care testing for influenza
- whether healthcare consultations are being offered at no cost or are subsidised and if consultations are being readily accessed by passengers.
- whether the number of cases presenting with influenza-like illness (ILI) exceeds that expected for the specific itinerary and season (i.e. potential outbreak)³
- where point of care testing for influenza is available, and the number of cases presenting with ILI testing negative for influenza exceeds that which is expected
- any indication or information that the ship has not implemented appropriate measures (surveillance, isolation, communication, treatment, etc.)

Exposure Risk – Potential Contacts that are currently well

The following exposure risk categories are provided to help guide initial biosecurity management of people following potential SARS-CoV-2 exposure, given the difficulty in identifying close contacts (as strictly defined by public health experts) in the cruise ship environment due to the physical environment, inability to confirm SARS-CoV-2 with laboratory testing, and variable preparedness of individual operators to respond to suspect cases.

Highest Exposure Risk

- Accommodated in the same cabin or small group of cabins with shared amenities as, being an intimate partner of, or providing care or cleaning services in a non-healthcare setting (such as a cabin) for a person with symptomatic clinically diagnosed suspect (or laboratory confirmed) COVID-19 case ***without using recommended precautions***; OR
- Recent travel from a [higher risk country](#)

Medium Exposure Risk

- Accommodated in the same cabin or small group of cabins with shared amenities as, **not** being an intimate partner of, or providing care in a non-healthcare setting (such as a cabin) for a person with symptomatic clinically diagnosed suspect (or laboratory confirmed) COVID-19 case ***while consistently using recommended precautions***

³Potential outbreaks of influenza or ILI ($\geq 1\%$) among passengers or crew members

- Being in the same semi-closed environment (e.g., a games-room, movie theatre, infirmary waiting room) as a person with symptomatic clinically diagnosed suspect (or laboratory confirmed) COVID-19 *for a prolonged period of time*⁴, OR

- Travel from [moderate risk countries](#) (excluding transit).

AND

- not meeting the higher risk definition above

Lower Exposure Risk

- Interactions with a person with symptomatic clinically diagnosed suspect (or laboratory-confirmed) COVID-19 infection that do not meet any of the higher or medium-risk conditions above, such as walking by the person or being briefly in the same room

AND

- not having any exposures that meet a higher-risk or medium-risk definition

Note that if there are multiple suspect cases, the number of contacts in the higher exposure risk category will increase. In some situations it may be difficult to delimit exposure categories and as such, a whole ship could potentially be considered at higher exposure risk.

BORDER SCREENING

The standard process at the border for screening for, and managing the presence of, LHDs will continue, which includes:

- Pre-arrival report and human health report
 - In accordance with biosecurity reporting obligations under Section 193 of the Act, information regarding any illness on-board must be lodged in the Maritime Arrivals Reporting System (MARS) between 96 and 12 hours prior to arrival. Vessels are required to update the MARS report if the human health status of persons on-board changes.
 - To support the enhanced COVID-19 border measures announced by the Prime Minister on 5 March 2020, the following additional questions will be asked on the pre-arrival report until advised otherwise:
 - Has the vessel been in mainland China, Republic of Korea, Italy or Iran in the last 14 days?
 - Has any person on the vessel been in mainland China, Republic of Korea, Italy or Iran in the last 14 days?
 - Has any person on the vessel been in contact with a confirmed case of novel coronavirus infection in the last 14 days?

⁴ As per the COVID-19 SoNG.

- The Maritime National Coordination Centre (MNCC) will coordinate officer attendance at the relevant port. On a case by case basis, state/territory health authorities may also attend the port.
- Under the Act the ship's master must specifically report people with symptoms of an LHD, including human coronavirus with pandemic potential, before arrival.
- Pratique
 - Cruise vessels are assumed to have pratique from the vessel's first port of arrival in Australia unless there is illness or death on-board, or if the vessel has not provided a pre-arrival report. Pratique takes effect when the vessel arrives at the port.
 - If there is illness or death on-board reported, or if a pre-arrival report has not been provided in accordance with the requirements in the *Biosecurity Regulation 2016*, the vessel has negative pratique until a biosecurity officer has assessed that there is no human health risk associated with the vessel and has granted pratique.
- Administration of the Traveller with Illness Checklist (TIC)
 - Where the cruise ship has reported unwell travellers, the vessel will be met by a biosecurity officer.
 - Unwell travellers will be screened using existing LHD screening procedures.
 - The TIC screens for COVID-19 based on the case definition provided in the COVID-19 Series of National Guidelines (SoNG), and includes symptoms of COVID-19, exposure to cases of COVID-19 and travel history. The TIC will be updated on occurrence of a change to the case definition provided in the COVID-19 SoNG as needed.
- Referral to a Human Biosecurity Officer (HBO), or Chief Human Biosecurity Officer (CHBO), for medical advice or assistance will occur where the TIC indicates a risk for COVID-19 or any other LHD.

ADDITIONAL BORDER MEASURES

- Until advised otherwise by Health or DAWE, all cruise ships are required to:
 - provide any stored swabs urgently to state/territory health officials for rapid transport to laboratory testing facilities, under coordination by the HBO. Provided there are no concerns about the COVID-19 risk profile of the ship or suspected COVID-19 cases reported, the HBO may advise the biosecurity officer that pratique can be granted and the ship may be allowed to continue the voyage while samples are being tested.
 - deliver on-board announcements to travellers prior to the vessel docking at an Australian seaport to encourage self-reporting of ill health by travellers and inform travellers of their obligation to declare whether they are

experiencing specific symptoms (DAWE will provide internationally operating cruise ships with pre-recorded messages for the on-board verbal announcement in a number of languages).

- Until advised otherwise by Health or DAWE, all ports are required to:
 - deliver verbal announcements at the Australian seaport to encourage self-reporting of ill health by travellers, and to inform travellers of their obligation to declare whether they are experiencing specific symptoms. DAWE will provide pre-recorded messages for the port announcement in a number of languages to the port authority who will be responsible for implementing this measure.

CASES OF INFLUENZA-LIKE ILLNESS (ILI) PRESENTING ON CRUISE SHIPS

On-Board Management

Ships should actively encourage travellers with respiratory symptoms to seek immediate on-board medical assessment. Incentives such as free or subsidised consultations for travellers with respiratory illness should be considered by the ship, to reduce barriers for timely assessment.

Where point of care testing for influenza is available, two samples should be collected using droplet precautions. The point of care influenza test should be performed on one sample, and the second sample (nasopharyngeal swab or sputum) should be placed in a sheath or tube (e.g. with transport medium/dry rayon) and stored in a refrigerator, if able, for later SARS-CoV-2 testing.

REPORT OF LISTED HUMAN DISEASE - COVID-19 SUSPECT CASE or POTENTIAL OUTBREAK⁵ OF RESPIRATORY ILLNESS

On-Board Management

Where the ship's medical officer determines that there is either:

- a) a suspect case(s)⁶ of COVID-19 on-board, or
- b) an outbreak⁷ of ILI on-board with larger than expected numbers of tests are negative for influenza, the following measures should be taken:
 - The suspect case(s) or any person with ILI should be isolated in an isolation ward, cabin, room or quarters, with an independent ventilation and toilet system where possible.

⁵ Potential outbreaks of influenza or ILI ($\geq 1\%$) among passengers or crew members.

⁶ A suspect case is defined in 'Interim advice to public health units – COVID-19' available at www.health.gov.au

⁷ Outbreaks of influenza or ILI ($\geq 1\%$) among passengers or crew members.

- Infection control procedures including droplet and standard precautions should be implemented. Medical staff should wear appropriate PPE when assessing patients with respiratory illness and collecting specimens.
- Medical staff should refer to the COVID-19 resources for health professionals, available at www.health.gov.au
- Where point of care testing for influenza is available, two samples should be collected using droplet precautions. The point of care influenza test should be performed on one sample, and the second sample (nasopharyngeal swab or sputum) should be placed in a sheath or tube (e.g. with transport medium/dry rayon) and stored in a refrigerators, if able, for later SARS-CoV-2 testing.
 - Inappropriately stored samples may not be able to be tested for SARS-CoV-2 because of biosafety concerns in the laboratory.
- Where influenza can be confirmed, and the traveller does not meet the suspect case definition for COVID-19, the traveller should follow isolation recommendations in accordance with standard influenza outbreak protocols.
- Where influenza cannot be confirmed, confinement to isolation with infection control measures should continue until a decision to return to public areas can be made in collaboration with the public health authority at the next port of call.
- All those identified as higher exposure risk⁸ should be identified and isolated as above and advised to monitor their health for development of symptoms until such time further assessment by public health authorities has determined whether or not they are truly a close contact in accordance with the Exposure Risk table above. Further, they should be managed as follows:
 - The traveller(s) should be placed under active surveillance for 14 days.
 - If after 14 days of isolation and observation, the travellers do not develop symptoms of COVID-19, they may be discharged from follow-up.
 - Both embarking and disembarking ports must be notified of COVID-19 suspected case contacts being on-board and measures taken.
 - Lower and medium risk contacts should be asked to self-monitor for COVID-19 symptoms for 14 days from their last exposure. They should be asked to immediately self-isolate and contact medical services if any symptoms appear during this time.
- A high frequency of cleaning and disinfection should be maintained on the vessel. Cabins and quarters occupied by suspected cases and close contacts of suspect COVID-19 cases should be cleaned and disinfected according to recommendations provided by the local public health authority.

⁸ Note that if there are multiple suspect cases, the number of likely close contacts will increase, and it may be that the all travellers could potentially be considered as close contacts.

Pre-Arrival Requirements

The vessel is required to:

- Immediately alert the public health authority at the next port of call to:
 - Determine if the necessary capacity for transportation, isolation, and care is available at the port (the vessel may be asked to proceed to another national port in close proximity if this capacity is not available or if warranted by the critical medical status of the suspected COVID-19 case).
 - Provide any information required for the authority to conduct a risk assessment.
 - Seek advice as to the infection prevention control requirements.
 - Ensure that [REDACTED]@Health.gov.au is a Cc addressee on all email communication.
- Update pre-arrival reporting in MARS to reflect the current health status of the vessel
- Advise the MNCC that there is a report of a listed human disease, suspected case of COVID-19 or potential outbreak of respiratory illness on board
 - The MNCC will provide the vessel or its agent with the traveller record form
- Ensure that accurate records of all traveller contact details are collated and provided to the MNCC prior to arrival. These should be in a format which supports ready contact of travellers (see Attachment 1).
 - The MNCC will distribute the record to [REDACTED]@health.gov.au and the relevant state or territory health agency for test result notification and contact tracing purposes.
- Have a representative available to liaise with government agencies (see INFORMATION SHARING section).

Management at First Port of Entry

- The vessel will not be allowed to disembark travellers until the biosecurity officer, in consultation with the HBO, has made the appropriate assessments and pratique is granted.
- If the HBO determines that an unwell traveller meets the COVID-19 suspect case definition, or a positive test result is returned, the following is to occur:
 - The biosecurity officer will notify the port authority to provide access for medical transport.
 - The HBO will identify and coordinate transfer to an appropriate medical facility.
 - The traveller will be transported to the medical facility for further management, by the most appropriate means, using all necessary precautions as specified by the HBO.

- If COVID-19 is confirmed in a suspected case, the HBO and public health authorities will advise on the identification and management of other passengers and crew considered contacts based on a further risk assessment and using national guidance.
- When a positive test for COVID-19 is returned, those travellers who were initially identified as high exposure risk will be assumed to be a close contact, and managed as follows, unless it is subsequently determined by public health authorities they were not close contacts:
 - The traveller will be assessed by a biosecurity officer on disembarking and screened for symptoms of COVID-19 using the TIC. If symptoms are detected, the traveller will be managed as per a suspect case.
 - If no symptoms are detected, the traveller will be provided with information sheets for travellers on coronavirus and quarantine, available at www.health.gov.au, and will be allowed to disembark and undertake a period of self-quarantine.
 - The traveller is required to be quarantined either at home, if a returning Australian resident, or in appropriate accommodation for 14 days from disembarkation.
 - The traveller should be placed under active surveillance for the duration of isolation.
 - The traveller may be allowed to undertake domestic travel consistent with the CDNA COVID-19 SoNG.
 - The traveller should be restricted from undertaking international or further domestic travel until the period of isolation has ended and they have remained well.
- Contacts of suspected cases may be considered for contact management if there is likely to be a delay in confirming or excluding COVID-19 in the suspected case.
- As soon as the suspect case(s) (or subsequently confirmed case) has been removed from the cruise vessel, the cabin or quarters where the traveller was isolated and managed, it should be thoroughly cleaned and disinfected according to recommendations provided by the local public health authority.
- A biosecurity officer will provide information sheets on symptoms and transmission of COVID-19 to crew for distribution to all passengers and crew. The factsheets can also be sent to the shipping agent prior to arrival for distribution via email to all passengers and crew.
- After the HBO has determined that no other travellers have symptoms consistent with COVID-19 and possible contacts have been managed, pratique will be granted and remaining travellers will be allowed to disembark and the vessel may be permitted to commence embarkation procedures provided the required cleaning and disinfection measures have taken place.
- If requested, any stored swabs must urgently be provided to state/territory health officials for rapid transport to laboratory testing facilities, under coordination by the HBO.

- The vessel may be allowed to proceed to its next port of call upon receipt of clearance from the biosecurity officer, who will consider advice from the public health authority following receipt of any laboratory results (see 'Possible management actions section').

Possible management actions

Actions taken by HBOs or state and territory health authorities will depend on the risk profile of the ship or of affected travellers (e.g. crew member suspect case is a higher risk for transmission than a passenger suspect case) and will need to be based on case-by-case assessment. However, the following represent some potential management actions that HBOs may consider:

- Ship granted pratique and allowed to continue voyage as planned while samples are tested, provided the suspected case(s) and all close contacts have been disembarked, and proper cleaning undertaken.
- Ship granted pratique but restrictions placed on the voyage, for example (but not limited to):
 - The ship may only disembark travellers at specified ports where there is capacity for ill traveller screening and health services to assess travellers, test samples and manage ill travellers
 - The ship may continue voyage but must not disembark travellers for day trips for a specified period of time
 - Crew must disembark for quarantine, noting that changing out an entire crew is not usually feasible and this option would effectively prevent the ship from continuing the current and subsequent voyages.
- Ship is not granted pratique until the results of testing are received, an assessment of risks has been completed and a management plan has been decided, for example where there is an outbreak of influenza-negative ILI.

In all cases, actions being considered should be notified to the ship's Master as soon as practicable to enable the ship to respond. This may be communicated from the Information Sharing Forum (see INFORMATION SHARING section).

Management at Subsequent Australian Ports

In accordance with standard biosecurity management procedures the vessel will continue to be required to provide pre-arrival reports and human health reports prior to docking in subsequent Australian ports and disembarking travellers. DAWE will manage any further reports of an LHD as required.

INFORMATION SHARING

An Information Sharing Forum may be convened, consisting of relevant Commonwealth Government agencies, state and territory government agencies and the affected cruise ship or its representative. The forum will be convened by the state or territory health agency managing the response. The purpose of the forum will be to share information in a timely manner and promote consultation between these stakeholders. The forum may develop key communication messages during a response to facilitate consistency of messaging between

government and the cruise industry. The decision-making responsibility for any public health response will continue to rest with the state or territory health department.

RESPONSE TO ELEVATED RISK

The decision to escalate border measures is an Australian Government decision informed by whole of Government advice with expert input from state and territories. The trigger points for escalating border measures will be determined by situational information on the epidemiology of COVID-19.

The Australian Government may establish the following, additional border control measures:

- Enhanced identification and assessment measures
 - Non-automatic pratique – classes of vessels may be subject to negative pratique and screened for LHD before pratique is granted.
 - Traveller screening may be conducted by healthcare workers and public health teams on disembarkation.
- Enhanced quarantine measures.
- Exit screening.

Advice from the CHBO will be sought prior to implementation of enhanced border measures.

Novel Coronavirus 2019 (2019-nCoV) CDNA National Guidelines for Public Health Units

Revision history			
Version	Date	Revised by	Changes
1.0	23 January 2020	Communicable Diseases Network Australia	Developed by the 2019-nCoV Working Group

This document summarises interim recommendations for surveillance, infection control, laboratory testing and contact management for 2019-nCoV. It is the first national guidance issued for the Wuhan novel coronavirus (2019-nCoV) and will be further developed into CDNA National Guidelines for Public Health Units 2019-nCoV (2019-nCoV SoNG).

It has been adapted from CDNA National Guidelines for Public Health Units MERS-CoV, utilising current CDC and WHO guidance, and is based on the current knowledge of the situation in Wuhan, China and experiences with SARS-CoV and MERS-CoV.

CDNA will review and update these recommendations as required as new information becomes available on the situation.

This document is to be used in the first instance whilst a Series of National Guidelines ('the Guidelines') is being developed by the Communicable Diseases Network Australia (CDNA).

These interim guidelines capture the knowledge of experienced professionals, and provide guidance on best practice based upon the best available evidence at the time of completion.

Readers should not rely solely on the information contained within these guidelines. Guideline information is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a health professional. Clinical judgement and discretion may be required in the interpretation and application of these guidelines.

The membership of the CDNA and the AHPPC, and the Commonwealth of Australia as represented by the Department of Health ('the Commonwealth'), do not warrant or represent that the information contained in the Guidelines is accurate, current or complete. The CDNA, the AHPPC and the Commonwealth do not accept any legal liability or responsibility for any loss, damages, costs or expenses incurred by the use of, or reliance on, or interpretation of, the information contained in the guidelines.

1. Case definition

Suspect case

As the full clinical spectrum of illness is not known, clinical and public health judgement should also be used to determine the need for testing in patients who do not meet the clinical criteria below.

If the patient satisfies epidemiological and clinical criteria, they are classified as a suspect case.

Epidemiological criteria

- Travel to Wuhan City (Hubei Province, China) in the 14 days before the onset of illness.

OR

Travel to an area* with evidence of sustained human-to-human transmission, or a declared outbreak, within 14 days before onset of illness.

OR

- Close contact (see Contact definition below) in 14 days before illness onset with a case of 2019-nCoV.

Clinical criteria

- Fever or history of fever ($\geq 38^{\circ}\text{C}$) and acute respiratory infection (sudden onset of respiratory infection with at least one of: shortness of breath, cough or sore throat).

OR

- Severe acute respiratory infection requiring admission to hospital with clinical or radiological evidence of pneumonia or acute respiratory distress syndrome (i.e. even if no evidence of fever).

Confirmed case

A person who tests positive to a specific 2019-nCoV PCR test (when available) or has the virus identified by electron microscopy or viral culture, at a reference laboratory.

The case definition may have been updated since the publication of this guideline. Please check the [case definitions webpage](http://www.health.gov.au/internet/main/publishing.nsf/Content/cdna-casedefinitions.htm) on the Australian Department of Health's website (www.health.gov.au/internet/main/publishing.nsf/Content/cdna-casedefinitions.htm) for the latest version.

2. Laboratory testing

Patients to be considered for 2019-nCoV testing are described under the suspected case definition (above). Where applicable, consult with your state/territory communicable diseases agency to seek advice on which laboratories can provide 2019-nCoV testing; appropriate specimen type, collection and transport; and also to facilitate contact management if indicated.

Transmission-based contact and airborne precautions must be used **when collecting respiratory specimens**. These include:

*List of areas will be attached to National Incident Room (NIR) new coronavirus 2019 (2019-nCoV) Situation Reports and publicly available at the Australian Government Department of Health website.

- Contact precautions, including close attention to hand hygiene.
- Airborne transmission precautions, including routine use of a P2/N95 mask/respirator, disposable gown, gloves, and eye protection.
- Collection in a single room with the door closed, or if in a hospital in a negative pressure room where available.
- If transfer of the confirmed case outside the negative pressure room is necessary, asking the patient to wear a “surgical” face mask while they are being transferred and to follow respiratory hygiene and cough etiquette.

Routine tests for acute pneumonia/pneumonitis should be performed where indicated, including bacterial cultures, acute and convalescent serology, urinary antigen testing and nucleic acid tests for respiratory viruses, according to local protocols.

Serology for 2019-nCoV is not yet available.

See Appendix A for additional 2019-nCoV laboratory testing information.

3. Case management

Response times

On the same day as notification of a suspected or confirmed case, begin follow up investigation and, where applicable, notify your central state or territory communicable diseases agency.

PHU staff should be available to contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners.

Response procedure

Case investigation

The response to a notification will normally be carried out in collaboration with the clinicians managing the case, and be guided by the 2019-nCoV public health unit checklist and the 2019-nCoV Investigation Form (currently pending).

Regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend that tests be done.
- Seek the treating doctor's permission to contact the case or relevant care-giver.
- Determine if the diagnosis has been discussed with the case or relevant care-giver before beginning the interview.
- Review case and contact management.
- Ensure appropriate infection control guidelines are followed in caring for the case.
- Identify the likely source of infection.

Note: If interviews with suspected cases are conducted face-to-face, the person conducting the interview must have a thorough understanding of infection control practices and be competent in using appropriate PPE.

Case treatment

In the absence of pathogen-specific interventions, patient management largely depends on supportive treatment, and vigilance for and treatment of complications.

Further advice on clinical management is available from WHO: (https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2)

Education

Provide 2019-nCoV factsheet to cases and their close contacts.

Ensure that they are aware of the signs and symptoms of 2019-nCoV, the requirements of isolation, contact details of the PHU and the infection control practices that can prevent the transmission of 2019-nCoV.

Isolation and restriction

Cases will generally be managed in hospital. If clinically indicated, cases may be managed at home only if it can be ensured that the case and household contacts are counselled about risk and that appropriate infection control measures are in place.

Healthcare workers and others who come into contact with suspected, and confirmed cases must be protected according to recommended infection control guidelines. Visitors should be restricted to close family members.

A risk assessment should be undertaken for suspected cases who initially test negative for 2019-nCoV. If there is no alternative diagnosis and a high index of suspicion remains that such cases may have 2019-nCoV infection, consideration should be given to continued isolation and use of the recommended infection control precautions, pending further testing (see Laboratory testing section and Appendix A) and re-assessment.

Given the severity of reported infections, the evidence of limited person-to-person transmission, and gaps in knowledge of transmission pathways, the recommendations on isolation and PPE for management of suspected and confirmed cases take a deliberately cautious approach.

Infection control measures should be those applicable to control the transmission of pathogens that can be spread by the airborne route. These measures are detailed in the [Interim infection prevention and control advice for acute care hospitals relating to suspected Middle Eastern respiratory syndrome coronavirus \(MERs-CoV\) infections](#) and can be applied to circumstances with suspected cases of 2019-nCoV.

In summary, transmission-based precautions for suspected and confirmed cases should include:

- Placement of cases in a negative pressure room with an ensuite bathroom, if available, or in a single room from which the air does not circulate to other areas.
- Airborne transmission precautions, including routine use of a P2 respirator/N95 mask where available otherwise a surgical mask is sufficient for routine care, long sleeved disposable gown, gloves, and eye protection when entering a patient care area.
- Contact precautions, including close attention to hand hygiene.
- If transfer of the confirmed case outside the negative pressure room is necessary, asking the patient to wear a “surgical” face mask while they are being transferred and to follow respiratory hygiene and cough etiquette.

Active case finding

Contacts (see Contact management section) should be identified and advised to immediately seek medical advice should they develop symptoms. Contacts or caregivers should be asked to also inform the public health agency if they develop symptoms.

4. Environmental evaluation

Where local transmission of 2019-nCoV is thought possible, a thorough review of contributing environmental factors should be done. This should include a review of infection control procedures, and opportunities for exposure to respiratory or faecal contamination.

If a case has had occupational exposure to animals it may be appropriate to consult with animal health authorities.

5. Contact management

As there remain gaps in the understanding of infectivity of 2019-nCoV cases and transmission modes, the definition of contacts and their public health management is based on observations from similar serious coronaviruses – SARS-CoV and MERS-CoV. Distinction is made between close contacts and casual contacts.

Identification of contacts

All persons categorised as a contact (see definitions of “close contacts” and “casual contacts” following) of confirmed cases should be followed-up, and monitored for the development of symptoms for 14 days after the last exposure to the case (i.e. the maximum incubation period).

Contacts of suspected cases should also be considered for contact management if there is likely to be a delay in confirming or excluding 2019-nCoV infection in the suspected case, such as delayed testing.

Close contact definition

A close contact is defined as requiring greater than 15 minutes face-to-face contact with a symptomatic confirmed case in any setting, or the sharing of a closed space with a symptomatic confirmed case for a prolonged period (e.g. more than 2 hours).

For the purposes of surveillance, a close contact includes a person meeting any of the following criteria:

- Living in the same household or household-like setting (e.g. in a boarding school or hostel).
- Direct contact with the body fluids or laboratory specimens of a case without recommended PPE.
- A person who spent 2 hours or longer in the same room (such as a GP or ED waiting room).
- A person in the same hospital room when an aerosol generating procedure is undertaken on the case, without recommended PPE.

- Face-to-face contact for more than 15 minutes with the case in any other setting not listed above.

Contact needs to have occurred within the period extending from the day of onset of symptoms in the case until the case is classified as no longer infectious by the treating team (usually 24 hours after the resolution of symptoms).

Casual contact definition

Casual contact is defined as any person having less than 15 minutes face-to-face contact with a symptomatic confirmed case in any setting, or sharing a closed space with a symptomatic confirmed case for less than 2 hours. This will include healthcare workers, other patients, or visitors who were in the same closed healthcare space as a case, but for shorter periods than those required for a close contact. Other closed settings might include schools or offices.

Note that healthcare workers and other contacts who have taken recommended infection control precautions, including the use of full PPE, while caring for a symptomatic confirmed 2019-nCoV case are not considered to be close contacts. However, these people should be advised to self-monitor and if they develop symptoms consistent with 2019-nCoV infection they should isolate themselves and notify their public health unit or staff health unit so they can be tested and managed as a suspected 2019-nCoV case (see recommendations below under Management of symptomatic contacts).

Other casual contacts may include:

- Extended family groups, e.g. in an Aboriginal community.
- Aircraft passengers who were seated in the same row as the case, or in the two rows in front or two rows behind a symptomatic confirmed 2019-nCoV case. Contact tracing of people who may have had close contact on long bus or train trips should also be attempted where possible, using similar seating/proximity criteria.
- All crew-members on an aircraft who worked in the same cabin area as a symptomatic confirmed case of 2019-nCoV. If a crew member is the symptomatic 2019-nCoV case, contact tracing efforts should concentrate on passengers seated in the area where the crew member was working during the flight and all of the other members of the crew.

Where resources permit, more active contact tracing may be extended to other persons who have had casual contact (as defined above), particularly in school, office, or other closed settings. In these circumstances, the size of the room/space and degree of separation of the case from others should be considered in identifying contacts.

Contact assessment

All persons identified as having had contact with a symptomatic confirmed case should be assessed to see if they should be classified as a close contact and have demographic and epidemiological data collected. Information on close contacts should be managed according to jurisdictional requirements.

Identification and assessment of the contacts of suspected cases may be deferred pending the results of initial laboratory testing.

Close contact testing

Routine laboratory screening for 2019-nCoV infection is not recommended for asymptomatic contacts.

Prophylaxis

No specific chemoprophylaxis is available for contacts.

Education

Close contacts should be counselled about their risk and the symptoms of 2019-nCoV and provided with a 2019-nCoV Factsheet. They should be advised to self-isolate if they develop symptoms, and to immediately notify their public health unit and, if appropriate, their facility infection control unit (i.e. for healthcare workers).

Isolation and restriction

Close contacts

Home quarantine of asymptomatic contacts is not routinely recommended, but people identified as close contacts are advised to monitor their health for 14 days after the last possible contact with a symptomatic confirmed 2019-nCoV case.

Public health units should conduct active daily monitoring of close contacts for symptoms for 14 days after the last possible contact with a symptomatic confirmed 2019-nCoV case.

Close contacts should be advised to immediately telephone the public health unit to arrange medical attention if they develop symptoms such as fever, respiratory symptoms (including coughing and shortness of breath), headache, muscle pain or diarrhoea.

Less frequent active follow-up together with passive surveillance may be necessary if there are large numbers of close contacts to monitor.

Close contacts should also be advised to not travel internationally for 14 days after the last close contact with a confirmed case of 2019-nCoV, and any travel within Australia during this period should be subject to discussion with the public health unit.

Close contacts should be excluded from schools and sensitive occupations or settings such as health care, aged care, or child care during the 14 days after last unprotected contact with a case.

Casual contacts

Casual contacts should monitor their health for 14 days and report any symptoms immediately to the local public health unit. There are no restrictions on movements; however casual contacts should be advised to isolate themselves and contact the public health unit if they develop symptoms.

Healthcare worker close contacts

Healthcare worker close contacts (i.e. persons exposed while unprotected, as described in the Contact definition section) should not undertake work in a healthcare setting for 14 days following the last possible contact with the case. Home quarantine is not routinely recommended during this period if these individuals remain asymptomatic, but some restrictions may be recommended based on a risk assessment of the particular circumstances.

Public health units may assist infection control units of health facilities to identify and monitor healthcare worker close contacts.

It is recognized that clinical work restrictions on healthcare worker close contacts may place strain on individuals and on health services. This underlines the importance of ensuring healthcare workers implement appropriate infection control precautions when assessing and managing suspected, confirmed 2019-nCoV cases.

CDNA will continue to monitor the emerging evidence around 2019-nCoV transmission risks in healthcare settings and revise these recommendations as needed.

Management of symptomatic contacts

If fever, respiratory symptoms or other symptoms consistent with 2019-nCoV infection develop within the first 14 days following the last contact, the individual should be immediately isolated and managed as per the current recommendations for suspected 2019-nCoV cases, with urgent testing for 2019-nCoV infection undertaken in an environment which minimises the exposure of others.

Ill contacts who are being evaluated for 2019-nCoV infection can be appropriately isolated and managed at home, unless their condition is severe enough to require hospitalisation.

Symptomatic contacts who test negative for 2019-nCoV by PCR will still need to be monitored for 14 days after their last contact with a confirmed 2019-nCoV case and may require re-testing.

Appendix A 2019-nCoV Laboratory testing information

Laboratory testing for 2019-nCoV is likely to evolve rapidly with the accumulation of clinical data, and as reagents and protocols are refined.

The aim of testing is to exclude common respiratory viruses using local hospital and community nucleic acid testing capacity, and to simultaneously refer onward to a reference laboratory with capacity to test for 2019-nCoV. As co-infection is possible, initial testing protocols should include testing for 2019-nCoV in patients with epidemiological risk, even where another infection is shown to be present. As more information accumulates regarding the risk of dual respiratory viral infections this may be reviewed.

Samples for testing

- (i) upper respiratory tract samples
- (ii) lower respiratory tract sample if the lower tract is involved
- (iii) Serum (to be stored pending serology availability)

Upper respiratory tract samples

1. Nasopharyngeal swab and/or oropharyngeal swab, Dacron or Rayon, flocked preferred
 - nasopharyngeal: insert a swab into each nostril parallel to the palate, leave the swab in place for a few seconds to absorb secretions
 - oropharyngeal: swab the tonsillar beds, avoiding the tongue
 - place swabs back into the accompanying transport media
2. Nasal wash/aspirates
 - collect 2-3 mL into a sterile, leak-proof, screw-top dry sterile container

Lower respiratory tract samples

1. Sputum
 - patient should rinse his/her mouth with water before collection
 - expectorate deep cough sputum directly into a sterile, leak-proof, screw-top dry sterile container
2. Bronchoalveolar lavage, tracheal aspirate, pleural fluid
 - collect 2-3 mL into a sterile, leak-proof, screw-top sputum collection cup or dry sterile container

Given that for SARS-CoV and MERS-CoV there is evidence that lower respiratory tract specimens contain the highest viral loads, it is therefore advised that lower respiratory tract specimens should be collected where possible for 2019-nCoV testing. Repeat testing (especially of lower respiratory tract specimens) in compatible cases should be performed if initial results are negative and there is a high index of clinical suspicion.

Serology

Where possible, serum should be collected during the acute phase of the illness (preferably within the first 7 days of symptom onset), stored, and when serology testing becomes available tested in parallel with a convalescent serum collected 3 or more weeks after acute sample collection. If no acute sample was collected, a single serum sample collected 14 or more days after symptom onset may be tested.

Handling of specimens in the laboratory

Virology

Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment. Specimens should be transported in accordance with current regulatory requirements as diagnostic samples for testing.

Clinical Pathology

Standard precautions should be used for non-viral pathology testing.

Respiratory Virus Diagnostic Testing

Nucleic acid testing of the upper respiratory tract sample is done for influenza and other common respiratory viruses using standard protocols and methods of the hospital or community laboratory.

Standard protocols of the testing laboratory for respiratory sample processing should be used. This is expected to consist of PC2 laboratory practices, and use of a Class II Biosafety cabinet for processes potentially generating aerosols. Attempted viral culture, which would require higher levels of biocontainment would not routinely be attempted.

The residue (original swab and remaining eluate) of the upper tract sample is forwarded together with the lower tract sample and the serum to the reference laboratory with 2019-nCoV testing capacity requesting '2019-nCoV/Wuhan Coronavirus' testing.

As stated above, clinician liaison with jurisdictional public health officers is essential to coordinate referral & testing.

As above, standard protocols should be used for sample packaging and transport as diagnostic samples for testing.

2019-nCoV specific testing

NAT using reverse-transcriptase polymerase chain reaction (RT-PCR) is the method of choice for detection of 2019-nCoV. Diagnostic capability for 2019-nCoV is expected to evolve rapidly, hence will be described here only in broad terms. Protocols will be available from the WHO in January 2020, and include PCR followed by specific probe detection of amplicons. The initial PCR detects 2019-nCoV and SARS-CoV, but not commonly circulating coronaviruses usually detected by commercial assays (eg NL63, 229 strains).

Several Australasian Public Health Laboratory Network (PHLN) reference laboratories currently offer PCR assays capable of detecting a wide range of coronaviruses, including zoonotic and novel pathogens. A number of these have been mapped against the promulgated nucleic acid sequence of the 2019-nCoV, and are expected to detect it on that basis. Nucleic acid sequencing of amplicons from positive tests is used to identify the coronavirus in this approach.

Specific PCR primer sets to detect the 2019-nCoV are becoming available, however the majority, including those available through WHO will also detect other zoonotic coronaviruses such as SARS coronavirus.

The 2019-nCoV is yet to be internationally available for use as a test positive control. Synthetic positive control material in the form of nucleic acid templates is becoming available through WHO/ European Viral Archive (EVAg). SARS-CoV may be used as an interim positive control for testing by PHLN member laboratories as an interim measure.

Testing algorithms are likely to be revised pending further information about the virus, and the number of specimens received in the laboratory for testing.

Viral culture should not be performed for routine diagnosis, and should only be attempted in reference laboratories with appropriate experience and containment facilities.

No Quality Assurance Program (QAP) is currently available internationally specific to the 2019-nCoV, although QAPs are available in Australia for respiratory viruses including non-2019-nCoV coronaviruses. The RCPAQAP with Commonwealth support will introduce a 2019-nCoV specific QAP to supplement previously available SARS-CoV, MERS-CoV and other coronaviruses, during 2020.

Novel Coronavirus 2019 (2019-nCoV)

CDNA National Guidelines for Public Health Units

Revision history			
Version	Date	Revised by	Changes
1.1	27 January 2020	Communicable Diseases Network Australia	Removed references to Wuhan and revised the case definition
1.0	23 January 2020	Communicable Diseases Network Australia	Developed by the 2019-nCoV Working Group

This document summarises interim recommendations for surveillance, infection control, laboratory testing and contact management for 2019-nCoV. It is the first national guidance issued for the novel coronavirus (2019-nCoV) and will be further developed into CDNA National Guidelines for Public Health Units 2019-nCoV (2019-nCoV SoNG).

It has been adapted from CDNA National Guidelines for Public Health Units MERS-CoV, utilising current CDC and WHO guidance, and is based on the current knowledge of the situation in mainland China and other countries, and experiences with SARS-CoV and MERS-CoV.

CDNA will review and update these recommendations as required as new information becomes available on the situation.

These interim Guidelines are to be used in the first instance whilst a Series of National Guidelines is being developed by the Communicable Diseases Network Australia (CDNA).

These interim guidelines capture the knowledge of experienced professionals, and provide guidance on best practice based upon the best available evidence at the time of completion.

Readers should not rely solely on the information contained within these Guidelines. Guideline information is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a health professional. Clinical judgement and discretion may be required in the interpretation and application of these guidelines.

The membership of the CDNA and the AHPPC, and the Commonwealth of Australia as represented by the Department of Health ('the Commonwealth'), do not warrant or represent that the information contained in these Guidelines is accurate, current or complete. The CDNA, the AHPPC and the Commonwealth do not accept any legal liability or responsibility for any loss, damages, costs or expenses incurred by the use of, or reliance on, or interpretation of, the information contained in these Guidelines.

1. Case definition

Suspect case

As the full clinical spectrum of illness is not known, clinical and public health judgement should also be used to determine the need for testing in patients who do not meet the clinical criteria below.

If the patient satisfies epidemiological and clinical criteria, they are classified as a suspect case.

Epidemiological criteria

- Travel to Hubei Province, China in the 14 days before the onset of illness.

OR

Travel to agreed areas* of human-to-human transmission, or a declared outbreak, within 14 days before onset of illness.

OR

- Close contact (see Contact definition below) in 14 days before illness onset with a case of 2019-nCoV.

Clinical criteria

- Fever or history of fever ($\geq 38^{\circ}\text{C}$) and acute respiratory infection (sudden onset of respiratory infection with at least one of: shortness of breath, cough or sore throat).

OR

- Severe acute respiratory infection requiring admission to hospital with clinical or radiological evidence of pneumonia or acute respiratory distress syndrome (i.e. even if no evidence of fever).

Confirmed case

A person who tests positive to a specific 2019-nCoV PCR test (when available) or has the virus identified by electron microscopy or viral culture, at a reference laboratory.

The case definition may have been updated since the publication of this guideline. Please check the [case definitions webpage](http://www.health.gov.au/internet/main/publishing.nsf/Content/cdna-casedefinitions.htm) on the Australian Department of Health's website (www.health.gov.au/internet/main/publishing.nsf/Content/cdna-casedefinitions.htm) for the latest version.

2. Laboratory testing

Patients to be considered for 2019-nCoV testing are described under the suspected case definition (above). Where applicable, consult with your state/territory communicable diseases agency to seek advice on which laboratories can provide 2019-nCoV testing; appropriate specimen type, collection and transport; and also to facilitate contact management if indicated.

* <https://www1.health.gov.au/internet/main/publishing.nsf/Content/ohp-2019-nCoV-areas.htm>

Transmission-based contact and airborne precautions must be used **when collecting respiratory specimens**. These include:

- Contact precautions, including close attention to hand hygiene.
- Airborne transmission precautions, including routine use of a P2/N95 mask/respirator, disposable gown, gloves, and eye protection.
- Collection in a single room with the door closed, or if in a hospital in a negative pressure room where available.
- If transfer of the confirmed case outside the negative pressure room is necessary, asking the patient to wear a “surgical” face mask while they are being transferred and to follow respiratory hygiene and cough etiquette.

Routine tests for acute pneumonia/pneumonitis should be performed where indicated, including bacterial cultures, acute and convalescent serology, urinary antigen testing and nucleic acid tests for respiratory viruses, according to local protocols.

Serology for 2019-nCoV is not yet available.

See Appendix A for additional 2019-nCoV laboratory testing information.

3. Case management

Response times

On the same day as notification of a suspected or confirmed case, begin follow up investigation and, where applicable, notify your central state or territory communicable diseases agency.

PHU staff should be available to contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners.

Response procedure

Case investigation

The response to a notification will normally be carried out in collaboration with the clinicians managing the case, and be guided by the 2019-nCoV public health unit checklist and the 2019-nCoV Investigation Form (currently pending).

Regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend that tests be done.
- Seek the treating doctor's permission to contact the case or relevant care-giver.
- Determine if the diagnosis has been discussed with the case or relevant care-giver before beginning the interview.
- Review case and contact management.
- Ensure appropriate infection control guidelines are followed in caring for the case.

- Identify the likely source of infection.

Note: If interviews with suspected cases are conducted face-to-face, the person conducting the interview must have a thorough understanding of infection control practices and be competent in using appropriate PPE.

Case treatment

In the absence of pathogen-specific interventions, patient management largely depends on supportive treatment, and vigilance for and treatment of complications.

Further advice on clinical management is available from WHO: (https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2)

Education

Provide 2019-nCoV factsheet to cases and their close contacts.

Ensure that they are aware of the signs and symptoms of 2019-nCoV, the requirements of isolation, contact details of the PHU and the infection control practices that can prevent the transmission of 2019-nCoV.

Isolation and restriction

Cases will generally be managed in hospital. If clinically indicated, cases may be managed at home only if it can be ensured that the case and household contacts are counselled about risk and that appropriate infection control measures are in place.

Healthcare workers and others who come into contact with suspected, and confirmed cases must be protected according to recommended infection control guidelines. Visitors should be restricted to close family members.

A risk assessment should be undertaken for suspected cases who initially test negative for 2019-nCoV. If there is no alternative diagnosis and a high index of suspicion remains that such cases may have 2019-nCoV infection, consideration should be given to continued isolation and use of the recommended infection control precautions, pending further testing (see Laboratory testing section and Appendix A) and re-assessment.

Given the severity of reported infections, the evidence of limited person-to-person transmission, and gaps in knowledge of transmission pathways, the recommendations on isolation and PPE for management of suspected and confirmed cases take a deliberately cautious approach.

Infection control measures should be those applicable to control the transmission of pathogens that can be spread by the airborne route. These measures are detailed in the [Interim infection prevention and control advice for acute care hospitals relating to suspected Middle Eastern respiratory syndrome coronavirus \(MERs-CoV\) infections](#) and can be applied to circumstances with suspected cases of 2019-nCoV.

In summary, transmission-based precautions for suspected and confirmed cases should include:

- Placement of cases in a negative pressure room with an ensuite bathroom, if available, or in a single room from which the air does not circulate to other areas.
- Airborne transmission precautions, including routine use of a P2 respirator/N95 mask where available otherwise a surgical mask is sufficient for routine care, long sleeved disposable gown, gloves, and eye protection when entering a patient care area.

- Contact precautions, including close attention to hand hygiene.
- If transfer of the confirmed case outside the negative pressure room is necessary, asking the patient to wear a “surgical” face mask while they are being transferred and to follow respiratory hygiene and cough etiquette.

Active case finding

Contacts (see Contact management section) should be identified and advised to immediately seek medical advice should they develop symptoms. Contacts or caregivers should be asked to also inform the public health agency if they develop symptoms.

4. Environmental evaluation

Where local transmission of 2019-nCoV is thought possible, a thorough review of contributing environmental factors should be done. This should include a review of infection control procedures, and opportunities for exposure to respiratory or faecal contamination.

If a case has had occupational exposure to animals it may be appropriate to consult with animal health authorities.

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As there remain gaps in the understanding of infectivity of 2019-nCoV cases and transmission modes, the definition of contacts and their public health management is based on observations from similar serious coronaviruses – SARS-CoV and MERS-CoV. Distinction is made between close contacts and casual contacts.

Identification of contacts

All persons categorised as a contact (see definitions of “close contacts” and “casual contacts” following) of confirmed cases should be followed-up, and monitored for the development of symptoms for 14 days after the last exposure to the case (i.e. the maximum incubation period).

Contacts of suspected cases should also be considered for contact management if there is likely to be a delay in confirming or excluding 2019-nCoV infection in the suspected case, such as delayed testing.

Close contact definition

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For the purposes of surveillance, a close contact includes a person meeting any of the following criteria:

- Living in the same household or household-like setting (e.g. in a boarding school or hostel).
- Direct contact with the body fluids or laboratory specimens of a case without recommended PPE.

- A person who spent 2 hours or longer in the same room (such as a GP or ED waiting room).
- A person in the same hospital room when an aerosol generating procedure is undertaken on the case, without recommended PPE.
- Face-to-face contact for more than 15 minutes with the case in any other setting not listed above.

Contact needs to have occurred within the period extending from the day of onset of symptoms in the case until the case is classified as no longer infectious by the treating team (usually 24 hours after the resolution of symptoms).

Casual contact definition

Casual contact is defined as any person having less than 15 minutes face-to-face contact with a symptomatic confirmed case in any setting, or sharing a closed space with a symptomatic confirmed case for less than 2 hours. This will include healthcare workers, other patients, or visitors who were in the same closed healthcare space as a case, but for shorter periods than those required for a close contact. Other closed settings might include schools or offices.

Note that healthcare workers and other contacts who have taken recommended infection control precautions, including the use of full PPE, while caring for a symptomatic confirmed 2019-nCoV case are not considered to be close contacts. However, these people should be advised to self-monitor and if they develop symptoms consistent with 2019-nCoV infection they should isolate themselves and notify their public health unit or staff health unit so they can be tested and managed as a suspected 2019-nCoV case (see recommendations below under Management of symptomatic contacts).

Other casual contacts may include:

- Extended family groups, e.g. in an Aboriginal community.
- Aircraft passengers who were seated in the same row as the case, or in the two rows in front or two rows behind a symptomatic confirmed 2019-nCoV case. Contact tracing of people who may have had close contact on long bus or train trips should also be attempted where possible, using similar seating/proximity criteria.
- All crew-members on an aircraft who worked in the same cabin area as a symptomatic confirmed case of 2019-nCoV. If a crew member is the symptomatic 2019-nCoV case, contact tracing efforts should concentrate on passengers seated in the area where the crew member was working during the flight and all of the other members of the crew.

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No specific chemoprophylaxis is available for contacts.

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Close contacts should be counselled about their risk and the symptoms of 2019-nCoV and provided with a 2019-nCoV Factsheet. They should be advised to self-isolate if they develop symptoms, and to immediately notify their public health unit and, if appropriate, their facility infection control unit (i.e. for healthcare workers).

Isolation and restriction

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Given that for SARS-CoV and MERS-CoV there is evidence that lower respiratory tract specimens contain the highest viral loads, it is therefore advised that lower respiratory tract specimens should be collected where possible for 2019-nCoV testing. Repeat testing (especially of lower respiratory tract specimens) in compatible cases should be performed if initial results are negative and there is a high index of clinical suspicion.

Serology

Where possible, serum should be collected during the acute phase of the illness (preferably within the first 7 days of symptom onset), stored, and when serology testing becomes available tested in parallel with a convalescent serum collected 3 or more weeks after acute sample collection. If no acute sample was collected, a single serum sample collected 14 or more days after symptom onset may be tested.

Handling of specimens in the laboratory

Virology

Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment. Specimens should be transported in accordance with current regulatory requirements as diagnostic samples for testing.

Clinical Pathology

Standard precautions should be used for non-viral pathology testing.

Respiratory Virus Diagnostic Testing

Nucleic acid testing of the upper respiratory tract sample is done for influenza and other common respiratory viruses using standard protocols and methods of the hospital or community laboratory.

Standard protocols of the testing laboratory for respiratory sample processing should be used. This is expected to consist of PC2 laboratory practices, and use of a Class II Biosafety cabinet for processes potentially generating aerosols. Attempted viral culture, which would require higher levels of biocontainment would not routinely be attempted.

The residue (original swab and remaining eluate) of the upper tract sample is forwarded together with the lower tract sample and the serum to the reference laboratory with 2019-nCoV testing capacity requesting '2019-nCoV Coronavirus' testing.

As stated above, clinician liaison with jurisdictional public health officers is essential to coordinate referral & testing.

As above, standard protocols should be used for sample packaging and transport as diagnostic samples for testing.

2019-nCoV specific testing

NAT using reverse-transcriptase polymerase chain reaction (RT-PCR) is the method of choice for detection of 2019-nCoV. Diagnostic capability for 2019-nCoV is expected to evolve rapidly, hence will be described here only in broad terms. Protocols will be available from the WHO in January 2020, and include PCR followed by specific probe detection of amplicons. The initial PCR detects 2019-nCoV and SARS-CoV, but not commonly circulating coronaviruses usually detected by commercial assays (eg NL63, 229 strains).

Several Australasian Public Health Laboratory Network (PHLN) reference laboratories currently offer PCR assays capable of detecting a wide range of coronaviruses, including zoonotic and novel pathogens. A number of these have been mapped against the promulgated nucleic acid sequence of the 2019-nCoV, and are expected to detect it on that basis. Nucleic acid sequencing of amplicons from positive tests is used to identify the coronavirus in this approach.

Specific PCR primer sets to detect the 2019-nCoV are becoming available, however the majority, including those available through WHO will also detect other zoonotic coronaviruses such as SARS coronavirus.

The 2019-nCoV is yet to be internationally available for use as a test positive control. Synthetic positive control material in the form of nucleic acid templates is becoming available through WHO/ European Viral Archive (EVAg). SARS-CoV may be used as an interim positive control for testing by PHLN member laboratories as an interim measure.

Testing algorithms are likely to be revised pending further information about the virus, and the number of specimens received in the laboratory for testing.

Viral culture should not be performed for routine diagnosis, and should only be attempted in reference laboratories with appropriate experience and containment facilities.

No Quality Assurance Program (QAP) is currently available internationally specific to the 2019-nCoV, although QAPs are available in Australia for respiratory viruses including non-2019-nCoV coronaviruses. The RCPAQAP with Commonwealth support will introduce a 2019-nCoV specific QAP to supplement previously available SARS-CoV, MERS-CoV and other coronaviruses, during 2020.

Novel Coronavirus 2019 (2019-nCoV)

CDNA National Guidelines for Public Health Units

Revision history			
Version	Date	Revised by	Changes
1.2	2 February 2020	Communicable Diseases Network Australia	Revised the case definition, close and casual contact definitions and added self-isolation guidance.
1.1	27 January 2020	Communicable Diseases Network Australia	Removed references to Wuhan and revised the case definition
1.0	23 January 2020	Communicable Diseases Network Australia	Developed by the 2019-nCoV Working Group

This document summarises interim recommendations for surveillance, infection control, laboratory testing and contact management for the novel coronavirus (2019-nCoV). It is the first national guidance issued for 2019-nCoV and will be further developed into CDNA National Guidelines for Public Health Units 2019-nCoV (2019-nCoV SoNG).

It has been adapted from CDNA National Guidelines for Public Health Units MERS-CoV, utilising current CDC and WHO guidance, and is based on the current knowledge of the situation in mainland China and other countries, and experiences with SARS-CoV and MERS-CoV.

CDNA will review and update these recommendations as required as new information becomes available on the situation.

These interim Guidelines are to be used in the first instance whilst a Series of National Guidelines is being developed by the Communicable Diseases Network Australia (CDNA).

These interim guidelines capture the knowledge of experienced professionals, and provide guidance on best practice based upon the best available evidence at the time of completion.

Readers should not rely solely on the information contained within these Guidelines. Guideline information is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a health professional. Clinical judgement and discretion may be required in the interpretation and application of these guidelines.

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1. Case definition

Suspect case

As the full clinical spectrum of illness is not known, clinical and public health judgement should also be used to determine the need for testing in patients who do not meet the epidemiological or clinical criteria below.

If the patient satisfies epidemiological and clinical criteria, they are classified as a suspect case.

Epidemiological criteria

- Travel to (including transit through) mainland China in the 14 days before the onset of illness.

OR

- Close contact (see Contact definition below) in 14 days before illness onset with a confirmed or suspected case of 2019-nCoV.

Clinical criteria

- Acute respiratory infection (sudden onset of respiratory infection with at least one of: shortness of breath, cough or sore throat) with or without fever or history of fever.

Confirmed case

A person who tests positive to a specific 2019-nCoV PCR test (when available) or has the virus identified by electron microscopy or viral culture, at a reference laboratory.

The case definition may have been updated since the publication of this guideline. Please check the [case definitions webpage](http://www.health.gov.au/internet/main/publishing.nsf/Content/cdna-casedefinitions.htm) on the Australian Department of Health's website (www.health.gov.au/internet/main/publishing.nsf/Content/cdna-casedefinitions.htm) for the latest version.

2. Laboratory testing

Patients to be considered for 2019-nCoV testing are described under the suspected case definition (above). Where applicable, consult with your state/territory communicable diseases agency to seek advice on which laboratories can provide 2019-nCoV testing; appropriate specimen type, collection and transport; and also to facilitate contact management if indicated.

Transmission-based contact and airborne precautions must be used **when collecting respiratory specimens**. These include:

- Contact precautions, including close attention to hand hygiene.
- Airborne transmission precautions, including routine use of a P2/N95 mask/respirator, disposable gown, gloves, and eye protection.
- Collection in a single room with the door closed, or if in a hospital in a negative pressure room where available.
- If transfer of the confirmed case outside the negative pressure room is necessary, asking the patient to wear a “surgical” face mask while they are being transferred and to follow respiratory hygiene and cough etiquette.

Routine tests for acute pneumonia/pneumonitis should be performed where indicated, including bacterial cultures, acute and convalescent serology, urinary antigen testing and nucleic acid tests for respiratory viruses, according to local protocols.

Serology for 2019-nCoV is not yet available.

See [Appendix A](#) for additional 2019-nCoV laboratory testing information.

3. Case management

Response times

On the same day as notification of a suspected or confirmed case, begin follow up investigation and, where applicable, notify your central state or territory communicable diseases agency.

PHU staff should be available to contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners.

Response procedure

Case investigation

The response to a notification will normally be carried out in collaboration with the clinicians managing the case, and be guided by the 2019-nCoV public health unit checklist and the 2019-nCoV Investigation Form (currently pending).

Regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend that tests be done.
- Seek the treating doctor's permission to contact the case or relevant care-giver.
- Determine if the diagnosis has been discussed with the case or relevant care-giver before beginning the interview.
- Review case and contact management.
- Ensure appropriate infection control guidelines are followed in caring for the case.
- Identify the likely source of infection.

Note: If interviews with suspected cases are conducted face-to-face, the person conducting the interview must have a thorough understanding of infection control practices and be competent in using appropriate PPE.

Case treatment

In the absence of pathogen-specific interventions, patient management largely depends on supportive treatment, and vigilance for and treatment of complications.

Further advice on clinical management is available from WHO: (https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2)

Education

Provide 2019-nCoV factsheet to cases and their close contacts.

Ensure that they are aware of the signs and symptoms of 2019-nCoV, the requirements of isolation, contact details of the PHU and the infection control practices that can prevent the transmission of 2019-nCoV.

Isolation and restriction

Cases will generally be managed in hospital. If clinically indicated, cases may be managed at home only if it can be ensured that the case and household contacts are counselled about risk and that appropriate infection control measures are in place.

Healthcare workers and others who come into contact with suspected, and confirmed cases must be protected according to recommended infection control guidelines. Visitors should be restricted to close family members.

A risk assessment should be undertaken for suspected cases who initially test negative for 2019-nCoV. If there is no alternative diagnosis and a high index of suspicion remains that such cases may have 2019-nCoV infection, consideration should be given to continued isolation and use of the recommended infection control precautions, pending further testing (see [Laboratory testing section](#) and [Appendix A](#)) and re-assessment.

Given the severity of reported infections, the evidence of limited person-to-person transmission, and gaps in knowledge of transmission pathways, the recommendations on isolation and PPE for management of suspected and confirmed cases take a deliberately cautious approach.

Infection control measures should be those applicable to control the transmission of pathogens that can be spread by the airborne route. These measures are detailed in the [Interim infection prevention and control advice for acute care hospitals relating to suspected Middle Eastern respiratory syndrome coronavirus \(MERs-CoV\) infections](#) and can be applied to circumstances with suspected cases of 2019-nCoV.

In summary, transmission-based precautions for suspected and confirmed cases should include:

- Placement of cases in a negative pressure room with an ensuite bathroom, if available, or in a single room from which the air does not circulate to other areas.
- Airborne transmission precautions, including routine use of a P2 respirator/N95 mask where available otherwise a surgical mask is sufficient for routine care, long sleeved disposable gown, gloves, and eye protection when entering a patient care area.
- Contact precautions, including close attention to hand hygiene.

- If transfer of the confirmed case outside the negative pressure room is necessary, asking the patient to wear a “surgical” face mask while they are being transferred and to follow respiratory hygiene and cough etiquette.

Active case finding

Contacts (see [Contact management section](#)) should be identified and advised to immediately seek medical advice should they develop symptoms. Contacts or caregivers should be asked to also inform the public health agency if they develop symptoms.

4. Environmental evaluation

Where local transmission of 2019-nCoV is thought possible, a thorough review of contributing environmental factors should be done. This should include a review of infection control procedures, and opportunities for exposure to respiratory or faecal contamination.

If a case has had occupational exposure to animals it may be appropriate to consult with animal health authorities.

5. Infectious period

According to current evidence there has been a single reported episode of transmission of 2019-nCoV prior to onset of symptoms. As this is an isolated episode it is still considered likely that cases become infectious from onset of symptoms. In recognition of the evolving situation and potential for poor recall of symptom onset by cases, for the purpose defining close contacts (see [6. Contact management](#)) a 24 hour window before onset of symptoms has been applied as a highly precautionary approach.

6. Contact management

As there remain gaps in the understanding of infectivity of 2019-nCoV cases and transmission modes, the definition of contacts and their public health management is based on available information on 2019-nCoV together with observations from similar serious coronaviruses – SARS-CoV and MERS-CoV. Distinction is made between close contacts and casual contacts.

Identification of contacts

All persons categorised as a contact (see definitions of “close contacts” and “casual contacts” following) of confirmed cases should be followed-up, and monitored for the development of symptoms for 14 days after the last exposure to the case (i.e. the maximum incubation period).

Contacts of suspected cases should also be considered for contact management if there is likely to be a delay in confirming or excluding 2019-nCoV infection in the suspected case, such as delayed testing.

Close contact definition

A close contact is defined as requiring:

- greater than 15 minutes face-to-face contact in any setting with a confirmed case in the period extending from 24 hours before onset of symptoms in the confirmed case, or
- sharing of a closed space with a confirmed case for a prolonged period (e.g. more than 2 hours) in the period extending from 24 hours before onset of symptoms in the confirmed case.

For the purposes of surveillance, a close contact includes a person meeting any of the following criteria:

- Living in the same household or household-like setting (e.g. in a boarding school or hostel).
- Direct contact with the body fluids or laboratory specimens of a case without recommended PPE or failure of PPE.
- A person who spent 2 hours or longer in the same room (such as a GP or ED waiting room).
- A person in the same hospital room when an aerosol generating procedure is undertaken on the case, without recommended PPE.
- Aircraft passengers who were seated in the same row as the case, or in the two rows in front or two rows behind a confirmed 2019-nCoV case. Contact tracing of people who may have had close contact on long bus or train trips should also be attempted where possible, using similar seating/proximity criteria.
- All crew-members on an aircraft who worked in the same cabin area as a confirmed case of 2019-nCoV. If a crew member is the 2019-nCoV case, contact tracing efforts should concentrate on passengers seated in the area where the crew member was working during the flight and all of the other members of the crew.

Contact needs to have occurred within the period extending 24 hours before onset of symptoms in the case until the case is classified as no longer infectious by the treating team (usually 24 hours after the resolution of symptoms).

Casual contact definition

Casual contact is defined as any person having less than 15 minutes face-to-face contact with a symptomatic confirmed case in any setting, or sharing a closed space with a symptomatic confirmed case for less than 2 hours. This will include healthcare workers, other patients, or visitors who were in the same closed healthcare space as a case, but for shorter periods than those required for a close contact. Other closed settings might include schools or offices.

Note that healthcare workers and other contacts who have taken recommended infection control precautions, including the use of full PPE, while caring for a symptomatic confirmed 2019-nCoV case are not considered to be close contacts. However, these people should be advised to self-monitor and if they develop symptoms consistent with 2019-nCoV infection they should isolate themselves and notify their public health unit or staff health unit so they can be tested and managed as a suspected 2019-nCoV case (see recommendations below under Management of symptomatic contacts).

Other casual contacts may include:

- Extended family groups, e.g. in an Aboriginal community.

- Aircraft passengers who were not seated nearby a symptomatic confirmed case or a crew-member who did not work in the same cabin area as a symptomatic confirmed case (see close contact definition).

Where resources permit, more active contact tracing may be extended to other persons who have had casual contact (as defined above), particularly in school, office, or other closed settings. In these circumstances, the size of the room/space and degree of separation of the case from others should be considered in identifying contacts.

Contact assessment

All persons identified as having had contact with a confirmed case should be assessed to see if they should be classified as a close contact and have demographic and epidemiological data collected. Information on close contacts should be managed according to jurisdictional requirements.

Identification and assessment of the contacts of suspected cases may be deferred pending the results of initial laboratory testing.

Close contact testing

Routine laboratory screening for 2019-nCoV infection is not recommended for asymptomatic close contacts.

Prophylaxis

No specific chemoprophylaxis is available for contacts.

Education

Close contacts should be counselled about their risk and the symptoms of 2019-nCoV and provided with a 2019-nCoV Factsheet. They should be advised to self-isolate if they develop symptoms, and to immediately notify their public health unit and, if appropriate, their facility infection control unit (i.e. for healthcare workers).

Isolation and restriction

Close contacts

Asymptomatic close contacts should be advised to self-isolate at home for 14 days following the last contact with the case, and to monitor their health for 14 days after the last possible contact with a confirmed 2019-nCoV case.

Public health units should conduct active daily monitoring of close contacts for symptoms for 14 days after the last possible contact with a confirmed 2019-nCoV case.

Close contacts should be advised to immediately telephone the public health unit to arrange medical attention if they develop symptoms such as fever, respiratory symptoms (including coughing and shortness of breath), headache, muscle pain or diarrhoea.

Less frequent active follow-up together with passive surveillance may be necessary if there are large numbers of close contacts to monitor.

Casual contacts

Casual contacts should monitor their health for 14 days and report any symptoms immediately to the local public health unit. There are no restrictions on movements; however, casual contacts should be advised to isolate themselves and contact the public health unit if they develop symptoms.

Returned travellers who have left or transited through mainland China

Returned travellers who have left or transited through China in the last 14 days **who are unwell** with respiratory symptoms, with or without fever, or other symptoms consistent with 2019-nCoV should be isolated and managed as per the current recommendations for suspected case.

Well returned travellers who have left or transited through mainland China (excluding Hubei) on or after 1 February 2020, should self-isolate at home for 14 days after leaving mainland China.

Well returned travellers who have left Hubei province (including Wuhan) on or after 29 January 2020, should self-isolate at home for 14 days after leaving Hubei.

Healthcare worker close contacts

Healthcare worker close contacts (i.e. persons exposed while unprotected, as described in the [Contact definition section](#)) should be advised not to undertake work in a healthcare setting for 14 days following the last possible contact with the case. They should also be advised to self-isolate at home for 14 days following the last contact with the case.

Public health units may assist infection control units of health facilities to identify and monitor healthcare worker close contacts.

It is recognised that clinical work restrictions on healthcare worker close contacts may place strain on individuals and on health services. This underlines the importance of ensuring healthcare workers implement appropriate infection control precautions when assessing and managing suspected, confirmed 2019-nCoV cases.

CDNA will continue to monitor the emerging evidence around 2019-nCoV transmission risks in healthcare settings and revise these recommendations as needed.

Management of symptomatic contacts

If respiratory symptoms, with or without fever, or other symptoms consistent with 2019-nCoV infection develop within the first 14 days following the last contact, PHU staff should arrange for the individual to be immediately isolated and managed as per the current recommendations for suspected 2019-nCoV cases, with urgent testing for 2019-nCoV infection undertaken in an environment which minimises the exposure of others.

Ill contacts who are being evaluated for 2019-nCoV infection can be appropriately isolated and managed at home, unless their condition is severe enough to require hospitalisation.

Symptomatic contacts who test negative for 2019-nCoV by PCR will still need to be monitored for 14 days after their last contact with a confirmed 2019-nCoV case and may require re-testing.

Appendix A 2019-nCoV Laboratory testing information

Laboratory testing for 2019-nCoV is likely to evolve rapidly with the accumulation of clinical data, and as reagents and protocols are refined.

The aim of testing is to exclude common respiratory viruses using local hospital and community nucleic acid testing capacity, and to simultaneously refer onward to a reference laboratory with capacity to test for 2019-nCoV. As co-infection is possible, initial testing protocols should include testing for 2019-nCoV in patients with epidemiological risk, even where another infection is shown to be present. As more information accumulates regarding the risk of dual respiratory viral infections this may be reviewed.

Samples for testing

- (i) upper respiratory tract samples
- (ii) lower respiratory tract sample if the lower tract is involved
- (iii) Serum (to be stored pending serology availability)

Upper respiratory tract samples

1. Nasopharyngeal swab and/or oropharyngeal swab, Dacron or Rayon, flocked preferred
 - nasopharyngeal: insert a swab into each nostril parallel to the palate, leave the swab in place for a few seconds to absorb secretions
 - oropharyngeal: swab the tonsillar beds, avoiding the tongue
 - place swabs back into the accompanying transport media
2. Nasal wash/aspirates
 - collect 2-3 mL into a sterile, leak-proof, screw-top dry sterile container

Lower respiratory tract samples

1. Sputum
 - patient should rinse his/her mouth with water before collection
 - expectorate deep cough sputum directly into a sterile, leak-proof, screw-top dry sterile container
2. Bronchoalveolar lavage, tracheal aspirate, pleural fluid
 - collect 2-3 mL into a sterile, leak-proof, screw-top sputum collection cup or dry sterile container

Given that for SARS-CoV and MERS-CoV there is evidence that lower respiratory tract specimens contain the highest viral loads, it is therefore advised that lower respiratory tract specimens should be collected where possible for 2019-nCoV testing. Repeat testing (especially of lower respiratory tract specimens) in compatible cases should be performed if initial results are negative and there is a high index of clinical suspicion.

Serology

Where possible, serum should be collected during the acute phase of the illness (preferably within the first 7 days of symptom onset), stored, and when serology testing becomes available tested in parallel with a convalescent serum collected 3 or more weeks after acute sample collection. If no acute sample was collected, a single serum sample collected 14 or more days after symptom onset may be tested.

Handling of specimens in the laboratory

Virology

Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment. Specimens should be transported in accordance with current regulatory requirements as diagnostic samples for testing.

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Standard precautions should be used for non-viral pathology testing.

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As stated above, clinician liaison with jurisdictional public health officers is essential to coordinate referral & testing.

As above, standard protocols should be used for sample packaging and transport as diagnostic samples for testing.

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Novel Coronavirus 2019 (2019-nCoV)

CDNA National Guidelines for Public Health Units

Revision history			
Version	Date	Revised by	Changes
1.3	4 February 2020	Communicable Diseases Network Australia	Revised the case definition and use of the terms 'quarantine' and 'isolation'.
1.2	2 February 2020	Communicable Diseases Network Australia	Revised the case definition, close and casual contact definitions and added self-isolation guidance.
1.1	27 January 2020	Communicable Diseases Network Australia	Removed references to Wuhan and revised the case definition
1.0	23 January 2020	Communicable Diseases Network Australia	Developed by the 2019-nCoV Working Group

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As the full clinical spectrum of illness is not known, clinical and public health judgement should also be used to determine the need for testing in patients who do not meet the epidemiological or clinical criteria below.

If the patient satisfies epidemiological and clinical criteria, they are classified as a suspect case.

Epidemiological criteria

- Travel to (including transit through) mainland China in the 14 days before the onset of illness.

OR

- Close contact (see [Contact definition](#) below) in 14 days before illness onset with a confirmed case of 2019-nCoV.

Clinical criteria

- Fever.

OR

- Acute respiratory infection (e.g. shortness of breath or cough) with or without fever.

Confirmed case

A person who tests positive to a specific 2019-nCoV PCR test (when available) or has the virus identified by electron microscopy or viral culture, at a reference laboratory.

The case definition may have been updated since the publication of this guideline. Please check the [case definitions webpage](#) on the Australian Department of Health's website (www.health.gov.au/internet/main/publishing.nsf/Content/cdna-casedefinitions.htm) for the latest version.

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Patients to be considered for 2019-nCoV testing are described under the suspected case definition (above). Where applicable, consult with your state/territory communicable diseases agency to seek advice on which laboratories can provide 2019-nCoV testing; appropriate specimen type, collection and transport; and also to facilitate contact management if indicated.

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- Contact precautions, including close attention to hand hygiene.
- Airborne transmission precautions, including routine use of a P2/N95 mask/respirator, disposable gown, gloves, and eye protection.
- Collection in a single room with the door closed, or if in a hospital in a negative pressure room where available.
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Serology for 2019-nCoV is not yet available.

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- Ensure appropriate infection control guidelines are followed in caring for the case.
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Note: If interviews with suspected cases are conducted face-to-face, the person conducting the interview must have a thorough understanding of infection control practices and be competent in using appropriate PPE.

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In the absence of pathogen-specific interventions, patient management largely depends on supportive treatment, and vigilance for and treatment of complications.

Further advice on clinical management is available from WHO: (https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2)

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Healthcare workers and others who come into contact with suspected, and confirmed cases must be protected according to recommended infection control guidelines. Visitors should be restricted to close family members.

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Given the severity of reported infections, the evidence of limited person-to-person transmission, and gaps in knowledge of transmission pathways, the recommendations on isolation and PPE for management of suspected and confirmed cases take a deliberately cautious approach.

Infection control measures should be those applicable to control the transmission of pathogens that can be spread by the airborne route. These measures are detailed in the [Interim infection prevention and control advice for acute care hospitals relating to suspected Middle Eastern respiratory syndrome coronavirus \(MERs-CoV\) infections](#) and can be applied to circumstances with suspected cases of 2019-nCoV.

In summary, transmission-based precautions for suspected and confirmed cases should include:

- Placement of cases in a negative pressure room with an ensuite bathroom, if available, or in a single room from which the air does not circulate to other areas.
- Airborne transmission precautions, including routine use of a P2 respirator/N95 mask where available otherwise a surgical mask is sufficient for routine care, long sleeved disposable gown, gloves, and eye protection when entering a patient care area.
- Contact precautions, including close attention to hand hygiene.

- If transfer of the confirmed case outside the negative pressure room is necessary, asking the patient to wear a “surgical” face mask while they are being transferred and to follow respiratory hygiene and cough etiquette.

Active case finding

Contacts (see [Contact management section](#)) should be identified and advised to immediately seek medical advice should they develop symptoms. Contacts or caregivers should be asked to also inform the public health agency if they develop symptoms.

4. Environmental evaluation

Where local transmission of 2019-nCoV is thought possible, a thorough review of contributing environmental factors should be done. This should include a review of infection control procedures, and opportunities for exposure to respiratory or faecal contamination.

If a case has had occupational exposure to animals it may be appropriate to consult with animal health authorities.

5. Infectious period

According to current evidence there has been a single reported episode of transmission of 2019-nCoV prior to onset of symptoms. As this is an isolated episode it is still considered likely that cases become infectious from onset of symptoms. In recognition of the evolving situation and potential for poor recall of symptom onset by cases, for the purpose defining close contacts (see [6. Contact management](#)) a 24 hour window before onset of symptoms has been applied as a highly precautionary approach.

6. Contact management

As there remain gaps in the understanding of infectivity of 2019-nCoV cases and transmission modes, the definition of contacts and their public health management is based on available information on 2019-nCoV together with observations from similar serious coronaviruses – SARS-CoV and MERS-CoV. Distinction is made between close contacts and casual contacts.

Identification of contacts

All persons categorised as a contact (see definitions of “close contacts” and “casual contacts” following) of confirmed cases should be followed-up, and monitored for the development of symptoms for 14 days after the last exposure to the case (i.e. the maximum incubation period).

Contacts of suspected cases should also be considered for contact management if there is likely to be a delay in confirming or excluding 2019-nCoV infection in the suspected case, such as delayed testing.

Close contact definition

A close contact is defined as requiring:

- greater than 15 minutes face-to-face contact in any setting with a confirmed case in the period extending from 24 hours before onset of symptoms in the confirmed case, or
- sharing of a closed space with a confirmed case for a prolonged period (e.g. more than 2 hours) in the period extending from 24 hours before onset of symptoms in the confirmed case.

For the purposes of surveillance, a close contact includes a person meeting any of the following criteria:

- Living in the same household or household-like setting (e.g. in a boarding school or hostel).
- Direct contact with the body fluids or laboratory specimens of a case without recommended PPE or failure of PPE.
- A person who spent 2 hours or longer in the same room (such as a GP or ED waiting room).
- A person in the same hospital room when an aerosol generating procedure is undertaken on the case, without recommended PPE.
- Aircraft passengers who were seated in the same row as the case, or in the two rows in front or two rows behind a confirmed 2019-nCoV case. Contact tracing of people who may have had close contact on long bus or train trips should also be attempted where possible, using similar seating/proximity criteria.
- All crew-members on an aircraft who worked in the same cabin area as a confirmed case of 2019-nCoV. If a crew member is the 2019-nCoV case, contact tracing efforts should concentrate on passengers seated in the area where the crew member was working during the flight and all of the other members of the crew.

Contact needs to have occurred within the period extending 24 hours before onset of symptoms in the case until the case is classified as no longer infectious by the treating team (usually 24 hours after the resolution of symptoms).

Casual contact definition

Casual contact is defined as any person having less than 15 minutes face-to-face contact with a symptomatic confirmed case in any setting, or sharing a closed space with a symptomatic confirmed case for less than 2 hours. This will include healthcare workers, other patients, or visitors who were in the same closed healthcare space as a case, but for shorter periods than those required for a close contact. Other closed settings might include schools or offices.

Note that healthcare workers and other contacts who have taken recommended infection control precautions, including the use of full PPE, while caring for a symptomatic confirmed 2019-nCoV case are not considered to be close contacts. However, these people should be advised to self-monitor and if they develop symptoms consistent with 2019-nCoV infection they should isolate themselves and notify their public health unit or staff health unit so they can be tested and managed as a suspected 2019-nCoV case (see recommendations below under Management of symptomatic contacts).

Other casual contacts may include:

- Extended family groups, e.g. in an Aboriginal community.

- Aircraft passengers who were not seated nearby a symptomatic confirmed case or a crew-member who did not work in the same cabin area as a symptomatic confirmed case (see close contact definition).

Where resources permit, more active contact tracing may be extended to other persons who have had casual contact (as defined above), particularly in school, office, or other closed settings. In these circumstances, the size of the room/space and degree of separation of the case from others should be considered in identifying contacts.

Contact assessment

All persons identified as having had contact with a confirmed case should be assessed to see if they should be classified as a close contact and have demographic and epidemiological data collected. Information on close contacts should be managed according to jurisdictional requirements.

Identification and assessment of the contacts of suspected cases may be deferred pending the results of initial laboratory testing.

Close contact testing

Routine laboratory screening for 2019-nCoV infection is not recommended for asymptomatic close contacts.

Prophylaxis

No specific chemoprophylaxis is available for contacts.

Education

Close contacts should be counselled about their risk and the symptoms of 2019-nCoV and provided with a 2019-nCoV Factsheet. They should be advised to self-quarantine.

Isolation and restriction

Close contacts

Asymptomatic close contacts should be advised to self-quarantine at home for 14 days following the last contact with the case, and to monitor their health for 14 days after the last possible contact with a confirmed 2019-nCoV case.

Public health units should conduct active daily monitoring of close contacts for symptoms for 14 days after the last possible contact with a confirmed 2019-nCoV case.

Close contacts should be advised to immediately telephone the public health unit to arrange medical attention if they develop symptoms such as fever, respiratory symptoms (including coughing and shortness of breath), headache, muscle pain or diarrhoea.

Less frequent active follow-up together with passive surveillance may be necessary if there are large numbers of close contacts to monitor.

Casual contacts

Casual contacts should monitor their health for 14 days and report any symptoms immediately to the local public health unit. There are no restrictions on movements; however, casual contacts

should be advised to isolate themselves and contact the public health unit if they develop symptoms.

Returned travellers who have left or transited through mainland China

Returned travellers who have left or transited through China in the last 14 days **who are unwell** with respiratory symptoms, with or without fever, or other symptoms consistent with 2019-nCoV should be isolated and managed as per the current recommendations for suspected case.

Well returned travellers who have left or transited through mainland China (excluding Hubei) on or after 1 February 2020, should self-quarantine at home for 14 days after leaving mainland China.

Well returned travellers who have left Hubei province (including Wuhan) on or after 29 January 2020, should self-quarantine at home for 14 days after leaving Hubei.

Healthcare worker close contacts

Healthcare worker close contacts (i.e. persons exposed while unprotected, as described in the [Contact definition section](#)) should be advised not to undertake work in a healthcare setting for 14 days following the last possible contact with the case. They should also be advised to self-quarantine at home for 14 days following the last contact with the case.

Public health units may assist infection control units of health facilities to identify and monitor healthcare worker close contacts.

It is recognised that clinical work restrictions on healthcare worker close contacts may place strain on individuals and on health services. This underlines the importance of ensuring healthcare workers implement appropriate infection control precautions when assessing and managing suspected, confirmed 2019-nCoV cases.

CDNA will continue to monitor the emerging evidence around 2019-nCoV transmission risks in healthcare settings and revise these recommendations as needed.

Management of symptomatic contacts

If respiratory symptoms, with or without fever, or other symptoms consistent with 2019-nCoV infection develop within the first 14 days following the last contact, PHU staff should arrange for the individual to be immediately isolated and managed as per the current recommendations for suspected 2019-nCoV cases, with urgent testing for 2019-nCoV infection undertaken in an environment which minimises the exposure of others.

Ill contacts who are being evaluated for 2019-nCoV infection can be appropriately isolated and managed at home, unless their condition is severe enough to require hospitalisation.

Symptomatic contacts who test negative for 2019-nCoV by PCR will still need to be monitored for 14 days after their last contact with a confirmed 2019-nCoV case and may require re-testing.

Appendix A 2019-nCoV Laboratory testing information

Laboratory testing for 2019-nCoV is likely to evolve rapidly with the accumulation of clinical data, and as reagents and protocols are refined.

The aim of testing is to exclude common respiratory viruses using local hospital and community nucleic acid testing capacity, and to simultaneously refer onward to a reference laboratory with capacity to test for 2019-nCoV. As co-infection is possible, initial testing protocols should include testing for 2019-nCoV in patients with epidemiological risk, even where another infection is shown to be present. As more information accumulates regarding the risk of dual respiratory viral infections this may be reviewed.

Samples for testing

- (i) upper respiratory tract samples
- (ii) lower respiratory tract sample if the lower tract is involved
- (iii) Serum (to be stored pending serology availability)

Upper respiratory tract samples

1. Nasopharyngeal swab and/or oropharyngeal swab, Dacron or Rayon, flocked preferred
 - nasopharyngeal: insert a swab into each nostril parallel to the palate, leave the swab in place for a few seconds to absorb secretions
 - oropharyngeal: swab the tonsillar beds, avoiding the tongue
 - place swabs back into the accompanying transport media
2. Nasal wash/aspirates
 - collect 2-3 mL into a sterile, leak-proof, screw-top dry sterile container

Lower respiratory tract samples

1. Sputum
 - patient should rinse his/her mouth with water before collection
 - expectorate deep cough sputum directly into a sterile, leak-proof, screw-top dry sterile container
2. Bronchoalveolar lavage, tracheal aspirate, pleural fluid
 - collect 2-3 mL into a sterile, leak-proof, screw-top sputum collection cup or dry sterile container

Given that for SARS-CoV and MERS-CoV there is evidence that lower respiratory tract specimens contain the highest viral loads, it is therefore advised that lower respiratory tract specimens should be collected where possible for 2019-nCoV testing. Repeat testing (especially of lower respiratory tract specimens) in compatible cases should be performed if initial results are negative and there is a high index of clinical suspicion.

Serology

Where possible, serum should be collected during the acute phase of the illness (preferably within the first 7 days of symptom onset), stored, and when serology testing becomes available tested in parallel with a convalescent serum collected 3 or more weeks after acute sample collection. If no acute sample was collected, a single serum sample collected 14 or more days after symptom onset may be tested.

Handling of specimens in the laboratory

Virology

Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment. Specimens should be transported in accordance with current regulatory requirements as diagnostic samples for testing.

Clinical Pathology

Standard precautions should be used for non-viral pathology testing.

Respiratory Virus Diagnostic Testing

Nucleic acid testing of the upper respiratory tract sample is done for influenza and other common respiratory viruses using standard protocols and methods of the hospital or community laboratory.

Standard protocols of the testing laboratory for respiratory sample processing should be used. This is expected to consist of PC2 laboratory practices, and use of a Class II Biosafety cabinet for processes potentially generating aerosols. Attempted viral culture, which would require higher levels of biocontainment would not routinely be attempted.

The residue (original swab and remaining eluate) of the upper tract sample is forwarded together with the lower tract sample and the serum to the reference laboratory with 2019-nCoV testing capacity requesting '2019-nCoV Coronavirus' testing.

As stated above, clinician liaison with jurisdictional public health officers is essential to coordinate referral & testing.

As above, standard protocols should be used for sample packaging and transport as diagnostic samples for testing.

2019-nCoV specific testing

NAT using reverse-transcriptase polymerase chain reaction (RT-PCR) is the method of choice for detection of 2019-nCoV. Diagnostic capability for 2019-nCoV is expected to evolve rapidly, hence will be described here only in broad terms. Protocols will be available from the WHO in January 2020, and include PCR followed by specific probe detection of amplicons. The initial PCR detects 2019-nCoV and SARS-CoV, but not commonly circulating coronaviruses usually detected by commercial assays (e.g. NL63, 229 strains).

Several Australasian Public Health Laboratory Network (PHLN) reference laboratories currently offer PCR assays capable of detecting a wide range of coronaviruses, including zoonotic and novel pathogens. A number of these have been mapped against the promulgated nucleic acid sequence of the 2019-nCoV, and are expected to detect it on that basis. Nucleic acid sequencing of amplicons from positive tests is used to identify the coronavirus in this approach.

Specific PCR primer sets to detect the 2019-nCoV are becoming available, however the majority, including those available through WHO will also detect other zoonotic coronaviruses such as SARS coronavirus.

The 2019-nCoV is yet to be internationally available for use as a test positive control. Synthetic positive control material in the form of nucleic acid templates is becoming available through WHO/ European Viral Archive (EVAg). SARS-CoV may be used as an interim positive control for testing by PHLN member laboratories as an interim measure.

Testing algorithms are likely to be revised pending further information about the virus, and the number of specimens received in the laboratory for testing.

Viral culture should not be performed for routine diagnosis, and should only be attempted in reference laboratories with appropriate experience and containment facilities.

No Quality Assurance Program (QAP) is currently available internationally specific to the 2019-nCoV, although QAPs are available in Australia for respiratory viruses including non-2019-nCoV coronaviruses. The RCPAQAP with Commonwealth support will introduce a 2019-nCoV specific QAP to supplement previously available SARS-CoV, MERS-CoV and other coronaviruses, during 2020.

Novel Coronavirus 2019 (2019-nCoV)

CDNA National Guidelines for Public Health Units

Revision history			
Version	Date	Revised by	Changes
1.4	6 February 2020	Communicable Diseases Network Australia	Revised case definition and added rationale. Updated infection control advice throughout.
1.3	4 February 2020	Communicable Diseases Network Australia	Revised the case definition and use of the terms 'quarantine' and 'isolation'.
1.2	2 February 2020	Communicable Diseases Network Australia	Revised the case definition, close and casual contact definitions and added self-isolation guidance.
1.1	27 January 2020	Communicable Diseases Network Australia	Removed references to Wuhan and revised the case definition
1.0	23 January 2020	Communicable Diseases Network Australia	Developed by the 2019-nCoV Working Group

This document summarises interim recommendations for surveillance, infection control, laboratory testing and contact management for the novel coronavirus (2019-nCoV). It is the first national guidance issued for 2019-nCoV and will be further developed into CDNA National Guidelines for Public Health Units 2019-nCoV (2019-nCoV SoNG).

It has been adapted from CDNA National Guidelines for Public Health Units MERS-CoV, utilising current CDC and WHO guidance, and is based on the current knowledge of the situation in mainland China and other countries, and experiences with SARS-CoV and MERS-CoV.

CDNA will review and update these recommendations as required as new information becomes available on the situation.

These interim Guidelines are to be used in the first instance whilst a Series of National Guidelines is being developed by the Communicable Diseases Network Australia (CDNA).

These interim guidelines capture the knowledge of experienced professionals, and provide guidance on best practice based upon the best available evidence at the time of completion.

Readers should not rely solely on the information contained within these Guidelines. Guideline information is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a health professional. Clinical judgement and discretion may be required in the interpretation and application of these guidelines.

The membership of the CDNA and the AHPPC, and the Commonwealth of Australia as represented by the Department of Health ('the Commonwealth'), do not warrant or represent that the information contained in these Guidelines is accurate, current or complete. The CDNA, the AHPPC and the Commonwealth do not accept any legal liability or responsibility for any loss, damages, costs or expenses incurred by the use of, or reliance on, or interpretation of, the information contained in these Guidelines.

1. Case definition

Suspect case

As the full clinical spectrum of illness is not known, clinical and public health judgement should also be used to determine the need for testing in patients who do not meet the epidemiological or clinical criteria below.

If the patient satisfies epidemiological and clinical criteria, they are classified as a suspect case.

Epidemiological criteria

- Travel to (including transit through) mainland China in the 14 days before the onset of illness.

OR

- Close or casual contact (see [Contact definition](#) below) in 14 days before illness onset with a confirmed case of 2019-nCoV.

Clinical criteria

- Fever.

OR

- Acute respiratory infection (e.g. shortness of breath or cough) with or without fever.

Confirmed case

A person who tests positive to a specific 2019-nCoV PCR test (when available) or has the virus identified by electron microscopy or viral culture, at a reference laboratory.

The case definition may have been updated since the publication of this guideline. Please check the [case definitions webpage](#) on the Australian Department of Health's website (www.health.gov.au/internet/main/publishing.nsf/Content/cdna-casedefinitions.htm) for the latest version.

Rationale for current case definitions

The case definitions are based on what is currently known about the clinical and epidemiological profile of cases of 2019-nCoV presenting to date both in Australia and internationally. Health authorities are constantly monitoring the spectrum of clinical symptoms as cases arise, and, if there are any significant shifts they will be reflected in the above definitions in future versions of this document. Same for epidemiological criteria if new areas of sustained human-to-human transmission emerge outside mainland China.

The 14 day period is based upon what is currently known to be the upper time limit of the incubation period. As more precise information about the incubation period emerges, this will be reviewed.

2. Laboratory testing

Patients to be considered for 2019-nCoV testing are described under the suspected case definition (above). Where applicable, consult with your state/territory communicable diseases agency to seek advice on which laboratories can provide 2019-nCoV testing; appropriate specimen type, collection and transport; and also to facilitate contact management if indicated.

When collecting respiratory specimens, transmission-based precautions should be observed whether or not respiratory symptoms are present.

For most patients with mild illness in the community, collection of respiratory specimens (i.e. nasopharyngeal or oropharyngeal swabs) is a low risk procedure and can be performed using **contact and droplet precautions**:

- Perform hand hygiene before donning gown, gloves and surgical mask.
- To collect throat or nasopharyngeal swab stand slightly to the side of the patient to avoid exposure to respiratory secretions, should the patient cough or sneeze.
- At completion of consultation, remove personal protective equipment (PPE) and perform hand hygiene, wipe any contacted/contaminated surfaces with detergent /disinfectant.
- Note that, for droplet precautions, the room does not need to be left empty after sample collection.

If the patient has severe symptoms suggestive of pneumonia, e.g. fever and breathing difficulty, or frequent, severe or productive coughing episodes then **contact and airborne precautions** should be observed.

Patients with these symptoms should be managed in hospital, and sample collection conducted in a negative pressure room, if available. If referral to hospital for specimen collection is not possible, specimens should be collected in a room from which air does not circulate to other areas. The door should be closed during specimens collection and the room left vacant for at least 30 minutes afterwards (cleaning can be performed during this time by a person wearing PPE).

The following precautions should be observed:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield) and a **P2/N95 respirator – which should be fit checked**.
- At completion of consultation, remove gown and gloves, perform hand hygiene, remove eye protection and P2/N95 respirator. Do not touch the front of any item of PPE during removal; perform hand hygiene.
- The room surfaces should be wiped clean with disinfectant wipes by a person wearing gloves, gown and surgical mask.

For further information on circumstances requiring airborne precautions, see [aerosol generating procedures](#).

Routine tests for acute pneumonia/pneumonitis should be performed where indicated, including bacterial cultures, acute and convalescent serology, urinary antigen testing and nucleic acid tests for respiratory viruses, according to local protocols.

Serology for 2019-nCoV is not yet available. Collection of serum for storage by the 2019-nCoV testing laboratory is recommended to facilitate retrospective testing, if this is relevant, once serology tests become available.

See [Appendix A](#) for additional 2019-nCoV laboratory testing information.

3. Case management

Response times

On the same day as notification of a suspected or confirmed case, begin follow up investigation and, where applicable, notify your central state or territory communicable diseases agency.

PHU staff should be available to contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners.

Response procedure

Case investigation

The response to a notification will normally be carried out in collaboration with the clinicians managing the case, and be guided by the 2019-nCoV public health unit checklist and the 2019-nCoV Investigation Form (currently pending).

Regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend that tests be done.
- Seek the treating doctor's permission to contact the case or relevant care-giver.
- Determine if the diagnosis has been discussed with the case or relevant care-giver before beginning the interview.
- Review case and contact management.
- Ensure appropriate infection control guidelines are followed in caring for the case.
- Identify the likely source of infection.

Note: If interviews with suspected cases are conducted face-to-face, the person conducting the interview must have a thorough understanding of infection control practices and be competent in using appropriate PPE.

Case treatment

In the absence of pathogen-specific interventions, patient management largely depends on supportive treatment, and vigilance for and treatment of complications.

Further advice on clinical management is available from WHO: (https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2)

Education

Provide 2019-nCoV factsheet to cases and their close contacts.

Ensure that they are aware of the signs and symptoms of 2019-nCoV, the requirements of quarantine and isolation, contact details of the PHU and the infection control practices that can prevent the transmission of 2019-nCoV.

Isolation and restriction

Cases will generally be managed in hospital. If clinically indicated, cases may be managed at home only if it can be ensured that the case and household contacts are counselled about risk and that appropriate infection control measures are in place.

Healthcare workers and others who come into contact with suspected and confirmed cases must be protected according to recommended infection control guidelines. Visitors should be restricted to close family members.

A risk assessment should be undertaken for suspected cases who initially test negative for 2019-nCoV. If there is no alternative diagnosis and a high index of suspicion remains that such cases may have 2019-nCoV infection, consideration should be given to continued isolation and use of the recommended infection control precautions, pending further testing (see [Laboratory testing section](#) and [Appendix A](#)) and re-assessment.

Given the severity of reported infections, the evidence of limited person-to-person transmission, and gaps in knowledge of transmission pathways, the recommendations on isolation and PPE for management of suspected and confirmed cases take a deliberately cautious approach.

Interim recommendations for the use of PPE during clinical care of people with possible 2019-nCoV infection are:

- **Contact and droplet precautions** are recommended for **routine care** of patients in quarantine or with suspected or confirmed 2019-nCoV infection.
- **Contact and airborne precautions** are recommended when performing **aerosol generating procedures**, including intubation and bronchoscopy.

Other recommended infection control measures include:

- On presentation of the patient to a healthcare setting (GP, hospital ED, or pathology collection centre) and whether or not respiratory symptoms are present, the patient should immediately be:
 - given a surgical mask to put on, and
 - directed to a single room (a negative pressure room or a room from which the air does not circulate to other areas are preferable, if available).
- If a patient with confirmed 2019-nCoV infection needs to be transferred out of their isolation room, the patient should wear a “surgical” face mask and follow respiratory hygiene and cough etiquette.

Aerosol-generating procedures

The potential for airborne spread of 2019-nCoV is still unknown, but appropriate care should be taken during aerosol-generating procedures. Aerosol-generating procedures include: tracheal intubation, non-invasive ventilation, tracheostomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy. Collection of respiratory specimens is not generally regarded as aerosol generating, but airborne precautions should be used for collection of specimens from severely symptomatic patients (see [Laboratory testing section](#)).

P2/N95 respirators should be used only when required. Unless used correctly, i.e. with fit-checking, they are unlikely to protect against airborne pathogen spread.

Airborne precautions should be used routinely for aerosol-generating procedures, such as bronchoscopy, intubation, suctioning etc. in hospital settings. Nebuliser use should be discouraged and alternative administration devices (e.g. spacers) should be used.

The [Laboratory testing section](#) provides detailed information on sample collection for 2019-nCoV.

Active case finding

Contacts (see [Contact management section](#)) should be identified and advised to immediately seek medical advice should they develop symptoms. Contacts or caregivers should be asked to also inform the public health agency if they develop symptoms.

4. Environmental evaluation

Where local transmission of 2019-nCoV is thought possible, a thorough review of contributing environmental factors should be done. This should include a review of infection control procedures, and opportunities for exposure to respiratory or faecal contamination.

If a case has had occupational exposure to animals it may be appropriate to consult with animal health authorities.

5. Infectious period

According to current evidence there has been a single reported episode of transmission of 2019-nCoV prior to onset of symptoms. As this is an isolated episode it is still considered likely that cases become infectious from onset of symptoms. In recognition of the evolving situation and potential for poor recall of symptom onset by cases, for the purpose defining close contacts (see [6. Contact management](#)) a 24 hour window before onset of symptoms has been applied as a highly precautionary approach.

6. Contact management

As there remain gaps in the understanding of infectivity of 2019-nCoV cases and transmission modes, the definition of contacts and their public health management is based on available information on 2019-nCoV together with observations from similar serious coronaviruses – SARS-CoV and MERS-CoV. Distinction is made between close contacts and casual contacts.

Identification of contacts

All persons categorised as a contact (see definitions of “close contacts” and “casual contacts” following) of confirmed cases should be followed-up, and monitored for the development of symptoms for 14 days after the last exposure to the case (i.e. the maximum incubation period).

Contacts of suspected cases should also be considered for contact management if there is likely to be a delay in confirming or excluding 2019-nCoV infection in the suspected case, such as delayed testing.

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A close contact is defined as requiring:

- greater than 15 minutes face-to-face contact in any setting with a confirmed case in the period extending from 24 hours before onset of symptoms in the confirmed case, or
- sharing of a closed space with a confirmed case for a prolonged period (e.g. more than 2 hours) in the period extending from 24 hours before onset of symptoms in the confirmed case.

For the purposes of surveillance, a close contact includes a person meeting any of the following criteria:

- Living in the same household or household-like setting (e.g. in a boarding school or hostel).
- Direct contact with the body fluids or laboratory specimens of a case without recommended PPE or failure of PPE.
- A person who spent 2 hours or longer in the same room (such as a GP or ED waiting room).
- A person in the same hospital room when an aerosol generating procedure is undertaken on the case, without recommended PPE.
- Aircraft passengers who were seated in the same row as the case, or in the two rows in front or two rows behind a confirmed 2019-nCoV case. Contact tracing of people who may have had close contact on long bus or train trips should also be attempted where possible, using similar seating/proximity criteria.
- All crew-members on an aircraft who worked in the same cabin area as a confirmed case of 2019-nCoV. If a crew member is the 2019-nCoV case, contact tracing efforts should concentrate on passengers seated in the area where the crew member was working during the flight and all of the other members of the crew.

Contact needs to have occurred within the period extending 24 hours before onset of symptoms in the case until the case is classified as no longer infectious by the treating team (usually 24 hours after the resolution of symptoms).

Casual contact definition

Casual contact is defined as any person having less than 15 minutes face-to-face contact with a symptomatic confirmed case in any setting, or sharing a closed space with a symptomatic confirmed case for less than 2 hours. This will include healthcare workers, other patients, or visitors who were in the same closed healthcare space as a case, but for shorter periods than those required for a close contact. Other closed settings might include schools or offices.

Note that healthcare workers and other contacts who have taken recommended infection control precautions, including the use of full PPE, while caring for a symptomatic confirmed 2019-nCoV case are not considered to be close contacts. However, these people should be advised to self-monitor and if they develop symptoms consistent with 2019-nCoV infection they should isolate themselves and notify their public health unit or staff health unit so they can be tested and managed as a suspected 2019-nCoV case (see recommendations below under Management of symptomatic contacts).

Other casual contacts may include:

- Extended family groups, e.g. in an Aboriginal community.

- Aircraft passengers who were not seated nearby a symptomatic confirmed case or a crew-member who did not work in the same cabin area as a symptomatic confirmed case (see close contact definition).

Where resources permit, more active contact tracing may be extended to other persons who have had casual contact (as defined above), particularly in school, office, or other closed settings. In these circumstances, the size of the room/space and degree of separation of the case from others should be considered in identifying contacts.

Contact assessment

All persons identified as having had contact with a confirmed case should be assessed to see if they should be classified as a close contact and have demographic and epidemiological data collected. Information on close contacts should be managed according to jurisdictional requirements.

Identification and assessment of the contacts of suspected cases may be deferred pending the results of initial laboratory testing.

Close contact testing

Routine laboratory screening for 2019-nCoV infection is not recommended for asymptomatic close contacts.

Prophylaxis

No specific chemoprophylaxis is available for contacts.

Education

Close contacts should be counselled about their risk and the symptoms of 2019-nCoV and provided with a 2019-nCoV Factsheet. They should be advised to self-quarantine.

Isolation and restriction

Close contacts

Asymptomatic close contacts should be advised to self-quarantine at home for 14 days following the last contact with the case, and to monitor their health for 14 days after the last possible contact with a confirmed 2019-nCoV case.

Public health units should conduct active daily monitoring of close contacts for symptoms for 14 days after the last possible contact with a confirmed 2019-nCoV case.

Self-quarantined close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Less frequent active follow-up together with passive surveillance may be necessary if there are large numbers of close contacts to monitor.

Casual contacts

Casual contacts should monitor their health for 14 days and report any symptoms immediately to the local public health unit. There are no restrictions on movements; however, casual contacts

should be advised to isolate themselves and contact the public health unit if they develop symptoms.

Returned travellers who have left or transited through mainland China

Returned travellers who have left or transited through China in the last 14 days **who are unwell** with fever or with respiratory symptoms, with or without fever, or other symptoms consistent with 2019-nCoV should be isolated and managed as per the current recommendations for suspected cases.

Well returned travellers who have left or transited through mainland China (excluding Hubei) on or after 1 February 2020, should self-quarantine at home for 14 days after leaving mainland China.

Well returned travellers who have left Hubei province (including Wuhan) on or after 29 January 2020, should self-quarantine at home for 14 days after leaving Hubei.

Self-quarantined returned travellers should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Healthcare worker close contacts

Healthcare worker close contacts (i.e. persons exposed while unprotected, as described in the [Contact definition section](#)) should be advised not to undertake work in a healthcare setting for 14 days following the last possible contact with the case. They should also be advised to self-quarantine at home for 14 days following the last contact with the case.

Self-quarantined healthcare worker close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Public health units may assist infection control units of health facilities to identify and monitor healthcare worker close contacts.

It is recognised that clinical work restrictions on healthcare worker close contacts may place strain on individuals and on health services. This underlines the importance of ensuring healthcare workers implement appropriate infection control precautions when assessing and managing suspected, confirmed 2019-nCoV cases.

CDNA will continue to monitor the emerging evidence around 2019-nCoV transmission risks in healthcare settings and revise these recommendations as needed.

Medical care for quarantined individuals

If individuals under self-quarantine need to see a doctor for any reason (e.g. fever and respiratory symptoms or other illness/injury), they should **telephone their GP or hospital Emergency Department before presenting. Patients with severe symptoms should call 000 and make it clear they are in self-quarantine or isolation because of 2019-nCoV.** If the patient has **symptoms consistent with nCoV** case definition, the local public health unit should be consulted about the most suitable venue for clinical assessment and specimen collection.

Management of symptomatic contacts

If respiratory symptoms, with or without fever, or other symptoms consistent with 2019-nCoV infection develop within the first 14 days following the last contact, PHU staff should arrange for the individual to be immediately isolated and managed as per the current recommendations for

suspected 2019-nCoV cases, with urgent testing for 2019-nCoV infection undertaken in an environment which minimises the exposure of others.

Ill contacts who are being evaluated for 2019-nCoV infection can be appropriately isolated and managed at home, unless their condition is severe enough to require hospitalisation.

Symptomatic contacts who test negative for 2019-nCoV by PCR will still need to be monitored for 14 days after their last contact with a confirmed 2019-nCoV case and may require re-testing.

Appendix A 2019-nCoV Laboratory testing information

Laboratory testing for 2019-nCoV continues to evolve rapidly with the accumulation of clinical data, and as reagents and protocols are refined.

The aim of testing, if clinically appropriate, is to exclude common respiratory viruses using local hospital and community nucleic acid testing capacity, and to simultaneously refer onward to a laboratory with capacity to test for 2019-nCoV. As co-infection is possible, initial testing protocols should include testing for 2019-nCoV in patients with epidemiological risk, even where another infection is shown to be present.

Samples for testing

- (i) upper respiratory tract samples
- (ii) lower respiratory tract sample if the lower tract is involved
- (iii) Serum (to be stored pending serology availability)

Upper respiratory tract samples

1. Nasopharyngeal swab and/or oropharyngeal swab, Dacron or Rayon, flocked preferred
 - nasopharyngeal: insert a swab into each nostril parallel to the palate, leave the swab in place for a few seconds to absorb secretions
 - oropharyngeal: swab the tonsillar beds, avoiding the tongue
 - place swabs back into the accompanying transport media
2. Nasal wash/aspirates
 - collect 2-3 mL into a sterile, leak-proof, screw-top dry sterile container

Lower respiratory tract samples (to be collected in hospital and/or using airborne precautions)

1. Sputum
 - patient should rinse his/her mouth with water before collection
 - expectorate deep cough sputum directly into a sterile, leak-proof, screw-top dry sterile container
2. Bronchoalveolar lavage, tracheal aspirate, pleural fluid
 - collect 2-3 mL into a sterile, leak-proof, screw-top sputum collection cup or dry sterile container

As lower respiratory tract specimens contain the highest viral loads in SARS-CoV and MERS-CoV, it is advised that lower respiratory tract specimens should be collected for 2019-nCoV testing where possible. Initial experience in testing for 2019-nCoV seems to be consistent with this prior experience. Repeat testing (especially of lower respiratory tract specimens) in clinically compatible cases should be performed if initial results are negative and there remains a high index of suspicion of infection.

Serology

Serum should be collected during the acute phase of the illness (preferably within the first 7 days of symptom onset), stored, and when serology testing becomes available tested in

parallel with convalescent sera collected 3 or more weeks after acute infection. If no acute sample was collected, sera collected 14 or more days after symptom onset may be tested.

Specimen handling in the laboratory

Virology

Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment. Specimens should be transported in accordance with current regulatory requirements as diagnostic samples for testing.

Clinical Pathology

Standard precautions should be used for non-microbial pathology testing (such as routine biochemistry and hematology). Where possible auto-analysers should be used according to standard practices and/or local protocols. There is evidence that capping and uncapping of samples is not a high risk aerosol generating procedure.

Respiratory Virus Diagnostic Testing

Nucleic acid testing of the upper respiratory tract sample is performed for influenza and other common respiratory viruses using standard protocols and methods of the hospital or community laboratory.

Standard protocols of the testing laboratory for respiratory sample processing should be used. This is expected to consist of PC2 laboratory practices, and use of a Class II Biosafety cabinet for aerosol generating procedures (such as centrifuging without sealed carriers, vortexing, sonicating). Attempted viral culture, which would require higher levels of biocontainment would not be routinely attempted.

The residue (original swab and remaining eluate) of the upper tract sample is forwarded together with the lower tract sample and the serum to the reference laboratory with 2019-nCoV testing capacity requesting 2019-nCoV testing.

Clinical liaison with jurisdictional public health officers is essential to coordinate referral & testing.

Standard protocols should be used for sample packaging and transport as diagnostic samples for testing (i.e. Category B).

2019-nCoV specific testing

Nucleic acid testing (NAT) using real time polymerase chain reaction (RT-PCR) is the method of choice for detection of 2019-nCoV. Specific diagnostic test approaches for 2019-nCoV will be described here only in broad terms. There is significant variation in PCR assays employed by different PHLN member laboratories, and test algorithms are likely to be further refined over time.

Specific Real Time PCR primer sets to detect the 2019-nCoV are available. Some PHLN member laboratories have designed their own, and some have implemented primer sets recommended to the World Health Organization (WHO) by leading international coronavirus reference laboratories (available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance>). The majority of PHLN testing capacity now employs relatively swift RT-PCR assays for screening, with a turnaround time of several hours. Confirmation of positives is being done either with RT-PCR assays detecting a different target gene, or broadly reactive PCR tests with sequencing of amplicons (see below).

Well pedigreed PCR primer sets, probes and protocols are available from the WHO/ European Viral Archive (EVAg) (available at: https://www.who.int/docs/default-source/coronaviruse/protocol-v2-1.pdf?sfvrsn=a9ef618c_2).

Many PCR assays, including those available through WHO will also detect other zoonotic coronaviruses such as SARS-CoV, sometimes with a recognisable shift in the cycle threshold value (Ct) compared to the 2019-nCoV target, but not commonly circulating coronaviruses usually detected by commercial assays (eg NL63, 229E strains).

Several Australasian PHLN reference laboratories began diagnostic testing for the current outbreak using PCR assays capable of detecting a wide range of coronaviruses, including zoonotic and novel pathogens. A number of these were mapped against the promulgated Chinese nucleic acid sequence of 2019-nCoV early in the course of the outbreak. Nucleic acid sequencing of amplicons from positive tests is used to identify the coronavirus in this approach. These assays have relatively long turnaround times and have largely been replaced by RT-PCR other than in a confirmatory role in some laboratories.

Complementary DNA (cDNA) synthesized from the VIDRL 2019-nCoV has now been made available to all PHLN member laboratories as a test positive control. Synthetic positive control material in the form of nucleic acid templates is also available through WHO/ European Viral Archive (EVAg).

Testing algorithms are likely to be revised pending further information about the virus, and the number of specimens received in the laboratory for testing.

Viral culture should not be performed for routine diagnosis, and should only be attempted in reference laboratories with appropriate experience and containment facilities. Currently where attempted this is being done at Physical Containment Level 3 (PC3), consistent with current recommendations for SARS-CoV, pending specific 2019-nCoV international recommendations.

No Quality Assurance Program (QAP) is currently available internationally specific for 2019-nCoV, although QAPs are available in Australia for respiratory viruses including coronaviruses other than 2019-nCoV. The RCPAQAP with Commonwealth support will introduce a 2019-nCoV specific QAP to supplement previously available SARS-CoV, MERS-CoV and other coronaviruses, during the first half of 2020.

Novel Coronavirus 2019 (2019-nCoV)

CDNA National Guidelines for Public Health Units

Revision history			
Version	Date	Revised by	Changes
1.5	7 February 2020	Communicable Diseases Network Australia	Inclusion of advice on release from isolation.
1.4	6 February 2020	Communicable Diseases Network Australia	Revised case definition and added rationale. Updated infection control advice throughout.
1.3	4 February 2020	Communicable Diseases Network Australia	Revised the case definition and use of the terms 'quarantine' and 'isolation'.
1.2	2 February 2020	Communicable Diseases Network Australia	Revised the case definition, close and casual contact definitions and added self-isolation guidance.
1.1	27 January 2020	Communicable Diseases Network Australia	Removed references to Wuhan and revised the case definition
1.0	23 January 2020	Communicable Diseases Network Australia	Developed by the 2019-nCoV Working Group

This document summarises interim recommendations for surveillance, infection control, laboratory testing and contact management for the novel coronavirus (2019-nCoV). It is the first national guidance issued for 2019-nCoV and will be further developed into CDNA National Guidelines for Public Health Units 2019-nCoV (2019-nCoV SoNG).

It has been adapted from CDNA National Guidelines for Public Health Units MERS-CoV, utilising current CDC and WHO guidance, and is based on the current knowledge of the situation in mainland China and other countries, and experiences with SARS-CoV and MERS-CoV.

CDNA will review and update these recommendations as required as new information becomes available on the situation.

These interim Guidelines are to be used in the first instance whilst a Series of National Guidelines is being developed by the Communicable Diseases Network Australia (CDNA).

These interim guidelines capture the knowledge of experienced professionals, and provide guidance on best practice based upon the best available evidence at the time of completion.

Readers should not rely solely on the information contained within these Guidelines. Guideline information is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a health professional. Clinical judgement and discretion may be required in the interpretation and application of these guidelines.

The membership of the CDNA and the AHPPC, and the Commonwealth of Australia as represented by the Department of Health ('the Commonwealth'), do not warrant or represent that the information contained in these Guidelines is accurate, current or complete. The CDNA, the AHPPC and the Commonwealth do not accept any legal liability or responsibility for any loss, damages, costs or expenses incurred by the use of, or reliance on, or interpretation of, the information contained in these Guidelines.

1. Case definition

Suspect case

As the full clinical spectrum of illness is not known, clinical and public health judgement should also be used to determine the need for testing in patients who do not meet the epidemiological or clinical criteria below.

If the patient satisfies epidemiological and clinical criteria, they are classified as a suspect case.

Epidemiological criteria

- Travel to (including transit through) mainland China in the 14 days before the onset of illness.

OR

- Close or casual contact (see [Contact definition](#) below) in 14 days before illness onset with a confirmed case of 2019-nCoV.

Clinical criteria

- Fever.

OR

- Acute respiratory infection (e.g. shortness of breath or cough) with or without fever.

Confirmed case

A person who tests positive to a specific 2019-nCoV PCR test (when available) or has the virus identified by electron microscopy or viral culture, at a reference laboratory.

The case definition may have been updated since the publication of this guideline. Please check the [case definitions webpage](#) on the Australian Department of Health's website (www.health.gov.au/internet/main/publishing.nsf/Content/cdna-casedefinitions.htm) for the latest version.

Rationale for current case definitions

The case definitions are based on what is currently known about the clinical and epidemiological profile of cases of 2019-nCoV presenting to date both in Australia and internationally. Health authorities are constantly monitoring the spectrum of clinical symptoms as cases arise, and, if there are any significant shifts, they will be reflected in the above definitions in future versions of this document. The same applies for epidemiological criteria if new areas of sustained human-to-human transmission emerge outside mainland China.

The 14 day period is based upon what is currently known to be the upper time limit of the incubation period. As more precise information about the incubation period emerges, this will be reviewed.

2. Laboratory testing

Patients to be considered for 2019-nCoV testing are described under the suspected case definition (above). Where applicable, consult with your state/territory communicable diseases agency to seek advice on which laboratories can provide 2019-nCoV testing; appropriate specimen type, collection and transport; and also to facilitate contact management if indicated.

When collecting respiratory specimens, transmission-based precautions should be observed whether or not respiratory symptoms are present.

For most patients with mild illness in the community, collection of upper respiratory specimens (i.e. nasopharyngeal or oropharyngeal swabs) is a low risk procedure and can be performed using **contact and droplet precautions**:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield), and surgical mask.
- To collect throat or nasopharyngeal swab stand slightly to the side of the patient to avoid exposure to respiratory secretions, should the patient cough or sneeze.
- At completion of consultation, remove personal protective equipment (PPE) and perform hand hygiene, wipe any contacted/contaminated surfaces with detergent /disinfectant.
- Note that, for droplet precautions, the room does not need to be left empty after sample collection.

If the patient has severe symptoms suggestive of pneumonia, e.g. fever and breathing difficulty, or frequent, severe or productive coughing episodes then **contact and airborne precautions** should be observed.

Patients with these symptoms should be managed in hospital, and sample collection conducted in a negative pressure room, if available. If referral to hospital for specimen collection is not possible, specimens should be collected in a room from which air does not circulate to other areas. The door should be closed during specimens collection and the room left vacant for at least 30 minutes afterwards (cleaning can be performed during this time by a person wearing PPE).

The following precautions should be observed:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield) and a **P2/N95 respirator – which should be fit checked**.
- At completion of consultation, remove gown and gloves, perform hand hygiene, remove eye protection and P2/N95 respirator. Do not touch the front of any item of PPE during removal; perform hand hygiene.
- The room surfaces should be wiped clean with disinfectant wipes by a person wearing gloves, gown and surgical mask.

For further information on circumstances requiring airborne precautions, see [aerosol generating procedures](#).

Routine tests for acute pneumonia/pneumonitis should be performed where indicated, including bacterial cultures, acute and convalescent serology, urinary antigen testing and nucleic acid tests for respiratory viruses, according to local protocols.

Serology for 2019-nCoV is not yet available. Collection of serum for storage by the 2019-nCoV testing laboratory is recommended to facilitate retrospective testing, if this is relevant, once serology tests become available.

See [Appendix A](#) for additional 2019-nCoV laboratory testing information.

3. Case management

Response times

On the same day as notification of a suspected or confirmed case, begin follow up investigation and, where applicable, notify your central state or territory communicable diseases agency.

PHU staff should be available to contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners.

Response procedure

Case investigation

The response to a notification will normally be carried out in collaboration with the clinicians managing the case, and be guided by the 2019-nCoV public health unit checklist and the 2019-nCoV Investigation Form (currently pending).

Regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend that tests be done.
- Seek the treating doctor's permission to contact the case or relevant care-giver.
- Determine if the diagnosis has been discussed with the case or relevant care-giver before beginning the interview.
- Review case and contact management.
- Ensure appropriate infection control guidelines are followed in caring for the case.
- Identify the likely source of infection.

Note: If interviews with suspected cases are conducted face-to-face, the person conducting the interview must have a thorough understanding of infection control practices and be competent in using appropriate PPE.

Case treatment

In the absence of pathogen-specific interventions, patient management largely depends on supportive treatment, and vigilance for and treatment of complications.

Further advice on clinical management is available from WHO: (https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2)

Education

Provide 2019-nCoV factsheet to cases and their close contacts.

Ensure that they are aware of the signs and symptoms of 2019-nCoV, the requirements of quarantine and isolation, contact details of the PHU and the infection control practices that can prevent the transmission of 2019-nCoV.

Isolation and restriction

Cases will generally be managed in hospital. If clinically indicated, cases may be managed at home only if it can be ensured that the case and household contacts are counselled about risk and that appropriate infection control measures are in place.

Healthcare workers and others who come into contact with suspected and confirmed cases must be protected according to recommended infection control guidelines. Visitors should be restricted to close family members.

A risk assessment should be undertaken for suspected cases who initially test negative for 2019-nCoV. If there is no alternative diagnosis and a high index of suspicion remains that such cases may have 2019-nCoV infection, consideration should be given to continued isolation and use of the recommended infection control precautions, pending further testing (see [Laboratory testing section](#) and [Appendix A](#)) and re-assessment.

Given the severity of reported infections, the evidence of limited human-to-human transmission, and gaps in knowledge of transmission pathways, the recommendations on isolation and PPE for management of suspected and confirmed cases take a deliberately cautious approach.

Interim recommendations for the use of PPE during clinical care of people with possible 2019-nCoV infection are:

- **Contact and droplet precautions** are recommended for **routine care** of patients in quarantine or with suspected or confirmed 2019-nCoV infection.
- **Contact and airborne precautions** are recommended when performing **aerosol-generating procedures**, including intubation and bronchoscopy.

Other recommended infection control measures include:

- On presentation of the patient to a healthcare setting (GP, hospital ED, or pathology collection centre) and whether or not respiratory symptoms are present, the patient should immediately be:
 - given a surgical mask to put on, and
 - directed to a single room. If the patient has severe symptoms suggestive of pneumonia, they should be directed to a negative pressure room, if available, or a room from which the air does not circulate to other areas.
- If a patient with confirmed 2019-nCoV infection needs to be transferred out of their isolation room, the patient should wear a “surgical” face mask and follow respiratory hygiene and cough etiquette.

Release from isolation

A confirmed case can be released from isolation if they meet all of the following criteria:

- the person has been afebrile for the previous 48 hours;
- resolution of the acute illness for the previous 24 hours¹;
- be at least 7 days after the onset of the acute illness;
- PCR negative on at least two consecutive specimens collected 24 hours apart after the acute illness has resolved^{2,3}.

¹Some people may have pre-existing illnesses with chronic respiratory signs or symptoms, such as chronic cough. For these people, the treating medical practitioner should make an assessment as to whether the signs and symptoms of the 2019-nCoV infection have resolved.

²If the patient has a productive cough due to a pre-existing respiratory illness or other ongoing lower respiratory tract disease, then the sputum or other lower respiratory tract specimens must be PCR negative for 2019-nCoV. Otherwise upper respiratory tract specimens (nasopharyngeal or nose and throat swabs) must be PCR negative.

³A small proportion of people may have an illness that has completely resolved but their respiratory specimens remain persistently PCR positive. A decision on release from isolation for these people should be made on a case-by-case basis after consultation between the person's treating medical practitioner, the testing laboratory and public health. Results of viral culture, if available, may be included in this consideration.

Follow up should include the person being reviewed seven days after release from isolation for:

- clinical review to ensure full symptom resolution
- collection of a serum specimen for storage and possible later serologic testing (the person should be informed that this is for future test development and does not inform their clinical care)

Routine PCR testing at seven days after release is not recommended unless the person has clinical features consistent with 2019-nCoV infection.

Aerosol-generating procedures

The potential for airborne spread of 2019-nCoV is still unknown, but appropriate care should be taken during aerosol-generating procedures. Aerosol-generating procedures include: tracheal intubation, non-invasive ventilation, tracheostomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy. Collection of upper respiratory specimens is not generally regarded as aerosol generating, but airborne precautions should be used for collection of specimens from severely symptomatic patients (see [Laboratory testing section](#)).

P2/N95 respirators should be used only when required. Unless used correctly, i.e. with fit-checking, they are unlikely to protect against airborne pathogen spread.

Airborne precautions should be used routinely for aerosol-generating procedures, such as bronchoscopy, intubation, suctioning etc. in hospital settings. Nebuliser use should be discouraged and alternative administration devices (e.g. spacers) should be used.

The [Laboratory testing section](#) provides detailed information on sample collection for 2019-nCoV.

Active case finding

Contacts (see [Contact management section](#)) should be identified and advised to immediately seek medical advice should they develop symptoms. Contacts or caregivers should be asked to also inform the public health agency if they develop symptoms.

4. Environmental evaluation

Where local transmission of 2019-nCoV is thought possible, a thorough review of contributing environmental factors should be done. This should include a review of infection control procedures, and opportunities for exposure to respiratory or faecal contamination.

If a case has had occupational exposure to animals it may be appropriate to consult with animal health authorities.

5. Infectious period

According to current evidence there has been a single reported episode of transmission of 2019-nCoV prior to onset of symptoms. As this is an isolated episode it is still considered likely that cases become infectious from onset of symptoms. In recognition of the evolving situation and potential for poor recall of symptom onset by cases, for the purpose defining close contacts (see [6. Contact management](#)) a 24 hour window before onset of symptoms has been applied as a highly precautionary approach.

6. Contact management

As there remain gaps in the understanding of infectivity of 2019-nCoV cases and transmission modes, the definition of contacts and their public health management is based on available information on 2019-nCoV together with observations from similar serious coronaviruses – SARS-CoV and MERS-CoV. Distinction is made between close contacts and casual contacts.

Identification of contacts

All persons categorised as a contact (see definitions of “close contacts” and “casual contacts” following) of confirmed cases should be followed-up, and monitored for the development of symptoms for 14 days after the last exposure to the case (i.e. the maximum incubation period).

Contacts of suspected cases should also be considered for contact management if there is likely to be a delay in confirming or excluding 2019-nCoV infection in the suspected case, such as delayed testing.

Close contact definition

A close contact is defined as requiring:

- greater than 15 minutes face-to-face contact in any setting with a confirmed case in the period extending from 24 hours before onset of symptoms in the confirmed case, or
- sharing of a closed space with a confirmed case for a prolonged period (e.g. more than 2 hours) in the period extending from 24 hours before onset of symptoms in the confirmed case.

For the purposes of surveillance, a close contact includes a person meeting any of the following criteria:

- Living in the same household or household-like setting (e.g. in a boarding school or hostel).
- Direct contact with the body fluids or laboratory specimens of a case without recommended PPE or failure of PPE.
- A person who spent 2 hours or longer in the same room (such as a GP or ED waiting room).
- A person in the same hospital room when an aerosol generating procedure is undertaken on the case, without recommended PPE.

- Aircraft passengers who were seated in the same row as the case, or in the two rows in front or two rows behind a confirmed 2019-nCoV case. Contact tracing of people who may have had close contact on long bus or train trips should also be attempted where possible, using similar seating/proximity criteria.
- All crew-members on an aircraft who worked in the same cabin area as a confirmed case of 2019-nCoV. If a crew member is the 2019-nCoV case, contact tracing efforts should concentrate on passengers seated in the area where the crew member was working during the flight and all of the other members of the crew.

Contact needs to have occurred within the period extending 24 hours before onset of symptoms in the case until the case is classified as no longer infectious by the treating team (usually 24 hours after the resolution of symptoms).

Casual contact definition

Casual contact is defined as any person having less than 15 minutes face-to-face contact with a symptomatic confirmed case in any setting, or sharing a closed space with a symptomatic confirmed case for less than 2 hours. This will include healthcare workers, other patients, or visitors who were in the same closed healthcare space as a case, but for shorter periods than those required for a close contact. Other closed settings might include schools or offices.

Note that healthcare workers and other contacts who have taken recommended infection control precautions, including the use of full PPE, while caring for a symptomatic confirmed 2019-nCoV case are not considered to be close contacts. However, these people should be advised to self-monitor and if they develop symptoms consistent with 2019-nCoV infection they should isolate themselves and notify their public health unit or staff health unit so they can be tested and managed as a suspected 2019-nCoV case (see recommendations below under Management of symptomatic contacts).

Other casual contacts may include:

- Extended family groups, e.g. in an Aboriginal community.
- Aircraft passengers who were not seated nearby a symptomatic confirmed case or a crew-member who did not work in the same cabin area as a symptomatic confirmed case (see close contact definition).

Where resources permit, more active contact tracing may be extended to other persons who have had casual contact (as defined above), particularly in school, office, or other closed settings. In these circumstances, the size of the room/space and degree of separation of the case from others should be considered in identifying contacts.

Contact assessment

All persons identified as having had contact with a confirmed case should be assessed to see if they should be classified as a close contact and have demographic and epidemiological data collected. Information on close contacts should be managed according to jurisdictional requirements.

Identification and assessment of the contacts of suspected cases may be deferred pending the results of initial laboratory testing.

Close contact testing

Routine laboratory screening for 2019-nCoV infection is not recommended for asymptomatic close contacts.

Prophylaxis

No specific chemoprophylaxis is available for contacts.

Education

Close contacts should be counselled about their risk and the symptoms of 2019-nCoV and provided with a 2019-nCoV Factsheet. They should be advised to self-quarantine.

Isolation and restriction

Close contacts

Asymptomatic close contacts should be advised to self-quarantine at home for 14 days following the last contact with the case, and to monitor their health for 14 days after the last possible contact with a confirmed 2019-nCoV case.

Public health units should conduct active daily monitoring of close contacts for symptoms for 14 days after the last possible contact with a confirmed 2019-nCoV case.

Self-quarantined close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Less frequent active follow-up together with passive surveillance may be necessary if there are large numbers of close contacts to monitor.

Casual contacts

Casual contacts should monitor their health for 14 days and report any symptoms immediately to the local public health unit. There are no restrictions on movements; however, casual contacts should be advised to isolate themselves and contact the public health unit if they develop symptoms.

Returned travellers who have left or transited through mainland China

Returned travellers who have left or transited through China in the last 14 days **who are unwell** with fever or with respiratory symptoms, with or without fever, or other symptoms consistent with 2019-nCoV should be isolated and managed as per the current recommendations for suspected cases.

Well returned travellers who have left or transited through mainland China (excluding Hubei) on or after 1 February 2020, should self-quarantine at home for 14 days after leaving mainland China.

Well returned travellers who have left Hubei province (including Wuhan) on or after 29 January 2020, should self-quarantine at home for 14 days after leaving Hubei.

Self-quarantined returned travellers should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Healthcare worker close contacts

Healthcare worker close contacts (i.e. persons exposed while unprotected, as described in the [Contact definition section](#)) should be advised not to undertake work in a healthcare setting for 14 days following the last possible contact with the case. They should also be advised to self-quarantine at home for 14 days following the last contact with the case.

Self-quarantined healthcare worker close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Public health units may assist infection control units of health facilities to identify and monitor healthcare worker close contacts.

It is recognised that clinical work restrictions on healthcare worker close contacts may place strain on individuals and on health services. This underlines the importance of ensuring healthcare workers implement appropriate infection control precautions when assessing and managing suspected, confirmed 2019-nCoV cases.

CDNA will continue to monitor the emerging evidence around 2019-nCoV transmission risks in healthcare settings and revise these recommendations as needed.

Medical care for quarantined individuals

If individuals under self-quarantine need to see a doctor for any reason (e.g. fever and respiratory symptoms or other illness/injury), they should **telephone their GP or hospital Emergency Department before presenting. Patients with severe symptoms should call 000 and make it clear they are in self-quarantine or isolation because of 2019-nCoV.** If the patient has **symptoms consistent with 2019-nCoV** case definition, the local public health unit should be consulted about the most suitable venue for clinical assessment and specimen collection.

Management of symptomatic contacts

If respiratory symptoms, with or without fever, or other symptoms consistent with 2019-nCoV infection develop within the first 14 days following the last contact, PHU staff should arrange for the individual to be immediately isolated and managed as per the current recommendations for suspected 2019-nCoV cases, with urgent testing for 2019-nCoV infection undertaken in an environment which minimises the exposure of others.

Ill contacts who are being evaluated for 2019-nCoV infection can be appropriately isolated and managed at home, unless their condition is severe enough to require hospitalisation.

Symptomatic contacts who test negative for 2019-nCoV by PCR will still need to be monitored for 14 days after their last contact with a confirmed 2019-nCoV case and may require re-testing.

Appendix A 2019-nCoV Laboratory testing information

Laboratory testing for 2019-nCoV continues to evolve rapidly with the accumulation of clinical data, and as reagents and protocols are refined.

The aim of testing, if clinically appropriate, is to exclude common respiratory viruses using local hospital and community nucleic acid testing capacity, and to simultaneously refer onward to a laboratory with capacity to test for 2019-nCoV. As co-infection is possible, initial testing protocols should include testing for 2019-nCoV in patients with epidemiological risk, even where another infection is shown to be present.

Samples for testing

- (i) upper respiratory tract samples
- (ii) lower respiratory tract sample if the lower tract is involved
- (iii) Serum (to be stored pending serology availability)

Upper respiratory tract samples

1. Nasopharyngeal swab and/or oropharyngeal swab, Dacron or Rayon, flocked preferred
 - nasopharyngeal: insert a swab into each nostril parallel to the palate, leave the swab in place for a few seconds to absorb secretions
 - oropharyngeal: swab the tonsillar beds, avoiding the tongue
 - place swabs back into the accompanying transport media
2. Nasal wash/aspirates
 - collect 2-3 mL into a sterile, leak-proof, screw-top dry sterile container

Lower respiratory tract samples (to be collected in hospital and/or using airborne precautions)

1. Sputum
 - patient should rinse his/her mouth with water before collection
 - expectorate deep cough sputum directly into a sterile, leak-proof, screw-top dry sterile container
2. Bronchoalveolar lavage, tracheal aspirate, pleural fluid
 - collect 2-3 mL into a sterile, leak-proof, screw-top sputum collection cup or dry sterile container

As lower respiratory tract specimens contain the highest viral loads in SARS-CoV and MERS-CoV, it is advised that lower respiratory tract specimens should be collected for 2019-nCoV testing where possible. Initial experience in testing for 2019-nCoV seems to be consistent with this prior experience. Repeat testing (especially of lower respiratory tract specimens) in clinically compatible cases should be performed if initial results are negative and there remains a high index of suspicion of infection.

Serology

Serum should be collected during the acute phase of the illness (preferably within the first 7 days of symptom onset), stored, and when serology testing becomes available tested in parallel with convalescent sera collected 3 or more weeks after acute infection. If no acute sample was collected, sera collected 14 or more days after symptom onset may be tested.

Specimen handling in the laboratory

Virology

Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment. Specimens should be transported in accordance with current regulatory requirements as diagnostic samples for testing.

Clinical Pathology

Standard precautions should be used for non-microbial pathology testing (such as routine biochemistry and haematology). Where possible auto-analysers should be used according to standard practices and/or local protocols. There is evidence that capping and uncapping of samples is not a high risk aerosol generating procedure.

Respiratory Virus Diagnostic Testing

Nucleic acid testing of the upper respiratory tract sample is performed for influenza and other common respiratory viruses using standard protocols and methods of the hospital or community laboratory.

Standard protocols of the testing laboratory for respiratory sample processing should be used. This is expected to consist of PC2 laboratory practices, and use of a Class II Biosafety cabinet for aerosol generating procedures (such as centrifuging without sealed carriers, vortexing, sonicating). Attempted viral culture, which would require higher levels of biocontainment would not be routinely attempted.

The residue (original swab and remaining eluate) of the upper tract sample is forwarded together with the lower tract sample and the serum to the reference laboratory with 2019-nCoV testing capacity requesting 2019-nCoV testing.

Clinical liaison with jurisdictional public health officers is essential to coordinate referral & testing.

Standard protocols should be used for sample packaging and transport as diagnostic samples for testing (i.e. Category B).

2019-nCoV specific testing

Nucleic acid testing (NAT) using real time polymerase chain reaction (RT-PCR) is the method of choice for detection of 2019-nCoV. Specific diagnostic test approaches for 2019-nCoV will be described here only in broad terms. There is significant variation in PCR assays employed by different PHLN member laboratories, and test algorithms are likely to be further refined over time.

Specific Real Time PCR primer sets to detect the 2019-nCoV are available. Some PHLN member laboratories have designed their own, and some have implemented primer sets recommended to the World Health Organization (WHO) by leading international coronavirus reference laboratories (available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance>). The majority of PHLN testing capacity now employs relatively swift RT-PCR assays for screening, with a turnaround time of several hours. Confirmation of positives is being done either with RT-PCR assays detecting a different target gene, or broadly reactive PCR tests with sequencing of amplicons (see below).

Well pedigreed PCR primer sets, probes and protocols are available from the WHO/ European Viral Archive (EVAg) (available at: https://www.who.int/docs/default-source/coronaviruse/protocol-v2-1.pdf?sfvrsn=a9ef618c_2).

Many PCR assays, including those available through WHO will also detect other zoonotic coronaviruses such as SARS-CoV, sometimes with a recognisable shift in the cycle threshold value (Ct) compared to the 2019-nCoV target, but not commonly circulating coronaviruses usually detected by commercial assays (e.g. NL63, 229E strains).

Several Australasian PHLN reference laboratories began diagnostic testing for the current outbreak using PCR assays capable of detecting a wide range of coronaviruses, including zoonotic and novel pathogens. A number of these were mapped against the promulgated Chinese nucleic acid sequence of 2019-nCoV early in the course of the outbreak. Nucleic acid sequencing of amplicons from positive tests is used to identify the coronavirus in this approach. These assays have relatively long turnaround times and have largely been replaced by RT-PCR other than in a confirmatory role in some laboratories.

Complementary DNA (cDNA) synthesized from the VIDRL 2019-nCoV has now been made available to all PHLN member laboratories as a test positive control. Synthetic positive control material in the form of nucleic acid templates is also available through WHO/ European Viral Archive (EVAg).

Testing algorithms are likely to be revised pending further information about the virus, and the number of specimens received in the laboratory for testing.

Viral culture should not be performed for routine diagnosis, and should only be attempted in reference laboratories with appropriate experience and containment facilities. Currently where attempted this is being done at Physical Containment Level 3 (PC3), consistent with current recommendations for SARS-CoV, pending specific 2019-nCoV international recommendations.

No Quality Assurance Program (QAP) is currently available internationally specific for 2019-nCoV, although QAPs are available in Australia for respiratory viruses including coronaviruses other than 2019-nCoV. The RCPAQAP with Commonwealth support will introduce a 2019-nCoV specific QAP to supplement previously available SARS-CoV, MERS-CoV and other coronaviruses, during the first half of 2020.

COVID-19

CDNA National Guidelines for Public Health Units

Revision history			
Version	Date	Revised by	Changes
1.6	14 February 2020	Communicable Diseases Network Australia	Addition of Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19). Updated nomenclature.
1.5	7 February 2020	Communicable Diseases Network Australia	Inclusion of advice on release from isolation.
1.4	6 February 2020	Communicable Diseases Network Australia	Revised case definition and added rationale. Updated infection control advice throughout.
1.3	4 February 2020	Communicable Diseases Network Australia	Revised the case definition and use of the terms 'quarantine' and 'isolation'.
1.2	2 February 2020	Communicable Diseases Network Australia	Revised the case definition, close and casual contact definitions and added self-isolation guidance.
1.1	27 January 2020	Communicable Diseases Network Australia	Removed references to Wuhan and revised the case definition
1.0	23 January 2020	Communicable Diseases Network Australia	Developed by the 2019-nCoV Working Group

This document summarises interim recommendations for surveillance, infection control, laboratory testing and contact management for coronavirus disease 2019 (COVID-19). It is the first national guidance issued for COVID-19 and will be further developed into the Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units (COVID-19 SoNG).

It has been adapted from CDNA National Guidelines for Public Health Units MERS-CoV, utilising current CDC and WHO guidance, and is based on the current knowledge of the situation in mainland China and other countries, and experiences with SARS-CoV and MERS-CoV.

CDNA will review and update these recommendations as required as new information becomes available on the situation.

These interim Guidelines are to be used in the first instance whilst a Series of National Guidelines is being developed by the Communicable Diseases Network Australia (CDNA).

These interim guidelines capture the knowledge of experienced professionals, and provide guidance on best practice based upon the best available evidence at the time of completion.

Readers should not rely solely on the information contained within these Guidelines. Guideline information is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a health professional. Clinical judgement and discretion may be required in the interpretation and application of these guidelines.

The membership of the CDNA and the AHPPC, and the Commonwealth of Australia as represented by the Department of Health ('the Commonwealth'), do not warrant or represent that the information contained in these Guidelines is accurate, current or complete. The CDNA, the AHPPC and the Commonwealth do not accept any legal liability or responsibility for any loss, damages, costs or expenses incurred by the use of, or reliance on, or interpretation of, the information contained in these Guidelines.

Abbreviations and definitions

COVID-19:	coronavirus disease 2019. The name of the disease caused by the virus SARS-CoV-2, as agreed by the World Health Organization, the World Organization for Animal Health and the Food and Agriculture Organization of the United Nations. For more information, see the World Health Organization Director-General's remarks: https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020
SARS-CoV-2:	severe acute respiratory syndrome coronavirus 2. The formal name of the coronavirus which causes COVID-19, as determined by the International Committee on Taxonomy of Viruses. Previously, this coronavirus was commonly known as 'novel coronavirus 2019 (2019-nCoV)'. For more information see the International Committee on Taxonomy of Viruses manuscript: https://www.biorxiv.org/content/10.1101/2020.02.07.937862v1.full.pdf

1. Case definition

Suspect case

As the full clinical spectrum of illness is not known, clinical and public health judgement should also be used to determine the need for testing in patients who do not meet the epidemiological or clinical criteria below.

If the patient satisfies epidemiological and clinical criteria, they are classified as a suspect case.

Epidemiological criteria

- Travel to (including transit through) mainland China in the 14 days before the onset of illness.

OR

- Close or casual contact (see [Contact definition](#) below) in 14 days before illness onset with a confirmed case of COVID-19.

Clinical criteria

- Fever.

OR

- Acute respiratory infection (e.g. shortness of breath or cough) with or without fever.

Confirmed case

A person who tests positive to a specific SARS-CoV-2 PCR test (when available) or has the virus identified by electron microscopy or viral culture, at a reference laboratory.

Rationale for current case definitions

The case definitions are based on what is currently known about the clinical and epidemiological profile of cases of COVID-19 presenting to date both in Australia and internationally. Health authorities are constantly monitoring the spectrum of clinical symptoms as cases arise, and, if there are any significant shifts, they will be reflected in the above definitions in future versions of this document. The same applies for epidemiological criteria if new areas of sustained human-to-human transmission emerge outside mainland China.

The 14 day period is based upon what is currently known to be the upper time limit of the incubation period. As more precise information about the incubation period emerges, this will be reviewed.

2. Laboratory testing

Patients to be considered for SARS-CoV-2 testing are described under the suspected case definition (above). Where applicable, consult with your state/territory communicable diseases agency to seek advice on which laboratories can provide SARS-CoV-2 testing; appropriate specimen type, collection and transport; and also to facilitate contact management if indicated.

When collecting respiratory specimens, transmission-based precautions should be observed whether or not respiratory symptoms are present.

For most patients with mild illness in the community, collection of upper respiratory specimens (i.e. nasopharyngeal or oropharyngeal swabs) is a low risk procedure and can be performed using **contact and droplet precautions**:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield), and surgical mask.
- To collect throat or nasopharyngeal swab stand slightly to the side of the patient to avoid exposure to respiratory secretions, should the patient cough or sneeze.
- At completion of consultation, remove personal protective equipment (PPE) and perform hand hygiene, wipe any contacted/contaminated surfaces with detergent /disinfectant.
- Note that, for droplet precautions, the room does not need to be left empty after sample collection.

If the patient has severe symptoms suggestive of pneumonia, e.g. fever and breathing difficulty, or frequent, severe or productive coughing episodes then **contact and airborne precautions** should be observed.

Patients with these symptoms should be managed in hospital, and sample collection conducted in a negative pressure room, if available. If referral to hospital for specimen collection is not possible, specimens should be collected in a room from which air does not circulate to other areas. The door should be closed during specimens collection and the room left vacant for at least 30 minutes afterwards (cleaning can be performed during this time by a person wearing PPE).

The following precautions should be observed:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield) and a **P2/N95 respirator – which should be fit checked**.
- At completion of consultation, remove gown and gloves, perform hand hygiene, remove eye protection and P2/N95 respirator. Do not touch the front of any item of PPE during removal; perform hand hygiene.
- The room surfaces should be wiped clean with disinfectant wipes by a person wearing gloves, gown and surgical mask.

For further information on circumstances requiring airborne precautions, see [aerosol generating procedures](#).

Routine tests for acute pneumonia/pneumonitis should be performed where indicated, including bacterial cultures, acute and convalescent serology, urinary antigen testing and nucleic acid tests for respiratory viruses, according to local protocols.

Serology for SARS-CoV-2 is not yet available. Collection of serum for storage by the SARS-CoV-2 testing laboratory is recommended to facilitate retrospective testing, if this is relevant, once serology tests become available.

See [Appendix A](#) for additional SARS-CoV-2 laboratory testing information.

3. Case management

Response times

On the same day as notification of a suspected or confirmed case, begin follow up investigation and, where applicable, notify your central state or territory communicable diseases agency.

PHU staff should be available to contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners.

Response procedure

Case investigation

The response to a notification will normally be carried out in collaboration with the clinicians managing the case, and be guided by the COVID-19 public health unit checklist and the COVID-19 investigation form (currently pending).

Regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend that tests be done.
- Seek the treating doctor's permission to contact the case or relevant care-giver.
- Determine if the diagnosis has been discussed with the case or relevant care-giver before beginning the interview.
- Review case and contact management.
- Ensure appropriate infection control guidelines are followed in caring for the case.
- Identify the likely source of infection.

Note: If interviews with suspected cases are conducted face-to-face, the person conducting the interview must have a thorough understanding of infection control practices and be competent in using appropriate PPE.

Case treatment

In the absence of pathogen-specific interventions, patient management largely depends on supportive treatment, and vigilance for and treatment of complications.

Further advice on clinical management is available from WHO: (https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2)

Education

Provide a COVID-19 factsheet to cases and their close contacts.

Ensure that they are aware of the signs and symptoms of COVID-19, the requirements of quarantine and isolation, contact details of the PHU and the infection control practices that can prevent the transmission of COVID-19.

Isolation and restriction

Cases will generally be managed in hospital. If clinically indicated, cases may be managed at home only if it can be ensured that the case and household contacts are counselled about risk and that appropriate infection control measures are in place.

Healthcare workers and others who come into contact with suspected and confirmed cases must be protected according to recommended infection control guidelines. Visitors should be restricted to close family members.

A risk assessment should be undertaken for suspected cases who initially test negative for SARS-CoV-2. If there is no alternative diagnosis and a high index of suspicion remains that such cases may have COVID-19, consideration should be given to continued isolation and use of the recommended infection control precautions, pending further testing (see [Laboratory testing section](#) and [Appendix A](#)) and re-assessment.

Given the severity of reported infections, the evidence of limited human-to-human transmission, and gaps in knowledge of transmission pathways, the recommendations on isolation and PPE for management of suspected and confirmed cases take a deliberately cautious approach.

In addition to standard precautions, interim recommendations for the use of PPE during clinical care of people with possible COVID-19 are:

- **Contact and droplet precautions** are recommended for **routine care** of patients in quarantine or with suspected or confirmed COVID-19.
- **Contact and airborne precautions** are recommended when performing **aerosol-generating procedures**, including intubation and bronchoscopy.

Other recommended infection control measures include:

- On presentation of the patient to a healthcare setting (GP, hospital ED, or pathology collection centre) and whether or not respiratory symptoms are present, the patient should immediately be:
 - given a surgical mask to put on, and
 - directed to a single room. If the patient has severe symptoms suggestive of pneumonia, they should be directed to a negative pressure room, if available, or a room from which the air does not circulate to other areas.
- If a patient with confirmed COVID-19 needs to be transferred out of their isolation room, the patient should wear a “surgical” face mask and follow respiratory hygiene and cough etiquette.

Release from isolation

A confirmed case can be released from isolation if they meet all of the following criteria:

- the person has been afebrile for the previous 48 hours;
- resolution of the acute illness for the previous 24 hours¹;
- be at least 7 days after the onset of the acute illness;
- PCR negative on at least two consecutive specimens collected 24 hours apart after the acute illness has resolved^{2,3}.

¹Some people may have pre-existing illnesses with chronic respiratory signs or symptoms, such as chronic cough. For these people, the treating medical practitioner should make an assessment as to whether the signs and symptoms of COVID-19 have resolved.

²If the patient has a productive cough due to a pre-existing respiratory illness or other ongoing lower respiratory tract disease, then the sputum or other lower respiratory tract specimens must be PCR negative for SARS-CoV-2. Otherwise upper respiratory tract specimens (nasopharyngeal or nose and throat swabs) must be PCR negative.

³A small proportion of people may have an illness that has completely resolved but their respiratory specimens remain persistently PCR positive. A decision on release from isolation for these people should be made on a case-by-case basis after consultation between the person's treating medical practitioner, the testing laboratory and public health. Results of viral culture, if available, may be included in this consideration.

Follow up should include the person being reviewed seven days after release from isolation for:

- clinical review to ensure full symptom resolution
- collection of a serum specimen for storage and possible later serologic testing (the person should be informed that this is for future test development and does not inform their clinical care)

Routine PCR testing at seven days after release is not recommended unless the person has clinical features consistent with COVID-19.

Aerosol-generating procedures

Appropriate care should be taken during aerosol-generating procedures. Aerosol-generating procedures include: tracheal intubation, non-invasive ventilation, tracheostomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy. Collection of upper respiratory specimens is not generally regarded as aerosol generating, but airborne precautions should be used for collection of specimens from severely symptomatic patients (see [Laboratory testing section](#)).

P2/N95 respirators should be used only when required. Unless used correctly, i.e. with fit-checking, they are unlikely to protect against airborne pathogen spread.

Airborne precautions should be used routinely for aerosol-generating procedures, such as bronchoscopy, intubation, suctioning etc. in hospital settings. Nebuliser use should be discouraged and alternative administration devices (e.g. spacers) should be used.

The [Laboratory testing section](#) provides detailed information on sample collection for SARS-CoV-2.

Active case finding

Contacts (see [Contact management section](#)) should be identified and advised to immediately seek medical advice should they develop symptoms. Contacts or caregivers should be asked to also inform the public health agency if they develop symptoms.

4. Environmental evaluation

Where local transmission of COVID-19 is thought possible, a thorough review of contributing environmental factors should be done. This should include a review of infection control procedures, and opportunities for exposure to respiratory or faecal contamination.

If a case has had occupational exposure to animals it may be appropriate to consult with animal health authorities.

5. Infectious period

According to current evidence there has been a single reported episode of transmission of COVID-19 prior to onset of symptoms. As this is an isolated episode it is still considered likely that cases become infectious from onset of symptoms. In recognition of the evolving situation and potential for poor recall of symptom onset by cases, for the purpose defining close contacts (see [Contact management](#)) a 24 hour window before onset of symptoms has been applied as a highly precautionary approach.

6. Contact management

As there remain gaps in the understanding of infectivity of COVID-19 cases and transmission modes, the definition of contacts and their public health management is based on available information on COVID-19 together with observations from similar serious coronaviruses – SARS-CoV and MERS-CoV. Distinction is made between close contacts and casual contacts.

Identification of contacts

All persons categorised as a contact (see definitions of “close contacts” and “casual contacts” following) of confirmed cases should be followed-up, and monitored for the development of symptoms for 14 days after the last exposure to the case (i.e. the maximum incubation period).

Contacts of suspected cases should also be considered for contact management if there is likely to be a delay in confirming or excluding COVID-19 in the suspected case, such as delayed testing.

Close contact definition

A close contact is defined as requiring:

- greater than 15 minutes face-to-face contact in any setting with a confirmed case in the period extending from 24 hours before onset of symptoms in the confirmed case, or
- sharing of a closed space with a confirmed case for a prolonged period (e.g. more than 2 hours) in the period extending from 24 hours before onset of symptoms in the confirmed case.

For the purposes of surveillance, a close contact includes a person meeting any of the following criteria:

- Living in the same household or household-like setting (e.g. in a boarding school or hostel).
- Direct contact with the body fluids or laboratory specimens of a case without recommended PPE or failure of PPE.
- A person who spent 2 hours or longer in the same room (such as a GP or ED waiting room).
- A person in the same hospital room when an aerosol generating procedure is undertaken on the case, without recommended PPE.

- Aircraft passengers who were seated in the same row as the case, or in the two rows in front or two rows behind a confirmed COVID-19 case. Contact tracing of people who may have had close contact on long bus or train trips should also be attempted where possible, using similar seating/proximity criteria.
- All crew-members on an aircraft who worked in the same cabin area as a confirmed case of COVID-19. If a crew member is the COVID-19 case, contact tracing efforts should concentrate on passengers seated in the area where the crew member was working during the flight and all of the other members of the crew.

Contact needs to have occurred within the period extending 24 hours before onset of symptoms in the case until the case is classified as no longer infectious by the treating team (usually 24 hours after the resolution of symptoms).

Casual contact definition

Casual contact is defined as any person having less than 15 minutes face-to-face contact with a symptomatic confirmed case in any setting, or sharing a closed space with a symptomatic confirmed case for less than 2 hours. This will include healthcare workers, other patients, or visitors who were in the same closed healthcare space as a case, but for shorter periods than those required for a close contact. Other closed settings might include schools or offices.

Note that healthcare workers and other contacts who have taken recommended infection control precautions, including the use of full PPE, while caring for a symptomatic confirmed COVID-19 case are not considered to be close contacts. However, these people should be advised to self-monitor and if they develop symptoms consistent with COVID-19 they should isolate themselves and notify their public health unit or staff health unit so they can be tested and managed as a suspected COVID-19 case (see recommendations below under Management of symptomatic contacts).

Other casual contacts may include:

- Extended family groups, e.g. in an Aboriginal community.
- Aircraft passengers who were not seated nearby a symptomatic confirmed case or a crew-member who did not work in the same cabin area as a symptomatic confirmed case (see close contact definition).

Where resources permit, more active contact tracing may be extended to other persons who have had casual contact (as defined above), particularly in school, office, or other closed settings. In these circumstances, the size of the room/space and degree of separation of the case from others should be considered in identifying contacts.

Contact assessment

All persons identified as having had contact with a confirmed case should be assessed to see if they should be classified as a close contact and have demographic and epidemiological data collected. Information on close contacts should be managed according to jurisdictional requirements.

Identification and assessment of the contacts of suspected cases may be deferred pending the results of initial laboratory testing.

Close contact testing

Routine laboratory screening for COVID-19 is not recommended for asymptomatic close contacts.

Prophylaxis

No specific chemoprophylaxis is available for contacts.

Education

Close contacts should be counselled about their risk and the symptoms of COVID-19 and provided with a COVID-19 factsheet. They should be advised to self-quarantine.

Isolation and restriction

Close contacts

Asymptomatic close contacts should be advised to self-quarantine at home for 14 days following the last contact with the case, and to monitor their health for 14 days after the last possible contact with a confirmed COVID-19 case.

Public health units should conduct active daily monitoring of close contacts for symptoms for 14 days after the last possible contact with a confirmed COVID-19 case.

Self-quarantined close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Less frequent active follow-up together with passive surveillance may be necessary if there are large numbers of close contacts to monitor.

Casual contacts

Casual contacts should monitor their health for 14 days and report any symptoms immediately to the local public health unit. There are no restrictions on movements; however, casual contacts should be advised to isolate themselves and contact the public health unit if they develop symptoms.

Returned travellers who have left or transited through mainland China

Returned travellers who have left or transited through China in the last 14 days **who are unwell** with fever or with respiratory symptoms, with or without fever, or other symptoms consistent with COVID-19 should be isolated and managed as per the current recommendations for suspected cases.

Well returned travellers who have left or transited through mainland China (excluding Hubei) on or after 1 February 2020, should self-quarantine at home for 14 days after leaving mainland China.

Well returned travellers who have left Hubei province (including Wuhan) should self-quarantine at home for 14 days after leaving Hubei.

Self-quarantined returned travellers should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Healthcare worker close contacts

Healthcare worker close contacts (i.e. persons exposed while unprotected, as described in the [Contact definition section](#)) should be advised not to undertake work in a healthcare setting for 14 days following the last possible contact with the case. They should also be advised to self-quarantine at home for 14 days following the last contact with the case.

Self-quarantined healthcare worker close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Public health units may assist infection control units of health facilities to identify and monitor healthcare worker close contacts.

It is recognised that clinical work restrictions on healthcare worker close contacts may place strain on individuals and on health services. This underlines the importance of ensuring healthcare workers implement appropriate infection control precautions when assessing and managing suspected, confirmed COVID-19 cases.

CDNA will continue to monitor the emerging evidence around COVID-19 transmission risks in healthcare settings and revise these recommendations as needed.

Medical care for quarantined individuals

If individuals under self-quarantine need to see a doctor for any reason (e.g. fever and respiratory symptoms or other illness/injury), they should **telephone their GP or hospital Emergency Department before presenting. Patients with severe symptoms should call 000 and make it clear they are in self-quarantine or isolation because of COVID-19.** If the patient has **symptoms consistent with the COVID-19 [case definition](#)**, the local public health unit should be consulted about the most suitable venue for clinical assessment and specimen collection.

Management of symptomatic contacts

If fever or respiratory symptoms, with or without fever, or other symptoms consistent with COVID-19 develop within the first 14 days following the last contact, PHU staff should arrange for the individual to be immediately isolated and managed as per the current recommendations for suspected COVID-19 cases, with urgent testing for COVID-19 undertaken in an environment which minimises the exposure of others.

Ill contacts who are being evaluated for COVID-19 can be appropriately isolated and managed at home, unless their condition is severe enough to require hospitalisation.

Symptomatic contacts who test negative for SARS-CoV-2 by PCR will still need to be monitored for 14 days after their last contact with a confirmed COVID-19 case and may require re-testing.

7. Appendices

Appendix A: SARS-CoV-2 Laboratory testing information

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

Appendix A: SARS-CoV-2 Laboratory testing information

Laboratory testing for SARS-CoV-2 continues to evolve rapidly with the accumulation of clinical data, and as reagents and protocols are refined.

The aim of testing, if clinically appropriate, is to exclude common respiratory viruses using local hospital and community nucleic acid testing capacity, and to simultaneously refer onward to a laboratory with capacity to test for SARS-CoV-2. As co-infection is possible, initial testing protocols should include testing for SARS-CoV-2 in patients with epidemiological risk, even where another infection is shown to be present.

Samples for testing

- (i) upper respiratory tract samples
- (ii) lower respiratory tract sample if the lower tract is involved
- (iii) Serum (to be stored pending serology availability)

Upper respiratory tract samples

1. Nasopharyngeal swab and/or oropharyngeal swab, Dacron or Rayon, flocked preferred
 - nasopharyngeal: insert a swab into each nostril parallel to the palate, leave the swab in place for a few seconds to absorb secretions
 - oropharyngeal: swab the tonsillar beds, avoiding the tongue
 - place swabs back into the accompanying transport media
2. Nasal wash/aspirates
 - collect 2-3 mL into a sterile, leak-proof, screw-top dry sterile container

Lower respiratory tract samples (to be collected in hospital and/or using airborne precautions)

1. Sputum
 - patient should rinse his/her mouth with water before collection
 - expectorate deep cough sputum directly into a sterile, leak-proof, screw-top dry sterile container
2. Bronchoalveolar lavage, tracheal aspirate, pleural fluid
 - collect 2-3 mL into a sterile, leak-proof, screw-top sputum collection cup or dry sterile container

As lower respiratory tract specimens contain the highest viral loads in SARS-CoV and MERS-CoV, it is advised that lower respiratory tract specimens should be collected for SARS-CoV-2 testing where possible. Initial experience in testing for SARS-CoV-2 seems to be consistent with this prior experience. Repeat testing (especially of lower respiratory tract specimens) in clinically compatible cases should be performed if initial results are negative and there remains a high index of suspicion of infection.

Serology

Serum should be collected during the acute phase of the illness (preferably within the first 7 days of symptom onset), stored, and when serology testing becomes available tested in parallel with convalescent sera collected 3 or more weeks after acute infection. If no acute sample was collected, sera collected 14 or more days after symptom onset may be tested.

Specimen handling in the laboratory

Virology

Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment. Specimens should be transported in accordance with current regulatory requirements as diagnostic samples for testing.

Clinical Pathology

Standard precautions should be used for non-microbial pathology testing (such as routine biochemistry and haematology). Where possible auto-analysers should be used according to standard practices and/or local protocols. There is evidence that capping and uncapping of samples is not a high risk aerosol generating procedure.

Respiratory Virus Diagnostic Testing

Nucleic acid testing of the upper respiratory tract sample is performed for influenza and other common respiratory viruses using standard protocols and methods of the hospital or community laboratory.

Standard protocols of the testing laboratory for respiratory sample processing should be used. This is expected to consist of PC2 laboratory practices, and use of a Class II Biosafety cabinet for aerosol generating procedures (such as centrifuging without sealed carriers, vortexing, sonicating). Attempted viral culture, which would require higher levels of biocontainment would not be routinely attempted.

The residue (original swab and remaining eluate) of the upper tract sample is forwarded together with the lower tract sample and the serum to the reference laboratory with SARS-CoV-2 testing capacity requesting SARS-CoV-2 testing.

Clinical liaison with jurisdictional public health officers is essential to coordinate referral & testing.

Standard protocols should be used for sample packaging and transport as diagnostic samples for testing (i.e. Category B).

SARS-CoV-2 specific testing

Nucleic acid testing (NAT) using real time polymerase chain reaction (RT-PCR) is the method of choice for detection of SARS-CoV-2. Specific diagnostic test approaches for SARS-CoV-2 will be described here only in broad terms. There is significant variation in PCR assays employed by different PHLN member laboratories, and test algorithms are likely to be further refined over time.

Specific Real Time PCR primer sets to detect the SARS-CoV-2 are available. Some PHLN member laboratories have designed their own, and some have implemented primer sets recommended to the World Health Organization (WHO) by leading international coronavirus reference laboratories (available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance>). The majority of PHLN testing capacity now employs relatively swift RT-PCR assays for screening, with a turnaround time of several hours. Confirmation of positives is being done either with RT-PCR assays detecting a different target gene, or broadly reactive PCR tests with sequencing of amplicons (see below).

Well pedigreed PCR primer sets, probes and protocols are available from the WHO/ European Viral Archive (EVAg) (available at: https://www.who.int/docs/default-source/coronaviruse/protocol-v2-1.pdf?sfvrsn=a9ef618c_2).

Many PCR assays, including those available through WHO will also detect other zoonotic coronaviruses such as SARS-CoV, sometimes with a recognisable shift in the cycle threshold value (Ct) compared to the SARS-CoV-2 target, but not commonly circulating coronaviruses usually detected by commercial assays (e.g. NL63, 229E strains).

Several Australasian PHLN reference laboratories began diagnostic testing for the current outbreak using PCR assays capable of detecting a wide range of coronaviruses, including zoonotic and novel pathogens. A number of these were mapped against the promulgated Chinese nucleic acid sequence of SARS-CoV-2 early in the course of the outbreak. Nucleic acid sequencing of amplicons from positive tests is used to identify the coronavirus in this approach. These assays have relatively long turnaround times and have largely been replaced by RT-PCR other than in a confirmatory role in some laboratories.

Complementary DNA (cDNA) synthesized from the VIDRL SARS-CoV-2 has now been made available to all PHLN member laboratories as a test positive control. Synthetic positive control material in the form of nucleic acid templates is also available through WHO/ European Viral Archive (EVAg).

Testing algorithms are likely to be revised pending further information about the virus, and the number of specimens received in the laboratory for testing.

Viral culture should not be performed for routine diagnosis, and should only be attempted in reference laboratories with appropriate experience and containment facilities. Currently where attempted this is being done at Physical Containment Level 3 (PC3), consistent with current recommendations for SARS-CoV, pending specific SARS-CoV-2 international recommendations.

No Quality Assurance Program (QAP) is currently available internationally specific for SARS-CoV-2, although QAPs are available in Australia for respiratory viruses including coronaviruses other than SARS-CoV-2. The RCPAQAP with Commonwealth support will introduce a SARS-CoV-2 specific QAP to supplement previously available SARS-CoV, MERS-CoV and other coronaviruses, during the first half of 2020.

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

These recommendations are intended for hospital personnel who enter a clinical space with COVID-19 patients, including wardspersons, food deliverers, cleaners, and clinical personnel.

Background:

Although Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) which causes COVID-19 has spread rapidly and widely in mainland China, there has been limited transmission elsewhere, i.e. containment precautions have been mostly successful to date. At the time of writing, the crude mortality (~2%) in China is based on laboratory confirmed cases; many milder cases are almost certainly not being tested and the mortality is likely to be lower. Most cases in Australia have been relatively mild but a small number of deaths has been reported outside of mainland China. While a number of healthcare-associated infections have been reported with COVID-19 (in healthcare workers and patients) – as occurred with SARS and MERS - the risk for COVID-19 is likely to be very low, when infection control precautions are adhered to correctly.

General principles:

- **Standard precautions, including hand hygiene (5 Moments)** for all patients with respiratory infections. Patients and staff should observe cough etiquette and respiratory hygiene,
- **Transmission-based precautions** for patients with suspected or confirmed COVID-19:
 - **Contact and droplet precautions** for **routine care** of patients.
 - **Contact and airborne precautions** for **aerosol generating procedures (AGPs)**.

Contact and droplet precautions:

Contact and droplet precautions can be safely used for routine patient care of inpatients with suspected or confirmed COVID-19 (see Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units for case definition)

- On presentation or admission to hospital the patient should be:
 - given a surgical mask to put on, and
 - placed in a single room (ensuring air does not circulate to other areas)
 - placed in a negative pressure room (in the event of AGPs being performed).
- If transfer outside the room is essential, the patient should wear a surgical mask during transfer and follow respiratory hygiene and cough etiquette.
- For most inpatient contacts between healthcare staff and patients the following PPE is safe and appropriate and should be put on before entering the patient's room:
 - long-sleeved gown
 - surgical mask
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- For hospitalised patients requiring frequent attendance by medical and nursing staff, a P2/N95 respirator should be considered for prolonged or very close contact.

Contact and airborne precautions for aerosol-generating procedures (AGPs) and care of clinically ill patients requiring high level/high volume hands-on contact outside of ICU:

- **Contact and airborne precautions should be used routinely for AGPs**, which include:
 - tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy (and bronchoalveolar lavage), high flow nasal oxygen
 - The use of nebulisers should be avoided and alternative medication administration devices (e.g. spacers) used.
- PPE for contact and airborne procedures should be put on before entering patients room:
 - long-sleeved gown
 - P2/N95 respirator (mask) – should be fit-checked with each use
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- P2/N95 respirators (mask) should be used only when required.
- Unless used correctly, i.e. with fit-checking, a P2/N95 respirator (mask) is unlikely to protect against airborne pathogen spread.
 - An air-tight seal may be difficult to achieve for people with facial hair. Fit checking with a range of P2/N95 respirators must occur to assess the most suitable one to achieve a protective seal. If a tight seal cannot be achieved, facial hair should be removed.

Care of critically ill patients in ICU

- Patients who require admission to ICU with severe COVID-19 are likely to have a high viral load, particularly in the lower respiratory tract
- **Contact and airborne precautions** (as above) are required for patient care and are adequate for most AGPs.
 - The risk of aerosol transmission is reduced once the patient is intubated with a closed ventilator circuit but there is a potential, but unknown, risk of transmission from other body fluids such as diarrhoeal stool or vomitus or inadvertent circuit disconnection
- If a health care professional is required to remain in the patient's room continuously for a long period (e.g. more than one hour), because of the need to perform multiple procedures, the use of a powered air purifying respirator (PAPR) may be considered for additional comfort and visibility. A number of different types of relatively lightweight, comfortable PAPRs are now available and should be used according to manufacturer's instructions. Only **PPE marked as reusable** should be reused, following **reprocessing** according to manufacturer's instructions, All other PPE must be disposed of after use.

ICU staff caring for patients with COVID-19 (or any other potentially serious infectious disease) should be trained in the correct use of PPE, including by an infection control professional. This also applies particularly to the use of PAPRs, if required. Particular care should be taken on removal of PAPR, which is associated with a risk of contamination.

Additional precautions:**Staff**

- A staff log for each room entry should be maintained, to allow monitoring of potential breaches of infection control and follow-up contacts, if necessary.

Disposal of PPE and other waste

- Waste should be disposed in the normal way for clinical waste
- All non-clinical waste is disposed of into general waste

Handling of linen

- Routine procedures for handling of infectious linen should be followed
- Visibly soiled linen should be placed in a (soluble) plastic bag inside a linen skip

Environmental cleaning of patient care areas

- Cleaners should observe contact and droplet precautions (as above).
- Frequently touched surfaces (such as doorknobs, bedrails, tabletops, light switches, patient handsets) in the patient's room should be cleaned daily.
- Terminal cleaning of all surfaces in the room (as above plus floor, ceiling, walls, blinds) should be performed after the patient is discharged.
- A combined cleaning and disinfection procedure should be used, either 2-step - detergent clean, followed by disinfectant; or 2-in-1 step - using a product that has both cleaning and disinfectant properties. Any hospital-grade, TGA-listed disinfectant that is commonly against norovirus is suitable, if used according to manufacturer's instructions.

COVID-19

CDNA National Guidelines for Public Health Units

Revision history			
Version	Date	Revised by	Changes
1.7	15 February 2020	Communicable Diseases Network Australia	Revised case definition.
1.6	14 February 2020	Communicable Diseases Network Australia	Addition of Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19). Updated nomenclature.
1.5	7 February 2020	Communicable Diseases Network Australia	Inclusion of advice on release from isolation.
1.4	6 February 2020	Communicable Diseases Network Australia	Revised case definition and added rationale. Updated infection control advice throughout.
1.3	4 February 2020	Communicable Diseases Network Australia	Revised the case definition and use of the terms 'quarantine' and 'isolation'.
1.2	2 February 2020	Communicable Diseases Network Australia	Revised the case definition, close and casual contact definitions and added self-isolation guidance.
1.1	27 January 2020	Communicable Diseases Network Australia	Removed references to Wuhan and revised the case definition
1.0	23 January 2020	Communicable Diseases Network Australia	Developed by the 2019-nCoV Working Group

This document summarises interim recommendations for surveillance, infection control, laboratory testing and contact management for coronavirus disease 2019 (COVID-19). It is the first national guidance issued for COVID-19 and will be further developed into the Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units (COVID-19 SoNG).

It has been adapted from CDNA National Guidelines for Public Health Units MERS-CoV, utilising current CDC and WHO guidance, and is based on the current knowledge of the situation in mainland China and other countries, and experiences with SARS-CoV and MERS-CoV.

CDNA will review and update these recommendations as required as new information becomes available on the situation.

These interim Guidelines are to be used in the first instance whilst a Series of National Guidelines is being developed by the Communicable Diseases Network Australia (CDNA).

These interim guidelines capture the knowledge of experienced professionals, and provide guidance on best practice based upon the best available evidence at the time of completion.

Readers should not rely solely on the information contained within these Guidelines. Guideline information is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a health professional. Clinical judgement and discretion may be required in the interpretation and application of these guidelines.

The membership of the CDNA and the AHPPC, and the Commonwealth of Australia as represented by the Department of Health ('the Commonwealth'), do not warrant or represent that the information contained in these Guidelines is accurate, current or complete. The CDNA, the AHPPC and the Commonwealth do not accept any legal liability or responsibility for any loss, damages, costs or expenses incurred by the use of, or reliance on, or interpretation of, the information contained in these Guidelines.

Abbreviations and definitions

COVID-19:	coronavirus disease 2019. The name of the disease caused by the virus SARS-CoV-2, as agreed by the World Health Organization, the World Organization for Animal Health and the Food and Agriculture Organization of the United Nations. For more information, see the World Health Organization Director-General's remarks: https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020
SARS-CoV-2:	severe acute respiratory syndrome coronavirus 2. The formal name of the coronavirus which causes COVID-19, as determined by the International Committee on Taxonomy of Viruses. Previously, this coronavirus was commonly known as 'novel coronavirus 2019 (2019-nCoV)'. For more information see the International Committee on Taxonomy of Viruses manuscript: https://www.biorxiv.org/content/10.1101/2020.02.07.937862v1.full.pdf

1. Case definition

Confirmed case

A person who tests positive to a specific SARS-CoV-2 PCR test or has the virus identified by electron microscopy or viral culture, at a reference laboratory.

Suspect case

If the patient satisfies epidemiological and clinical criteria, they are classified as a suspect case.

Epidemiological criteria

- Travel to (including transit through) mainland China in the 14 days before the onset of illness.

OR

- Close or casual contact (see [Contact definition](#) below) in 14 days before illness onset with a confirmed case of COVID-19.

Clinical criteria

- Fever.

OR

- Acute respiratory infection (e.g. shortness of breath or cough) with or without fever.

Person under investigation

It is recommended that clinicians should consider testing people with a clinically compatible illness who travelled to any of the following countries in the 14 days before onset of symptoms:

- Hong Kong
- Indonesia
- Japan
- Singapore
- Thailand

This list* is based on the volume of travel between those countries, Australia and China, and/or the current epidemiology of COVID-19; however, the risk of COVID-19 in these countries is currently thought to be low. Clinical and public health judgement should be applied. The recommendation does not apply to passengers who have only been in transit through an airport in these countries.

Note: if a clinician determines that a **person under investigation** should be tested then that person must be managed as a **suspect case**.

*This list is in alphabetical order.

Rationale for current case definitions

The case definitions are based on what is currently known about the clinical and epidemiological profile of cases of COVID-19 presenting to date both in Australia and internationally. Health authorities are constantly monitoring the spectrum of clinical symptoms as cases arise, and, if there are any significant shifts, they will be reflected in the above definitions in future versions of this document. The same monitoring and revision applies for epidemiological criteria as new areas of varying risk emerge outside mainland China.

The 14 day period is based upon what is currently known to be the upper time limit of the incubation period. As more precise information about the incubation period emerges, this will be reviewed.

2. Laboratory testing

Patients to be considered for SARS-CoV-2 testing are described under the suspected case definition (above). Where applicable, consult with your state/territory communicable diseases agency to seek advice on which laboratories can provide SARS-CoV-2 testing; appropriate specimen type, collection and transport; and also to facilitate contact management if indicated.

When collecting respiratory specimens, transmission-based precautions should be observed whether or not respiratory symptoms are present.

For most patients with mild illness in the community, collection of upper respiratory specimens (i.e. nasopharyngeal or oropharyngeal swabs) is a low risk procedure and can be performed using **contact and droplet precautions**:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield), and surgical mask.
- To collect throat or nasopharyngeal swab stand slightly to the side of the patient to avoid exposure to respiratory secretions, should the patient cough or sneeze.
- At completion of consultation, remove personal protective equipment (PPE) and perform hand hygiene, wipe any contacted/contaminated surfaces with detergent /disinfectant.
- Note that, for droplet precautions, the room does not need to be left empty after sample collection.

If the patient has severe symptoms suggestive of pneumonia, e.g. fever and breathing difficulty, or frequent, severe or productive coughing episodes then **contact and airborne precautions** should be observed.

Patients with these symptoms should be managed in hospital, and sample collection conducted in a negative pressure room, if available. If referral to hospital for specimen collection is not possible, specimens should be collected in a room from which air does not circulate to other areas. The door should be closed during specimens collection and the room left vacant for at least 30 minutes afterwards (cleaning can be performed during this time by a person wearing PPE).

The following precautions should be observed:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield) and a **P2/N95 respirator – which should be fit checked**.

- At completion of consultation, remove gown and gloves, perform hand hygiene, remove eye protection and P2/N95 respirator. Do not touch the front of any item of PPE during removal; perform hand hygiene.
- The room surfaces should be wiped clean with disinfectant wipes by a person wearing gloves, gown and surgical mask.

For further information on circumstances requiring airborne precautions, see [aerosol generating procedures](#).

Routine tests for acute pneumonia/pneumonitis should be performed where indicated, including bacterial cultures, acute and convalescent serology, urinary antigen testing and nucleic acid tests for respiratory viruses, according to local protocols.

Serology for SARS-CoV-2 is not yet available. Collection of serum for storage by the SARS-CoV-2 testing laboratory is recommended to facilitate retrospective testing, if this is relevant, once serology tests become available.

See [Appendix A](#) for additional SARS-CoV-2 laboratory testing information.

3. Case management

Response times

On the same day as notification of a suspected or confirmed case, begin follow up investigation and, where applicable, notify your central state or territory communicable diseases agency.

PHU staff should be available to contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners.

Response procedure

Case investigation

The response to a notification will normally be carried out in collaboration with the clinicians managing the case, and be guided by the COVID-19 public health unit checklist and the COVID-19 investigation form (currently pending).

Regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend that tests be done.
- Seek the treating doctor's permission to contact the case or relevant care-giver.
- Determine if the diagnosis has been discussed with the case or relevant care-giver before beginning the interview.
- Review case and contact management.
- Ensure appropriate infection control guidelines are followed in caring for the case.
- Identify the likely source of infection.

Note: If interviews with suspected cases are conducted face-to-face, the person conducting the interview must have a thorough understanding of infection control practices and be competent in using appropriate PPE.

Case treatment

In the absence of pathogen-specific interventions, patient management largely depends on supportive treatment, and vigilance for and treatment of complications.

Further advice on clinical management is available from WHO: (https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2)

Education

Provide a COVID-19 factsheet to cases and their close contacts.

Ensure that they are aware of the signs and symptoms of COVID-19, the requirements of quarantine and isolation, contact details of the PHU and the infection control practices that can prevent the transmission of COVID-19.

Isolation and restriction

Cases will generally be managed in hospital. If clinically indicated, cases may be managed at home only if it can be ensured that the case and household contacts are counselled about risk and that appropriate infection control measures are in place.

Healthcare workers and others who come into contact with suspected and confirmed cases must be protected according to recommended infection control guidelines. Visitors should be restricted to close family members.

A risk assessment should be undertaken for suspected cases who initially test negative for SARS-CoV-2. If there is no alternative diagnosis and a high index of suspicion remains that such cases may have COVID-19, consideration should be given to continued isolation and use of the recommended infection control precautions, pending further testing (see [Laboratory testing section](#) and [Appendix A](#)) and re-assessment.

Given the severity of reported infections, the evidence of limited human-to-human transmission, and gaps in knowledge of transmission pathways, the recommendations on isolation and PPE for management of suspected and confirmed cases take a deliberately cautious approach.

In addition to standard precautions, interim recommendations for the use of PPE during clinical care of people with possible COVID-19 are:

- **Contact and droplet precautions** are recommended for **routine care** of patients in quarantine or with suspected or confirmed COVID-19.
- **Contact and airborne precautions** are recommended when performing **aerosol-generating procedures**, including intubation and bronchoscopy.

Other recommended infection control measures include:

- On presentation of the patient to a healthcare setting (GP, hospital ED, or pathology collection centre) and whether or not respiratory symptoms are present, the patient should immediately be:
 - given a surgical mask to put on, and
 - directed to a single room. If the patient has severe symptoms suggestive of pneumonia, they should be directed to a negative pressure room, if available, or a room from which the air does not circulate to other areas.

- If a patient with confirmed COVID-19 needs to be transferred out of their isolation room, the patient should wear a “surgical” face mask and follow respiratory hygiene and cough etiquette.

Release from isolation

A confirmed case can be released from isolation if they meet all of the following criteria:

- the person has been afebrile for the previous 48 hours;
- resolution of the acute illness for the previous 24 hours¹;
- be at least 7 days after the onset of the acute illness;
- PCR negative on at least two consecutive specimens collected 24 hours apart after the acute illness has resolved^{2,3}.

¹Some people may have pre-existing illnesses with chronic respiratory signs or symptoms, such as chronic cough. For these people, the treating medical practitioner should make an assessment as to whether the signs and symptoms of COVID-19 have resolved.

²If the patient has a productive cough due to a pre-existing respiratory illness or other ongoing lower respiratory tract disease, then the sputum or other lower respiratory tract specimens must be PCR negative for SARS-CoV-2. Otherwise upper respiratory tract specimens (nasopharyngeal or nose and throat swabs) must be PCR negative.

³A small proportion of people may have an illness that has completely resolved but their respiratory specimens remain persistently PCR positive. A decision on release from isolation for these people should be made on a case-by-case basis after consultation between the person’s treating medical practitioner, the testing laboratory and public health. Results of viral culture, if available, may be included in this consideration.

Follow up should include the person being reviewed seven days after release from isolation for:

- clinical review to ensure full symptom resolution
- collection of a serum specimen for storage and possible later serologic testing (the person should be informed that this is for future test development and does not inform their clinical care).

Routine PCR testing at seven days after release is not recommended unless the person has clinical features consistent with COVID-19.

Aerosol-generating procedures

Appropriate care should be taken during aerosol-generating procedures. Aerosol-generating procedures include: tracheal intubation, non-invasive ventilation, tracheostomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy. Collection of upper respiratory specimens is not generally regarded as aerosol generating, but airborne precautions should be used for collection of specimens from severely symptomatic patients (see [Laboratory testing section](#)).

P2/N95 respirators should be used only when required. Unless used correctly, i.e. with fit-checking, they are unlikely to protect against airborne pathogen spread.

Airborne precautions should be used routinely for aerosol-generating procedures, such as bronchoscopy, intubation, suctioning etc. in hospital settings. Nebuliser use should be discouraged and alternative administration devices (e.g. spacers) should be used.

The [Laboratory testing section](#) provides detailed information on sample collection for SARS-CoV-2.

Active case finding

Contacts (see [Contact management section](#)) should be identified and advised to immediately seek medical advice should they develop symptoms. Contacts or caregivers should be asked to also inform the public health agency if they develop symptoms.

4. Environmental evaluation

Where local transmission of COVID-19 is thought possible, a thorough review of contributing environmental factors should be done. This should include a review of infection control procedures, and opportunities for exposure to respiratory or faecal contamination.

If a case has had occupational exposure to animals it may be appropriate to consult with animal health authorities.

5. Infectious period

According to current evidence there has been a single reported episode of transmission of COVID-19 prior to onset of symptoms. As this is an isolated episode it is still considered likely that cases become infectious from onset of symptoms. In recognition of the evolving situation and potential for poor recall of symptom onset by cases, for the purpose defining close contacts (see [Contact management](#)) a 24 hour window before onset of symptoms has been applied as a highly precautionary approach.

6. Contact management

As there remain gaps in the understanding of infectivity of COVID-19 cases and transmission modes, the definition of contacts and their public health management is based on available information on COVID-19 together with observations from similar serious coronaviruses – SARS-CoV and MERS-CoV. Distinction is made between close contacts and casual contacts.

Identification of contacts

All persons categorised as a contact (see definitions of “close contacts” and “casual contacts” following) of confirmed cases should be followed-up, and monitored for the development of symptoms for 14 days after the last exposure to the case (i.e. the maximum incubation period).

Contacts of suspected cases should also be considered for contact management if there is likely to be a delay in confirming or excluding COVID-19 in the suspected case, such as delayed testing.

Close contact definition

A close contact is defined as requiring:

- greater than 15 minutes face-to-face contact in any setting with a confirmed case in the period extending from 24 hours before onset of symptoms in the confirmed case, or
- sharing of a closed space with a confirmed case for a prolonged period (e.g. more than 2 hours) in the period extending from 24 hours before onset of symptoms in the confirmed case.

For the purposes of surveillance, a close contact includes a person meeting any of the following criteria:

- Living in the same household or household-like setting (e.g. in a boarding school or hostel).
- Direct contact with the body fluids or laboratory specimens of a case without recommended PPE or failure of PPE.
- A person who spent 2 hours or longer in the same room (such as a GP or ED waiting room).
- A person in the same hospital room when an aerosol generating procedure is undertaken on the case, without recommended PPE.
- Aircraft passengers who were seated in the same row as the case, or in the two rows in front or two rows behind a confirmed COVID-19 case. Contact tracing of people who may have had close contact on long bus or train trips should also be attempted where possible, using similar seating/proximity criteria.
- All crew-members on an aircraft who worked in the same cabin area as a confirmed case of COVID-19. If a crew member is the COVID-19 case, contact tracing efforts should concentrate on passengers seated in the area where the crew member was working during the flight and all of the other members of the crew.

Contact needs to have occurred within the period extending 24 hours before onset of symptoms in the case until the case is classified as no longer infectious by the treating team (usually 24 hours after the resolution of symptoms).

Casual contact definition

Casual contact is defined as any person having less than 15 minutes face-to-face contact with a symptomatic confirmed case in any setting, or sharing a closed space with a symptomatic confirmed case for less than 2 hours. This will include healthcare workers, other patients, or visitors who were in the same closed healthcare space as a case, but for shorter periods than those required for a close contact. Other closed settings might include schools or offices.

Note that healthcare workers and other contacts who have taken recommended infection control precautions, including the use of full PPE, while caring for a symptomatic confirmed COVID-19 case are not considered to be close contacts. However, these people should be advised to self-monitor and if they develop symptoms consistent with COVID-19 they should isolate themselves and notify their public health unit or staff health unit so they can be tested and managed as a suspected COVID-19 case (see recommendations below under Management of symptomatic contacts).

Other casual contacts may include:

- Extended family groups, e.g. in an Aboriginal community.

- Aircraft passengers who were not seated nearby a symptomatic confirmed case or a crew-member who did not work in the same cabin area as a symptomatic confirmed case (see close contact definition).

Where resources permit, more active contact tracing may be extended to other persons who have had casual contact (as defined above), particularly in school, office, or other closed settings. In these circumstances, the size of the room/space and degree of separation of the case from others should be considered in identifying contacts.

Contact assessment

All persons identified as having had contact with a confirmed case should be assessed to see if they should be classified as a close contact and have demographic and epidemiological data collected. Information on close contacts should be managed according to jurisdictional requirements.

Identification and assessment of the contacts of suspected cases may be deferred pending the results of initial laboratory testing.

Close contact testing

Routine laboratory screening for COVID-19 is not recommended for asymptomatic close contacts.

Prophylaxis

No specific chemoprophylaxis is available for contacts.

Education

Close contacts should be counselled about their risk and the symptoms of COVID-19 and provided with a COVID-19 factsheet. They should be advised to self-quarantine.

Isolation and restriction

Close contacts

Asymptomatic close contacts should be advised to self-quarantine at home for 14 days following the last contact with the case, and to monitor their health for 14 days after the last possible contact with a confirmed COVID-19 case.

Public health units should conduct active daily monitoring of close contacts for symptoms for 14 days after the last possible contact with a confirmed COVID-19 case.

Self-quarantined close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Less frequent active follow-up together with passive surveillance may be necessary if there are large numbers of close contacts to monitor.

Casual contacts

Casual contacts should monitor their health for 14 days and report any symptoms immediately to the local public health unit. There are no restrictions on movements; however, casual contacts should be advised to isolate themselves and contact the public health unit if they develop symptoms.

Returned travellers who have left or transited through mainland China

Returned travellers who have left or transited through China in the last 14 days **who are unwell** with fever or with respiratory symptoms, with or without fever, or other symptoms consistent with COVID-19 should be isolated and managed as per the current recommendations for suspected cases.

Well returned travellers who have left or transited through mainland China (excluding Hubei) on or after 1 February 2020, should self-quarantine at home for 14 days after leaving mainland China.

Well returned travellers who have left Hubei province (including Wuhan) should self-quarantine at home for 14 days after leaving Hubei.

Self-quarantined returned travellers should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Healthcare worker close contacts

Healthcare worker close contacts (i.e. persons exposed while unprotected, as described in the [Contact definition section](#)) should be advised not to undertake work in a healthcare setting for 14 days following the last possible contact with the case. They should also be advised to self-quarantine at home for 14 days following the last contact with the case.

Self-quarantined healthcare worker close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Public health units may assist infection control units of health facilities to identify and monitor healthcare worker close contacts.

It is recognised that clinical work restrictions on healthcare worker close contacts may place strain on individuals and on health services. This underlines the importance of ensuring healthcare workers implement appropriate infection control precautions when assessing and managing suspected, confirmed COVID-19 cases.

CDNA will continue to monitor the emerging evidence around COVID-19 transmission risks in healthcare settings and revise these recommendations as needed.

Medical care for quarantined individuals

If individuals under self-quarantine need to see a doctor for any reason (e.g. fever and respiratory symptoms or other illness/injury), they should **telephone their GP or hospital Emergency Department before presenting. Patients with severe symptoms should call 000 and make it clear they are in self-quarantine or isolation because of COVID-19.** If the patient has **symptoms consistent with the COVID-19 [case definition](#)**, the local public health unit should be consulted about the most suitable venue for clinical assessment and specimen collection.

Management of symptomatic contacts

If fever or respiratory symptoms, with or without fever, or other symptoms consistent with COVID-19 develop within the first 14 days following the last contact, PHU staff should arrange for the individual to be immediately isolated and managed as per the current recommendations for suspected COVID-19 cases, with urgent testing for COVID-19 undertaken in an environment which minimises the exposure of others.

Ill contacts who are being evaluated for COVID-19 can be appropriately isolated and managed at home, unless their condition is severe enough to require hospitalisation.

Symptomatic contacts who test negative for SARS-CoV-2 by PCR will still need to be monitored for 14 days after their last contact with a confirmed COVID-19 case and may require re-testing.

7. Appendices

Appendix A: SARS-CoV-2 Laboratory testing information

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

Appendix A: SARS-CoV-2 Laboratory testing information

Laboratory testing for SARS-CoV-2 continues to evolve rapidly with the accumulation of clinical data, and as reagents and protocols are refined.

The aim of testing, if clinically appropriate, is to exclude common respiratory viruses using local hospital and community nucleic acid testing capacity, and to simultaneously refer onward to a laboratory with capacity to test for SARS-CoV-2. As co-infection is possible, initial testing protocols should include testing for SARS-CoV-2 in patients with epidemiological risk, even where another infection is shown to be present.

Samples for testing

- (i) upper respiratory tract samples
- (ii) lower respiratory tract sample if the lower tract is involved
- (iii) Serum (to be stored pending serology availability)

Upper respiratory tract samples

1. Nasopharyngeal swab and/or oropharyngeal swab, Dacron or Rayon, flocked preferred
 - nasopharyngeal: insert a swab into each nostril parallel to the palate, leave the swab in place for a few seconds to absorb secretions
 - oropharyngeal: swab the tonsillar beds, avoiding the tongue
 - place swabs back into the accompanying transport media
2. Nasal wash/aspirates
 - collect 2-3 mL into a sterile, leak-proof, screw-top dry sterile container

Lower respiratory tract samples (to be collected in hospital and/or using airborne precautions)

1. Sputum
 - patient should rinse his/her mouth with water before collection
 - expectorate deep cough sputum directly into a sterile, leak-proof, screw-top dry sterile container
2. Bronchoalveolar lavage, tracheal aspirate, pleural fluid
 - collect 2-3 mL into a sterile, leak-proof, screw-top sputum collection cup or dry sterile container

As lower respiratory tract specimens contain the highest viral loads in SARS-CoV and MERS-CoV, it is advised that lower respiratory tract specimens should be collected for SARS-CoV-2 testing where possible. Initial experience in testing for SARS-CoV-2 seems to be consistent with this prior experience. Repeat testing (especially of lower respiratory tract specimens) in clinically compatible cases should be performed if initial results are negative and there remains a high index of suspicion of infection.

Serology

Serum should be collected during the acute phase of the illness (preferably within the first 7 days of symptom onset), stored, and when serology testing becomes available tested in parallel with convalescent sera collected 3 or more weeks after acute infection. If no acute sample was collected, sera collected 14 or more days after symptom onset may be tested.

Specimen handling in the laboratory

Virology

Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment. Specimens should be transported in accordance with current regulatory requirements as diagnostic samples for testing.

Clinical Pathology

Standard precautions should be used for non-microbial pathology testing (such as routine biochemistry and haematology). Where possible auto-analysers should be used according to standard practices and/or local protocols. There is evidence that capping and uncapping of samples is not a high risk aerosol generating procedure.

Respiratory Virus Diagnostic Testing

Nucleic acid testing of the upper respiratory tract sample is performed for influenza and other common respiratory viruses using standard protocols and methods of the hospital or community laboratory.

Standard protocols of the testing laboratory for respiratory sample processing should be used. This is expected to consist of PC2 laboratory practices, and use of a Class II Biosafety cabinet for aerosol generating procedures (such as centrifuging without sealed carriers, vortexing, sonicating). Attempted viral culture, which would require higher levels of biocontainment would not be routinely attempted.

The residue (original swab and remaining eluate) of the upper tract sample is forwarded together with the lower tract sample and the serum to the reference laboratory with SARS-CoV-2 testing capacity requesting SARS-CoV-2 testing.

Clinical liaison with jurisdictional public health officers is essential to coordinate referral & testing.

Standard protocols should be used for sample packaging and transport as diagnostic samples for testing (i.e. Category B).

SARS-CoV-2 specific testing

Nucleic acid testing (NAT) using real time polymerase chain reaction (RT-PCR) is the method of choice for detection of SARS-CoV-2. Specific diagnostic test approaches for SARS-CoV-2 will be described here only in broad terms. There is significant variation in PCR assays employed by different PHLN member laboratories, and test algorithms are likely to be further refined over time.

Specific Real Time PCR primer sets to detect the SARS-CoV-2 are available. Some PHLN member laboratories have designed their own, and some have implemented primer sets recommended to the World Health Organization (WHO) by leading international coronavirus reference laboratories (available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance>). The majority of PHLN testing capacity now employs relatively swift RT-PCR assays for screening, with a turnaround time of several hours. Confirmation of positives is being done either with RT-PCR assays detecting a different target gene, or broadly reactive PCR tests with sequencing of amplicons (see below).

Well pedigreed PCR primer sets, probes and protocols are available from the WHO/ European Viral Archive (EVAg) (available at: https://www.who.int/docs/default-source/coronaviruse/protocol-v2-1.pdf?sfvrsn=a9ef618c_2).

Many PCR assays, including those available through WHO will also detect other zoonotic coronaviruses such as SARS-CoV, sometimes with a recognisable shift in the cycle threshold value (Ct) compared to the SARS-CoV-2 target, but not commonly circulating coronaviruses usually detected by commercial assays (e.g. NL63, 229E strains).

Several Australasian PHLN reference laboratories began diagnostic testing for the current outbreak using PCR assays capable of detecting a wide range of coronaviruses, including zoonotic and novel pathogens. A number of these were mapped against the promulgated Chinese nucleic acid sequence of SARS-CoV-2 early in the course of the outbreak. Nucleic acid sequencing of amplicons from positive tests is used to identify the coronavirus in this approach. These assays have relatively long turnaround times and have largely been replaced by RT-PCR other than in a confirmatory role in some laboratories.

Complementary DNA (cDNA) synthesized from the VIDRL SARS-CoV-2 has now been made available to all PHLN member laboratories as a test positive control. Synthetic positive control material in the form of nucleic acid templates is also available through WHO/ European Viral Archive (EVAg).

Testing algorithms are likely to be revised pending further information about the virus, and the number of specimens received in the laboratory for testing.

Viral culture should not be performed for routine diagnosis, and should only be attempted in reference laboratories with appropriate experience and containment facilities. Currently where attempted this is being done at Physical Containment Level 3 (PC3), consistent with current recommendations for SARS-CoV, pending specific SARS-CoV-2 international recommendations.

No Quality Assurance Program (QAP) is currently available internationally specific for SARS-CoV-2, although QAPs are available in Australia for respiratory viruses including coronaviruses other than SARS-CoV-2. The RCPAQAP with Commonwealth support will introduce a SARS-CoV-2 specific QAP to supplement previously available SARS-CoV, MERS-CoV and other coronaviruses, during the first half of 2020.

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

These recommendations are intended for hospital personnel who enter a clinical space with COVID-19 patients, including wardspersons, food deliverers, cleaners, and clinical personnel.

Background:

Although Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) which causes COVID-19 has spread rapidly and widely in mainland China, there has been limited transmission elsewhere, i.e. containment precautions have been mostly successful to date. At the time of writing, the crude mortality (~2%) in China is based on laboratory confirmed cases; many milder cases are almost certainly not being tested and the mortality is likely to be lower. Most cases in Australia have been relatively mild but a small number of deaths has been reported outside of mainland China. While a number of healthcare-associated infections have been reported with COVID-19 (in healthcare workers and patients) – as occurred with SARS and MERS - the risk for COVID-19 is likely to be very low, when infection control precautions are adhered to correctly.

General principles:

- **Standard precautions, including hand hygiene (5 Moments)** for all patients with respiratory infections. Patients and staff should observe cough etiquette and respiratory hygiene,
- **Transmission-based precautions** for patients with suspected or confirmed COVID-19:
 - **Contact and droplet precautions** for **routine care** of patients.
 - **Contact and airborne precautions** for **aerosol generating procedures (AGPs)**.

Contact and droplet precautions:

Contact and droplet precautions can be safely used for routine patient care of inpatients with suspected or confirmed COVID-19 (see Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units for case definition)

- On presentation or admission to hospital the patient should be:
 - given a surgical mask to put on, and
 - placed in a single room (ensuring air does not circulate to other areas)
 - placed in a negative pressure room (in the event of AGPs being performed).
- If transfer outside the room is essential, the patient should wear a surgical mask during transfer and follow respiratory hygiene and cough etiquette.
- For most inpatient contacts between healthcare staff and patients the following PPE is safe and appropriate and should be put on before entering the patient's room:
 - long-sleeved gown
 - surgical mask
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- For hospitalised patients requiring frequent attendance by medical and nursing staff, a P2/N95 respirator should be considered for prolonged or very close contact.

Contact and airborne precautions for aerosol-generating procedures (AGPs) and care of clinically ill patients requiring high level/high volume hands-on contact outside of ICU:

- **Contact and airborne precautions should be used routinely for AGPs**, which include:
 - tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy (and bronchoalveolar lavage), high flow nasal oxygen
 - The use of nebulisers should be avoided and alternative medication administration devices (e.g. spacers) used.
- PPE for contact and airborne procedures should be put on before entering patients room:
 - long-sleeved gown
 - P2/N95 respirator (mask) – should be fit-checked with each use
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- P2/N95 respirators (mask) should be used only when required.
- Unless used correctly, i.e. with fit-checking, a P2/N95 respirator (mask) is unlikely to protect against airborne pathogen spread.
 - An air-tight seal may be difficult to achieve for people with facial hair. Fit checking with a range of P2/N95 respirators must occur to assess the most suitable one to achieve a protective seal. If a tight seal cannot be achieved, facial hair should be removed.

Care of critically ill patients in ICU

- Patients who require admission to ICU with severe COVID-19 are likely to have a high viral load, particularly in the lower respiratory tract
- **Contact and airborne precautions** (as above) are required for patient care and are adequate for most AGPs.
 - The risk of aerosol transmission is reduced once the patient is intubated with a closed ventilator circuit but there is a potential, but unknown, risk of transmission from other body fluids such as diarrhoeal stool or vomitus or inadvertent circuit disconnection
- If a health care professional is required to remain in the patient's room continuously for a long period (e.g. more than one hour), because of the need to perform multiple procedures, the use of a powered air purifying respirator (PAPR) may be considered for additional comfort and visibility. A number of different types of relatively lightweight, comfortable PAPRs are now available and should be used according to manufacturer's instructions. Only **PPE marked as reusable** should be reused, following **reprocessing** according to manufacturer's instructions, All other PPE must be disposed of after use.

ICU staff caring for patients with COVID-19 (or any other potentially serious infectious disease) should be trained in the correct use of PPE, including by an infection control professional. This also applies particularly to the use of PAPRs, if required. Particular care should be taken on removal of PAPR, which is associated with a risk of contamination.

Additional precautions:**Staff**

- A staff log for each room entry should be maintained, to allow monitoring of potential breaches of infection control and follow-up contacts, if necessary.

Disposal of PPE and other waste

- Waste should be disposed in the normal way for clinical waste
- All non-clinical waste is disposed of into general waste

Handling of linen

- Routine procedures for handling of infectious linen should be followed
- Visibly soiled linen should be placed in a (soluble) plastic bag inside a linen skip

Environmental cleaning of patient care areas

- Cleaners should observe contact and droplet precautions (as above).
- Frequently touched surfaces (such as doorknobs, bedrails, tabletops, light switches, patient handsets) in the patient's room should be cleaned daily.
- Terminal cleaning of all surfaces in the room (as above plus floor, ceiling, walls, blinds) should be performed after the patient is discharged.
- A combined cleaning and disinfection procedure should be used, either 2-step - detergent clean, followed by disinfectant; or 2-in-1 step - using a product that has both cleaning and disinfectant properties. Any hospital-grade, TGA-listed disinfectant that is commonly against norovirus is suitable, if used according to manufacturer's instructions.

COVID-19

CDNA National Guidelines for Public Health Units

Revision history			
Version	Date	Revised by	Changes
1.8	17 February 2020	Communicable Diseases Network Australia	Inclusion of statement reflecting that passengers of the Diamond Princess cruise meet the criteria for close contact.
1.7	15 February 2020	Communicable Diseases Network Australia	Revised case definition.
1.6	14 February 2020	Communicable Diseases Network Australia	Addition of Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19). Updated nomenclature.
1.5	7 February 2020	Communicable Diseases Network Australia	Inclusion of advice on release from isolation.
1.4	6 February 2020	Communicable Diseases Network Australia	Revised case definition and added rationale. Updated infection control advice throughout.
1.3	4 February 2020	Communicable Diseases Network Australia	Revised the case definition and use of the terms 'quarantine' and 'isolation'.
1.2	2 February 2020	Communicable Diseases Network Australia	Revised the case definition, close and casual contact definitions and added self-isolation guidance.
1.1	27 January 2020	Communicable Diseases Network Australia	Removed references to Wuhan and revised the case definition
1.0	23 January 2020	Communicable Diseases Network Australia	Developed by the 2019-nCoV Working Group

This document summarises interim recommendations for surveillance, infection control, laboratory testing and contact management for coronavirus disease 2019 (COVID-19). It is the first national guidance issued for COVID-19 and will be further developed into the Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units (COVID-19 SoNG).

It has been adapted from CDNA National Guidelines for Public Health Units MERS-CoV, utilising current CDC and WHO guidance, and is based on the current knowledge of the situation in mainland China and other countries, and experiences with SARS-CoV and MERS-CoV.

CDNA will review and update these recommendations as required as new information becomes available on the situation.

These interim Guidelines are to be used in the first instance whilst a Series of National Guidelines is being developed by the Communicable Diseases Network Australia (CDNA).

These interim guidelines capture the knowledge of experienced professionals, and provide guidance on best practice based upon the best available evidence at the time of completion.

Readers should not rely solely on the information contained within these Guidelines. Guideline information is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a health professional. Clinical judgement and discretion may be required in the interpretation and application of these guidelines.

The membership of the CDNA and the AHPPC, and the Commonwealth of Australia as represented by the Department of Health ('the Commonwealth'), do not warrant or represent that the information contained in these Guidelines is accurate, current or complete. The CDNA, the AHPPC and the Commonwealth do not accept any legal liability or responsibility for any loss, damages, costs or expenses incurred by the use of, or reliance on, or interpretation of, the information contained in these Guidelines.

Abbreviations and definitions

COVID-19:	coronavirus disease 2019. The name of the disease caused by the virus SARS-CoV-2, as agreed by the World Health Organization, the World Organization for Animal Health and the Food and Agriculture Organization of the United Nations. For more information, see the World Health Organization Director-General's remarks: https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020
SARS-CoV-2:	severe acute respiratory syndrome coronavirus 2. The formal name of the coronavirus which causes COVID-19, as determined by the International Committee on Taxonomy of Viruses. Previously, this coronavirus was commonly known as 'novel coronavirus 2019 (2019-nCoV)'. For more information see the International Committee on Taxonomy of Viruses manuscript: https://www.biorxiv.org/content/10.1101/2020.02.07.937862v1.full.pdf

1. Case definition

Confirmed case

A person who tests positive to a specific SARS-CoV-2 PCR test or has the virus identified by electron microscopy or viral culture, at a reference laboratory.

Suspect case

If the patient satisfies epidemiological and clinical criteria, they are classified as a suspect case.

Epidemiological criteria

- Travel to (including transit through) mainland China in the 14 days before the onset of illness.

OR

- Close or casual contact (see [Contact definition](#) below) in 14 days before illness onset with a confirmed case of COVID-19.

Clinical criteria

- Fever.

OR

- Acute respiratory infection (e.g. shortness of breath or cough) with or without fever.

Person under investigation

It is recommended that clinicians should consider testing people with a clinically compatible illness who travelled to any of the following countries in the 14 days before onset of symptoms:

- Hong Kong
- Indonesia
- Japan
- Singapore
- Thailand

This list* is based on the volume of travel between those countries, Australia and China, and/or the current epidemiology of COVID-19; however, the risk of COVID-19 in these countries is currently thought to be low. Clinical and public health judgement should be applied. The recommendation does not apply to passengers who have only been in transit through an airport in these countries.

Note: if a clinician determines that a **person under investigation** should be tested then that person must be managed as a **suspect case**.

*This list is in alphabetical order.

Rationale for current case definitions

The case definitions are based on what is currently known about the clinical and epidemiological profile of cases of COVID-19 presenting to date both in Australia and internationally. Health authorities are constantly monitoring the spectrum of clinical symptoms as cases arise, and, if there are any significant shifts, they will be reflected in the above definitions in future versions of this document. The same monitoring and revision applies for epidemiological criteria as new areas of varying risk emerge outside mainland China.

The 14 day period is based upon what is currently known to be the upper time limit of the incubation period. As more precise information about the incubation period emerges, this will be reviewed.

2. Laboratory testing

Patients to be considered for SARS-CoV-2 testing are described under the suspected case definition (above). Where applicable, consult with your state/territory communicable diseases agency to seek advice on which laboratories can provide SARS-CoV-2 testing; appropriate specimen type, collection and transport; and also to facilitate contact management if indicated.

When collecting respiratory specimens, transmission-based precautions should be observed whether or not respiratory symptoms are present.

For most patients with mild illness in the community, collection of upper respiratory specimens (i.e. nasopharyngeal or oropharyngeal swabs) is a low risk procedure and can be performed using **contact and droplet precautions**:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield), and surgical mask.
- To collect throat or nasopharyngeal swab stand slightly to the side of the patient to avoid exposure to respiratory secretions, should the patient cough or sneeze.
- At completion of consultation, remove personal protective equipment (PPE) and perform hand hygiene, wipe any contacted/contaminated surfaces with detergent /disinfectant.
- Note that, for droplet precautions, the room does not need to be left empty after sample collection.

If the patient has severe symptoms suggestive of pneumonia, e.g. fever and breathing difficulty, or frequent, severe or productive coughing episodes then **contact and airborne precautions** should be observed.

Patients with these symptoms should be managed in hospital, and sample collection conducted in a negative pressure room, if available. If referral to hospital for specimen collection is not possible, specimens should be collected in a room from which air does not circulate to other areas. The door should be closed during specimens collection and the room left vacant for at least 30 minutes afterwards (cleaning can be performed during this time by a person wearing PPE).

The following precautions should be observed:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield) and a **P2/N95 respirator – which should be fit checked**.

- At completion of consultation, remove gown and gloves, perform hand hygiene, remove eye protection and P2/N95 respirator. Do not touch the front of any item of PPE during removal; perform hand hygiene.
- The room surfaces should be wiped clean with disinfectant wipes by a person wearing gloves, gown and surgical mask.

For further information on circumstances requiring airborne precautions, see [aerosol generating procedures](#).

Routine tests for acute pneumonia/pneumonitis should be performed where indicated, including bacterial cultures, acute and convalescent serology, urinary antigen testing and nucleic acid tests for respiratory viruses, according to local protocols.

Serology for SARS-CoV-2 is not yet available. Collection of serum for storage by the SARS-CoV-2 testing laboratory is recommended to facilitate retrospective testing, if this is relevant, once serology tests become available.

See [Appendix A](#) for additional SARS-CoV-2 laboratory testing information.

3. Case management

Response times

On the same day as notification of a suspected or confirmed case, begin follow up investigation and, where applicable, notify your central state or territory communicable diseases agency.

PHU staff should be available to contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners.

Response procedure

Case investigation

The response to a notification will normally be carried out in collaboration with the clinicians managing the case, and be guided by the COVID-19 public health unit checklist and the COVID-19 investigation form (currently pending).

Regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend that tests be done.
- Seek the treating doctor's permission to contact the case or relevant care-giver.
- Determine if the diagnosis has been discussed with the case or relevant care-giver before beginning the interview.
- Review case and contact management.
- Ensure appropriate infection control guidelines are followed in caring for the case.
- Identify the likely source of infection.

Note: If interviews with suspected cases are conducted face-to-face, the person conducting the interview must have a thorough understanding of infection control practices and be competent in using appropriate PPE.

Case treatment

In the absence of pathogen-specific interventions, patient management largely depends on supportive treatment, and vigilance for and treatment of complications.

Further advice on clinical management is available from WHO: (https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2)

Education

Provide a COVID-19 factsheet to cases and their close contacts.

Ensure that they are aware of the signs and symptoms of COVID-19, the requirements of quarantine and isolation, contact details of the PHU and the infection control practices that can prevent the transmission of COVID-19.

Isolation and restriction

Cases will generally be managed in hospital. If clinically indicated, cases may be managed at home only if it can be ensured that the case and household contacts are counselled about risk and that appropriate infection control measures are in place.

Healthcare workers and others who come into contact with suspected and confirmed cases must be protected according to recommended infection control guidelines. Visitors should be restricted to close family members.

A risk assessment should be undertaken for suspected cases who initially test negative for SARS-CoV-2. If there is no alternative diagnosis and a high index of suspicion remains that such cases may have COVID-19, consideration should be given to continued isolation and use of the recommended infection control precautions, pending further testing (see [Laboratory testing section](#) and [Appendix A](#)) and re-assessment.

Given the severity of reported infections, the evidence of limited human-to-human transmission, and gaps in knowledge of transmission pathways, the recommendations on isolation and PPE for management of suspected and confirmed cases take a deliberately cautious approach.

In addition to standard precautions, interim recommendations for the use of PPE during clinical care of people with possible COVID-19 are:

- **Contact and droplet precautions** are recommended for **routine care** of patients in quarantine or with suspected or confirmed COVID-19.
- **Contact and airborne precautions** are recommended when performing **aerosol-generating procedures**, including intubation and bronchoscopy.

Other recommended infection control measures include:

- On presentation of the patient to a healthcare setting (GP, hospital ED, or pathology collection centre) and whether or not respiratory symptoms are present, the patient should immediately be:
 - given a surgical mask to put on, and
 - directed to a single room. If the patient has severe symptoms suggestive of pneumonia, they should be directed to a negative pressure room, if available, or a room from which the air does not circulate to other areas.

- If a patient with confirmed COVID-19 needs to be transferred out of their isolation room, the patient should wear a “surgical” face mask and follow respiratory hygiene and cough etiquette.

Release from isolation

A confirmed case can be released from isolation if they meet all of the following criteria:

- the person has been afebrile for the previous 48 hours;
- resolution of the acute illness for the previous 24 hours¹;
- be at least 7 days after the onset of the acute illness;
- PCR negative on at least two consecutive specimens collected 24 hours apart after the acute illness has resolved^{2,3}.

¹Some people may have pre-existing illnesses with chronic respiratory signs or symptoms, such as chronic cough. For these people, the treating medical practitioner should make an assessment as to whether the signs and symptoms of COVID-19 have resolved.

²If the patient has a productive cough due to a pre-existing respiratory illness or other ongoing lower respiratory tract disease, then the sputum or other lower respiratory tract specimens must be PCR negative for SARS-CoV-2. Otherwise upper respiratory tract specimens (nasopharyngeal or nose and throat swabs) must be PCR negative.

³A small proportion of people may have an illness that has completely resolved but their respiratory specimens remain persistently PCR positive. A decision on release from isolation for these people should be made on a case-by-case basis after consultation between the person’s treating medical practitioner, the testing laboratory and public health. Results of viral culture, if available, may be included in this consideration.

Follow up should include the person being reviewed seven days after release from isolation for:

- clinical review to ensure full symptom resolution
- collection of a serum specimen for storage and possible later serologic testing (the person should be informed that this is for future test development and does not inform their clinical care).

Routine PCR testing at seven days after release is not recommended unless the person has clinical features consistent with COVID-19.

Aerosol-generating procedures

Appropriate care should be taken during aerosol-generating procedures. Aerosol-generating procedures include: tracheal intubation, non-invasive ventilation, tracheostomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy. Collection of upper respiratory specimens is not generally regarded as aerosol generating, but airborne precautions should be used for collection of specimens from severely symptomatic patients (see [Laboratory testing section](#)).

P2/N95 respirators should be used only when required. Unless used correctly, i.e. with fit-checking, they are unlikely to protect against airborne pathogen spread.

Airborne precautions should be used routinely for aerosol-generating procedures, such as bronchoscopy, intubation, suctioning etc. in hospital settings. Nebuliser use should be discouraged and alternative administration devices (e.g. spacers) should be used.

The [Laboratory testing section](#) provides detailed information on sample collection for SARS-CoV-2.

Active case finding

Contacts (see [Contact management section](#)) should be identified and advised to immediately seek medical advice should they develop symptoms. Contacts or caregivers should be asked to also inform the public health agency if they develop symptoms.

4. Environmental evaluation

Where local transmission of COVID-19 is thought possible, a thorough review of contributing environmental factors should be done. This should include a review of infection control procedures, and opportunities for exposure to respiratory or faecal contamination.

If a case has had occupational exposure to animals it may be appropriate to consult with animal health authorities.

5. Infectious period

According to current evidence there has been a single reported episode of transmission of COVID-19 prior to onset of symptoms. As this is an isolated episode it is still considered likely that cases become infectious from onset of symptoms. In recognition of the evolving situation and potential for poor recall of symptom onset by cases, for the purpose defining close contacts (see [Contact management](#)) a 24 hour window before onset of symptoms has been applied as a highly precautionary approach.

6. Contact management

As there remain gaps in the understanding of infectivity of COVID-19 cases and transmission modes, the definition of contacts and their public health management is based on available information on COVID-19 together with observations from similar serious coronaviruses – SARS-CoV and MERS-CoV. Distinction is made between close contacts and casual contacts.

Identification of contacts

All persons categorised as a contact (see definitions of “close contacts” and “casual contacts” following) of confirmed cases should be followed-up, and monitored for the development of symptoms for 14 days after the last exposure to the case (i.e. the maximum incubation period).

Contacts of suspected cases should also be considered for contact management if there is likely to be a delay in confirming or excluding COVID-19 in the suspected case, such as delayed testing.

Close contact definition*

A close contact is defined as requiring:

- greater than 15 minutes face-to-face contact in any setting with a confirmed case in the period extending from 24 hours before onset of symptoms in the confirmed case, or
- sharing of a closed space with a confirmed case for a prolonged period (e.g. more than 2 hours) in the period extending from 24 hours before onset of symptoms in the confirmed case.

For the purposes of surveillance, a close contact includes a person meeting any of the following criteria:

- Living in the same household or household-like setting (e.g. in a boarding school or hostel).
- Direct contact with the body fluids or laboratory specimens of a case without recommended PPE or failure of PPE.
- A person who spent 2 hours or longer in the same room (such as a GP or ED waiting room).
- A person in the same hospital room when an aerosol generating procedure is undertaken on the case, without recommended PPE.
- Aircraft passengers who were seated in the same row as the case, or in the two rows in front or two rows behind a confirmed COVID-19 case. Contact tracing of people who may have had close contact on long bus or train trips should also be attempted where possible, using similar seating/proximity criteria.
- All crew-members on an aircraft who worked in the same cabin area as a confirmed case of COVID-19. If a crew member is the COVID-19 case, contact tracing efforts should concentrate on passengers seated in the area where the crew member was working during the flight and all of the other members of the crew.

Contact needs to have occurred within the period extending 24 hours before onset of symptoms in the case until the case is classified as no longer infectious by the treating team (usually 24 hours after the resolution of symptoms).

Casual contact definition

Casual contact is defined as any person having less than 15 minutes face-to-face contact with a symptomatic confirmed case in any setting, or sharing a closed space with a symptomatic confirmed case for less than 2 hours. This will include healthcare workers, other patients, or visitors who were in the same closed healthcare space as a case, but for shorter periods than those required for a close contact. Other closed settings might include schools or offices.

Note that healthcare workers and other contacts who have taken recommended infection control precautions, including the use of full PPE, while caring for a symptomatic confirmed COVID-19 case are not considered to be close contacts. However, these people should be advised to self-monitor and if they develop symptoms consistent with COVID-19 they should isolate themselves and notify their public health unit or staff health unit so they can be tested and managed as a suspected COVID-19 case (see recommendations below under Management of symptomatic contacts).

*On 17 February 2020, CDNA agreed that due to the ongoing transmission of COVID-19 on the Diamond Princess, all passengers and crew onboard the Diamond Princess cruise (which departed Yokohama on 20 January 2020 returning on 04 February 2020) are deemed close contacts and to be managed as such for up to 14 days from their departure from the ship.

Other casual contacts may include:

- Extended family groups, e.g. in an Aboriginal community.
- Aircraft passengers who were not seated nearby a symptomatic confirmed case or a crew-member who did not work in the same cabin area as a symptomatic confirmed case (see close contact definition).

Where resources permit, more active contact tracing may be extended to other persons who have had casual contact (as defined above), particularly in school, office, or other closed settings. In these circumstances, the size of the room/space and degree of separation of the case from others should be considered in identifying contacts.

Contact assessment

All persons identified as having had contact with a confirmed case should be assessed to see if they should be classified as a close contact and have demographic and epidemiological data collected. Information on close contacts should be managed according to jurisdictional requirements.

Identification and assessment of the contacts of suspected cases may be deferred pending the results of initial laboratory testing.

Close contact testing

Routine laboratory screening for COVID-19 is not recommended for asymptomatic close contacts.

Prophylaxis

No specific chemoprophylaxis is available for contacts.

Education

Close contacts should be counselled about their risk and the symptoms of COVID-19 and provided with a COVID-19 factsheet. They should be advised to self-quarantine.

Isolation and restriction

Close contacts

Asymptomatic close contacts should be advised to self-quarantine at home for 14 days following the last contact with the case, and to monitor their health for 14 days after the last possible contact with a confirmed COVID-19 case.

Public health units should conduct active daily monitoring of close contacts for symptoms for 14 days after the last possible contact with a confirmed COVID-19 case.

Self-quarantined close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Less frequent active follow-up together with passive surveillance may be necessary if there are large numbers of close contacts to monitor.

Casual contacts

Casual contacts should monitor their health for 14 days and report any symptoms immediately to the local public health unit. There are no restrictions on movements; however, casual contacts should be advised to isolate themselves and contact the public health unit if they develop symptoms.

Returned travellers who have left or transited through mainland China

Returned travellers who have left or transited through China in the last 14 days **who are unwell** with fever or with respiratory symptoms, with or without fever, or other symptoms consistent with COVID-19 should be isolated and managed as per the current recommendations for suspected cases.

Well returned travellers who have left or transited through mainland China (excluding Hubei) on or after 1 February 2020, should self-quarantine at home for 14 days after leaving mainland China.

Well returned travellers who have left Hubei province (including Wuhan) should self-quarantine at home for 14 days after leaving Hubei.

Self-quarantined returned travellers should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Healthcare worker close contacts

Healthcare worker close contacts (i.e. persons exposed while unprotected, as described in the [Contact definition section](#)) should be advised not to undertake work in a healthcare setting for 14 days following the last possible contact with the case. They should also be advised to self-quarantine at home for 14 days following the last contact with the case.

Self-quarantined healthcare worker close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Public health units may assist infection control units of health facilities to identify and monitor healthcare worker close contacts.

It is recognised that clinical work restrictions on healthcare worker close contacts may place strain on individuals and on health services. This underlines the importance of ensuring healthcare workers implement appropriate infection control precautions when assessing and managing suspected, confirmed COVID-19 cases.

CDNA will continue to monitor the emerging evidence around COVID-19 transmission risks in healthcare settings and revise these recommendations as needed.

Medical care for quarantined individuals

If individuals under self-quarantine need to see a doctor for any reason (e.g. fever and respiratory symptoms or other illness/injury), they should **telephone their GP or hospital Emergency Department before presenting. Patients with severe symptoms should call 000 and make it clear they are in self-quarantine or isolation because of COVID-19.** If the patient has **symptoms consistent with the COVID-19 [case definition](#)**, the local public health unit should be consulted about the most suitable venue for clinical assessment and specimen collection.

Management of symptomatic contacts

If fever or respiratory symptoms, with or without fever, or other symptoms consistent with COVID-19 develop within the first 14 days following the last contact, PHU staff should arrange for the individual to be immediately isolated and managed as per the current recommendations for suspected COVID-19 cases, with urgent testing for COVID-19 undertaken in an environment which minimises the exposure of others.

Ill contacts who are being evaluated for COVID-19 can be appropriately isolated and managed at home, unless their condition is severe enough to require hospitalisation.

Symptomatic contacts who test negative for SARS-CoV-2 by PCR will still need to be monitored for 14 days after their last contact with a confirmed COVID-19 case and may require re-testing.

7. Appendices

Appendix A: SARS-CoV-2 Laboratory testing information

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

Appendix A: SARS-CoV-2 Laboratory testing information

Laboratory testing for SARS-CoV-2 continues to evolve rapidly with the accumulation of clinical data, and as reagents and protocols are refined.

The aim of testing, if clinically appropriate, is to exclude common respiratory viruses using local hospital and community nucleic acid testing capacity, and to simultaneously refer onward to a laboratory with capacity to test for SARS-CoV-2. As co-infection is possible, initial testing protocols should include testing for SARS-CoV-2 in patients with epidemiological risk, even where another infection is shown to be present.

Samples for testing

- (i) upper respiratory tract samples
- (ii) lower respiratory tract sample if the lower tract is involved
- (iii) Serum (to be stored pending serology availability)

Upper respiratory tract samples

1. Nasopharyngeal swab and/or oropharyngeal swab, Dacron or Rayon, flocked preferred
 - nasopharyngeal: insert a swab into each nostril parallel to the palate, leave the swab in place for a few seconds to absorb secretions
 - oropharyngeal: swab the tonsillar beds, avoiding the tongue
 - place swabs back into the accompanying transport media
2. Nasal wash/aspirates
 - collect 2-3 mL into a sterile, leak-proof, screw-top dry sterile container

Lower respiratory tract samples (to be collected in hospital and/or using airborne precautions)

1. Sputum
 - patient should rinse his/her mouth with water before collection
 - expectorate deep cough sputum directly into a sterile, leak-proof, screw-top dry sterile container
2. Bronchoalveolar lavage, tracheal aspirate, pleural fluid
 - collect 2-3 mL into a sterile, leak-proof, screw-top sputum collection cup or dry sterile container

As lower respiratory tract specimens contain the highest viral loads in SARS-CoV and MERS-CoV, it is advised that lower respiratory tract specimens should be collected for SARS-CoV-2 testing where possible. Initial experience in testing for SARS-CoV-2 seems to be consistent with this prior experience. Repeat testing (especially of lower respiratory tract specimens) in clinically compatible cases should be performed if initial results are negative and there remains a high index of suspicion of infection.

Serology

Serum should be collected during the acute phase of the illness (preferably within the first 7 days of symptom onset), stored, and when serology testing becomes available tested in parallel with convalescent sera collected 3 or more weeks after acute infection. If no acute sample was collected, sera collected 14 or more days after symptom onset may be tested.

Specimen handling in the laboratory

Virology

Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment. Specimens should be transported in accordance with current regulatory requirements as diagnostic samples for testing.

Clinical Pathology

Standard precautions should be used for non-microbial pathology testing (such as routine biochemistry and haematology). Where possible auto-analysers should be used according to standard practices and/or local protocols. There is evidence that capping and uncapping of samples is not a high risk aerosol generating procedure.

Respiratory Virus Diagnostic Testing

Nucleic acid testing of the upper respiratory tract sample is performed for influenza and other common respiratory viruses using standard protocols and methods of the hospital or community laboratory.

Standard protocols of the testing laboratory for respiratory sample processing should be used. This is expected to consist of PC2 laboratory practices, and use of a Class II Biosafety cabinet for aerosol generating procedures (such as centrifuging without sealed carriers, vortexing, sonicating). Attempted viral culture, which would require higher levels of biocontainment would not be routinely attempted.

The residue (original swab and remaining eluate) of the upper tract sample is forwarded together with the lower tract sample and the serum to the reference laboratory with SARS-CoV-2 testing capacity requesting SARS-CoV-2 testing.

Clinical liaison with jurisdictional public health officers is essential to coordinate referral & testing.

Standard protocols should be used for sample packaging and transport as diagnostic samples for testing (i.e. Category B).

SARS-CoV-2 specific testing

Nucleic acid testing (NAT) using real time polymerase chain reaction (RT-PCR) is the method of choice for detection of SARS-CoV-2. Specific diagnostic test approaches for SARS-CoV-2 will be described here only in broad terms. There is significant variation in PCR assays employed by different PHLN member laboratories, and test algorithms are likely to be further refined over time.

Specific Real Time PCR primer sets to detect the SARS-CoV-2 are available. Some PHLN member laboratories have designed their own, and some have implemented primer sets recommended to the World Health Organization (WHO) by leading international coronavirus reference laboratories (available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance>). The majority of PHLN testing capacity now employs relatively swift RT-PCR assays for screening, with a turnaround time of several hours. Confirmation of positives is being done either with RT-PCR assays detecting a different target gene, or broadly reactive PCR tests with sequencing of amplicons (see below).

Well pedigreed PCR primer sets, probes and protocols are available from the WHO/ European Viral Archive (EVAg) (available at: https://www.who.int/docs/default-source/coronaviruse/protocol-v2-1.pdf?sfvrsn=a9ef618c_2).

Many PCR assays, including those available through WHO will also detect other zoonotic coronaviruses such as SARS-CoV, sometimes with a recognisable shift in the cycle threshold value (Ct) compared to the SARS-CoV-2 target, but not commonly circulating coronaviruses usually detected by commercial assays (e.g. NL63, 229E strains).

Several Australasian PHLN reference laboratories began diagnostic testing for the current outbreak using PCR assays capable of detecting a wide range of coronaviruses, including zoonotic and novel pathogens. A number of these were mapped against the promulgated Chinese nucleic acid sequence of SARS-CoV-2 early in the course of the outbreak. Nucleic acid sequencing of amplicons from positive tests is used to identify the coronavirus in this approach. These assays have relatively long turnaround times and have largely been replaced by RT-PCR other than in a confirmatory role in some laboratories.

Complementary DNA (cDNA) synthesized from the VIDRL SARS-CoV-2 has now been made available to all PHLN member laboratories as a test positive control. Synthetic positive control material in the form of nucleic acid templates is also available through WHO/ European Viral Archive (EVAg).

Testing algorithms are likely to be revised pending further information about the virus, and the number of specimens received in the laboratory for testing.

Viral culture should not be performed for routine diagnosis, and should only be attempted in reference laboratories with appropriate experience and containment facilities. Currently where attempted this is being done at Physical Containment Level 3 (PC3), consistent with current recommendations for SARS-CoV, pending specific SARS-CoV-2 international recommendations.

No Quality Assurance Program (QAP) is currently available internationally specific for SARS-CoV-2, although QAPs are available in Australia for respiratory viruses including coronaviruses other than SARS-CoV-2. The RCPAQAP with Commonwealth support will introduce a SARS-CoV-2 specific QAP to supplement previously available SARS-CoV, MERS-CoV and other coronaviruses, during the first half of 2020.

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

These recommendations are intended for hospital personnel who enter a clinical space with COVID-19 patients, including wardspersons, food deliverers, cleaners, and clinical personnel.

Background:

Although Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) which causes COVID-19 has spread rapidly and widely in mainland China, there has been limited transmission elsewhere, i.e. containment precautions have been mostly successful to date. At the time of writing, the crude mortality (~2%) in China is based on laboratory confirmed cases; many milder cases are almost certainly not being tested and the mortality is likely to be lower. Most cases in Australia have been relatively mild but a small number of deaths has been reported outside of mainland China. While a number of healthcare-associated infections have been reported with COVID-19 (in healthcare workers and patients) – as occurred with SARS and MERS - the risk for COVID-19 is likely to be very low, when infection control precautions are adhered to correctly.

General principles:

- **Standard precautions, including hand hygiene (5 Moments)** for all patients with respiratory infections. Patients and staff should observe cough etiquette and respiratory hygiene,
- **Transmission-based precautions** for patients with suspected or confirmed COVID-19:
 - **Contact and droplet precautions** for **routine care** of patients.
 - **Contact and airborne precautions** for **aerosol generating procedures (AGPs)**.

Contact and droplet precautions:

Contact and droplet precautions can be safely used for routine patient care of inpatients with suspected or confirmed COVID-19 (see Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units for case definition)

- On presentation or admission to hospital the patient should be:
 - given a surgical mask to put on, and
 - placed in a single room (ensuring air does not circulate to other areas)
 - placed in a negative pressure room (in the event of AGPs being performed).
- If transfer outside the room is essential, the patient should wear a surgical mask during transfer and follow respiratory hygiene and cough etiquette.
- For most inpatient contacts between healthcare staff and patients the following PPE is safe and appropriate and should be put on before entering the patient's room:
 - long-sleeved gown
 - surgical mask
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- For hospitalised patients requiring frequent attendance by medical and nursing staff, a P2/N95 respirator should be considered for prolonged or very close contact.

Contact and airborne precautions for aerosol-generating procedures (AGPs) and care of clinically ill patients requiring high level/high volume hands-on contact outside of ICU:

- **Contact and airborne precautions should be used routinely for AGPs**, which include:
 - tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy (and bronchoalveolar lavage), high flow nasal oxygen
 - The use of nebulisers should be avoided and alternative medication administration devices (e.g. spacers) used.
- PPE for contact and airborne procedures should be put on before entering patients room:
 - long-sleeved gown
 - P2/N95 respirator (mask) – should be fit-checked with each use
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- P2/N95 respirators (mask) should be used only when required.
- Unless used correctly, i.e. with fit-checking, a P2/N95 respirator (mask) is unlikely to protect against airborne pathogen spread.
 - An air-tight seal may be difficult to achieve for people with facial hair. Fit checking with a range of P2/N95 respirators must occur to assess the most suitable one to achieve a protective seal. If a tight seal cannot be achieved, facial hair should be removed.

Care of critically ill patients in ICU

- Patients who require admission to ICU with severe COVID-19 are likely to have a high viral load, particularly in the lower respiratory tract
- **Contact and airborne precautions** (as above) are required for patient care and are adequate for most AGPs.
 - The risk of aerosol transmission is reduced once the patient is intubated with a closed ventilator circuit but there is a potential, but unknown, risk of transmission from other body fluids such as diarrhoeal stool or vomitus or inadvertent circuit disconnection
- If a health care professional is required to remain in the patient's room continuously for a long period (e.g. more than one hour), because of the need to perform multiple procedures, the use of a powered air purifying respirator (PAPR) may be considered for additional comfort and visibility. A number of different types of relatively lightweight, comfortable PAPRs are now available and should be used according to manufacturer's instructions. Only **PPE marked as reusable** should be reused, following **reprocessing** according to manufacturer's instructions, All other PPE must be disposed of after use.

ICU staff caring for patients with COVID-19 (or any other potentially serious infectious disease) should be trained in the correct use of PPE, including by an infection control professional. This also applies particularly to the use of PAPRs, if required. Particular care should be taken on removal of PAPR, which is associated with a risk of contamination.

Additional precautions:**Staff**

- A staff log for each room entry should be maintained, to allow monitoring of potential breaches of infection control and follow-up contacts, if necessary.

Disposal of PPE and other waste

- Waste should be disposed in the normal way for clinical waste
- All non-clinical waste is disposed of into general waste

Handling of linen

- Routine procedures for handling of infectious linen should be followed
- Visibly soiled linen should be placed in a (soluble) plastic bag inside a linen skip

Environmental cleaning of patient care areas

- Cleaners should observe contact and droplet precautions (as above).
- Frequently touched surfaces (such as doorknobs, bedrails, tabletops, light switches, patient handsets) in the patient's room should be cleaned daily.
- Terminal cleaning of all surfaces in the room (as above plus floor, ceiling, walls, blinds) should be performed after the patient is discharged.
- A combined cleaning and disinfection procedure should be used, either 2-step - detergent clean, followed by disinfectant; or 2-in-1 step - using a product that has both cleaning and disinfectant properties. Any hospital-grade, TGA-listed disinfectant that is commonly against norovirus is suitable, if used according to manufacturer's instructions.

Coronavirus Disease 2019 (COVID-19)

CDNA National Guidelines for Public Health Units

Revision history			
Version	Date	Revised by	Changes
1.9	21 February 2020	Communicable Diseases Network Australia	Revised: case definition, infectious period, contact management, special situation (cruise ship). Specific changes are highlighted.
1.8	17 February 2020	Communicable Diseases Network Australia	Inclusion of statement reflecting that passengers of the Diamond Princess cruise meet the criteria for close contact.
1.7	15 February 2020	Communicable Diseases Network Australia	Revised case definition.
1.6	14 February 2020	Communicable Diseases Network Australia	Addition of Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19). Updated nomenclature.
1.5	7 February 2020	Communicable Diseases Network Australia	Inclusion of advice on release from isolation.
1.4	6 February 2020	Communicable Diseases Network Australia	Revised case definition and added rationale. Updated infection control advice throughout.
1.3	4 February 2020	Communicable Diseases Network Australia	Revised the case definition and use of the terms 'quarantine' and 'isolation'.
1.2	2 February 2020	Communicable Diseases Network Australia	Revised the case definition, close and casual contact definitions and added self-isolation guidance.
1.1	27 January 2020	Communicable Diseases Network Australia	Removed references to Wuhan and revised the case definition
1.0	23 January 2020	Communicable Diseases Network Australia	Developed by the 2019-nCoV Working Group

This document summarises interim recommendations for surveillance, infection control, laboratory testing and contact management for coronavirus disease 2019 (COVID-19). It is the first national guidance issued for COVID-19 and will be further developed into the Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units (COVID-19 SoNG).

It has been adapted from CDNA National Guidelines for Public Health Units MERS-CoV, utilising current CDC and WHO guidance, and is based on the current knowledge of the situation in mainland China and other countries, and experiences with SARS-CoV and MERS-CoV.

CDNA will review and update these recommendations as required as new information becomes available on the situation.

These interim Guidelines are to be used in the first instance whilst a Series of National Guidelines is being developed by the Communicable Diseases Network Australia (CDNA).

These interim guidelines capture the knowledge of experienced professionals, and provide guidance on best practice based upon the best available evidence at the time of completion.

Readers should not rely solely on the information contained within these Guidelines. Guideline information is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a health professional. Clinical judgement and discretion may be required in the interpretation and application of these guidelines.

The membership of the CDNA and the AHPPC, and the Commonwealth of Australia as represented by the Department of Health ('the Commonwealth'), do not warrant or represent that the information contained in these Guidelines is accurate, current or complete. The CDNA, the AHPPC and the Commonwealth do not accept any legal liability or responsibility for any loss, damages, costs or expenses incurred by the use of, or reliance on, or interpretation of, the information contained in these Guidelines.

Abbreviations and definitions

- COVID-19:** coronavirus disease 2019. The name of the disease caused by the virus SARS-CoV-2, as agreed by the World Health Organization, the World Organization for Animal Health and the Food and Agriculture Organization of the United Nations. For more information, see the World Health Organization Director-General's remarks: <https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020>
- SARS-CoV-2:** severe acute respiratory syndrome coronavirus 2. The formal name of the coronavirus which causes COVID-19, as determined by the International Committee on Taxonomy of Viruses. Previously, this coronavirus was commonly known as 'novel coronavirus 2019 (2019-nCoV)'. For more information see the International Committee on Taxonomy of Viruses manuscript: <https://www.biorxiv.org/content/10.1101/2020.02.07.937862v1.full.pdf>

1. Case definition

Confirmed case

A person who tests positive to a **validated** specific SARS-CoV-2 **nucleic acid** test or has the virus identified by electron microscopy or viral culture.

Suspect case

If the patient satisfies epidemiological and clinical criteria, they are classified as a suspect case.

Epidemiological criteria

- Travel to (including transit through) mainland China in the 14 days before the onset of illness.

OR

- Close or casual contact (see [Contact definition](#) below) in 14 days before illness onset with a confirmed case of COVID-19.

Clinical criteria

- Fever.

OR

- Acute respiratory infection (e.g. shortness of breath or cough) with or without fever.

Person under investigation

It is recommended that clinicians should consider testing people with a clinically compatible illness who travelled to any of the following countries in the 14 days before onset of symptoms:

- Hong Kong
- Indonesia
- Japan
- Singapore
- Thailand

This list* is based on the volume of travel between those countries, Australia and China, and/or the current epidemiology of COVID-19; however, the risk of COVID-19 in these countries is currently thought to be low. Clinical and public health judgement should be applied. The recommendation does not apply to passengers who have only been in transit through an airport in these countries.

Note: if a clinician determines that a **person under investigation** should be tested then that person must be managed as a **suspect case** **until COVID-19 is confirmed or excluded as the cause of illness**.

*This list is in alphabetical order.

Rationale for current case definitions

The case definitions are based on what is currently known about the clinical and epidemiological profile of cases of COVID-19 presenting to date both in Australia and internationally. Health authorities are constantly monitoring the spectrum of clinical symptoms as cases arise, and, if there are any significant shifts, they will be reflected in the above definitions in future versions of this document. The same monitoring and revision applies for epidemiological criteria as new areas of varying risk emerge outside mainland China.

The 14 day period is based upon what is currently known to be the upper time limit of the incubation period. As more precise information about the incubation period emerges, this will be reviewed.

2. Laboratory testing

Patients to be considered for SARS-CoV-2 testing are described under the suspected case definition (above). Where applicable, consult with your state/territory communicable diseases agency to seek advice on which laboratories can provide SARS-CoV-2 testing; appropriate specimen type, collection and transport; and also to facilitate contact management if indicated.

When collecting respiratory specimens, transmission-based precautions should be observed whether or not respiratory symptoms are present.

For most patients with mild illness in the community, collection of upper respiratory specimens (i.e. nasopharyngeal or oropharyngeal swabs) is a low risk procedure and can be performed using **contact and droplet precautions**:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield), and surgical mask.
- To collect throat or nasopharyngeal swab stand slightly to the side of the patient to avoid exposure to respiratory secretions, should the patient cough or sneeze.
- At completion of consultation, remove personal protective equipment (PPE) and perform hand hygiene, wipe any contacted/contaminated surfaces with detergent /disinfectant.
- Note that, for droplet precautions, the room does not need to be left empty after sample collection.

If the patient has severe symptoms suggestive of pneumonia, e.g. fever and breathing difficulty, or frequent, severe or productive coughing episodes then **contact and airborne precautions** should be observed.

Patients with these symptoms should be managed in hospital, and sample collection conducted in a negative pressure room, if available. If referral to hospital for specimen collection is not possible, specimens should be collected in a room from which air does not circulate to other areas. The door should be closed during specimens collection and the room left vacant for at least 30 minutes afterwards (cleaning can be performed during this time by a person wearing PPE).

The following precautions should be observed:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield) and a **P2/N95 respirator – which should be fit checked**.

- At completion of consultation, remove gown and gloves, perform hand hygiene, remove eye protection and P2/N95 respirator. Do not touch the front of any item of PPE during removal; perform hand hygiene.
- The room surfaces should be wiped clean with disinfectant wipes by a person wearing gloves, gown and surgical mask.

For further information on circumstances requiring airborne precautions, see [aerosol generating procedures](#).

Routine tests for acute pneumonia/pneumonitis should be performed where indicated, including bacterial cultures, acute and convalescent serology, urinary antigen testing and nucleic acid tests for respiratory viruses, according to local protocols.

Serology for SARS-CoV-2 is not yet available. Collection of serum for storage by the SARS-CoV-2 testing laboratory is recommended to facilitate retrospective testing, if this is relevant, once serology tests become available.

See [Appendix A](#) for additional SARS-CoV-2 laboratory testing information.

3. Case management

Response times

On the same day as notification of a suspected or confirmed case, begin follow up investigation and, where applicable, notify your central state or territory communicable diseases agency.

PHU staff should be available to contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners.

Response procedure

Case investigation

The response to a notification will normally be carried out in collaboration with the clinicians managing the case, and be guided by the COVID-19 public health unit checklist and the COVID-19 investigation form (currently pending).

Regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend that tests be done.
- Seek the treating doctor's permission to contact the case or relevant care-giver.
- Determine if the diagnosis has been discussed with the case or relevant care-giver before beginning the interview.
- Review case and contact management.
- Ensure appropriate infection control guidelines are followed in caring for the case.
- Identify the likely source of infection.

Note: If interviews with suspected cases are conducted face-to-face, the person conducting the interview must have a thorough understanding of infection control practices and be competent in using appropriate PPE.

Case treatment

In the absence of pathogen-specific interventions, patient management largely depends on supportive treatment, and vigilance for and treatment of complications.

Further advice on clinical management is available from WHO: (https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2)

Education

Provide a COVID-19 factsheet to cases and their close contacts.

Ensure that they are aware of the signs and symptoms of COVID-19, the requirements of quarantine and isolation, contact details of the PHU and the infection control practices that can prevent the transmission of COVID-19.

Isolation and restriction

Cases will generally be managed in hospital. If clinically indicated, cases may be managed at home only if it can be ensured that the case and household contacts are counselled about risk and that appropriate infection control measures are in place.

Healthcare workers and others who come into contact with suspected and confirmed cases must be protected according to recommended infection control guidelines. Visitors should be restricted to close family members.

A risk assessment should be undertaken for suspected cases who initially test negative for SARS-CoV-2. If there is no alternative diagnosis and a high index of suspicion remains that such cases may have COVID-19, consideration should be given to continued isolation and use of the recommended infection control precautions, pending further testing (see [Laboratory testing section](#) and [Appendix A](#)) and re-assessment.

Given the severity of reported infections, the evidence of limited human-to-human transmission, and gaps in knowledge of transmission pathways, the recommendations on isolation and PPE for management of suspected and confirmed cases take a deliberately cautious approach.

In addition to standard precautions, interim recommendations for the use of PPE during clinical care of people with possible COVID-19 are:

- **Contact and droplet precautions** are recommended for **routine care** of patients in quarantine or with suspected or confirmed COVID-19.
- **Contact and airborne precautions** are recommended when performing **aerosol-generating procedures**, including intubation and bronchoscopy.

Other recommended infection control measures include:

- **When a patient who meets the suspect case definition presents** to a healthcare setting (GP, hospital ED, or pathology collection centre) and whether or not respiratory symptoms are present, the patient should immediately be:
 - given a surgical mask to put on, and
 - directed to a single room. If the patient has severe symptoms suggestive of pneumonia, they should be directed to a negative pressure room, if available, or a room from which the air does not circulate to other areas.

- If a patient with confirmed COVID-19 needs to be transferred out of their isolation room, the patient should wear a “surgical” face mask and follow respiratory hygiene and cough etiquette.

Release from isolation

A confirmed case can be released from isolation if they meet all of the following criteria:

- the person has been afebrile for the previous 48 hours;
- resolution of the acute illness for the previous 24 hours¹;
- be at least 7 days after the onset of the acute illness;
- PCR negative on at least two consecutive specimens collected 24 hours apart after the acute illness has resolved^{2,3}.

¹Some people may have pre-existing illnesses with chronic respiratory signs or symptoms, such as chronic cough. For these people, the treating medical practitioner should make an assessment as to whether the signs and symptoms of COVID-19 have resolved.

²If the patient has a productive cough due to a pre-existing respiratory illness or other ongoing lower respiratory tract disease, then the sputum or other lower respiratory tract specimens must be PCR negative for SARS-CoV-2. Otherwise upper respiratory tract specimens (nasopharyngeal or nose and throat swabs) must be PCR negative.

³A small proportion of people may have an illness that has completely resolved but their respiratory specimens remain persistently PCR positive. A decision on release from isolation for these people should be made on a case-by-case basis after consultation between the person’s treating medical practitioner, the testing laboratory and public health. Results of viral culture, if available, may be included in this consideration.

Follow up should include the person being reviewed seven days after release from isolation for:

- clinical review to ensure full symptom resolution
- collection of a serum specimen for storage and possible later serologic testing (the person should be informed that this is for future test development and does not inform their clinical care).

Routine PCR testing at seven days after release is not recommended unless the person has clinical features consistent with COVID-19.

Aerosol-generating procedures

Appropriate care should be taken during aerosol-generating procedures. Aerosol-generating procedures include: tracheal intubation, non-invasive ventilation, tracheostomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy. Collection of upper respiratory specimens is not generally regarded as aerosol generating, but airborne precautions should be used for collection of specimens from severely symptomatic patients (see [Laboratory testing section](#)).

P2/N95 respirators should be used only when required. Unless used correctly, i.e. with fit-checking, they are unlikely to protect against airborne pathogen spread.

Airborne precautions should be used routinely for aerosol-generating procedures, such as bronchoscopy, intubation, suctioning etc. in hospital settings. Nebuliser use should be discouraged and alternative administration devices (e.g. spacers) should be used.

The [Laboratory testing section](#) provides detailed information on sample collection for SARS-CoV-2.

Active case finding

Contacts (see [Contact management section](#)) should be identified and advised to immediately seek medical advice should they develop symptoms. Contacts or caregivers should be asked to also inform the public health agency if they develop symptoms.

4. Environmental evaluation

Where local transmission of COVID-19 is thought possible, a thorough review of contributing environmental factors should be done. This should include a review of infection control procedures, and opportunities for exposure to respiratory or faecal contamination.

If a case has had occupational exposure to animals it may be appropriate to consult with animal health authorities.

5. Infectious period

Infectious period of COVID-19 remains unknown, however there is some evidence to support the occurrence of pre-symptomatic or asymptomatic transmission (1, 2). As a precautionary approach cases are considered to be infectious 24-hours prior to onset of symptoms. Cases are considered to pose a risk of onward transmission and require isolation until criteria listed in the [release from isolation section](#) have been met.

6. Contact management

As there remain gaps in the understanding of infectivity of COVID-19 cases and transmission modes, the definition of contacts and their public health management is based on available information on COVID-19 together with observations from similar serious coronaviruses – SARS-CoV and MERS-CoV. Distinction is made between close contacts and casual contacts.

Identification of contacts

All persons categorised as a contact (see definitions of “close contacts” and “casual contacts” following) of confirmed cases should be followed-up, and monitored for the development of symptoms for 14 days after the last exposure to the case (i.e. the maximum incubation period).

Contacts of suspected cases should also be considered for contact management if there is likely to be a delay in confirming or excluding COVID-19 in the suspected case, such as delayed testing.

Close contact definition*

A close contact is defined as requiring:

- greater than 15 minutes face-to-face contact in any setting with a confirmed case in the period extending from 24 hours before onset of symptoms in the confirmed case, or
- sharing of a closed space with a confirmed case for a prolonged period (e.g. more than 2 hours) in the period extending from 24 hours before onset of symptoms in the confirmed case.

For the purposes of surveillance, a close contact includes a person meeting any of the following criteria:

- Living in the same household or household-like setting (e.g. in a boarding school or hostel).
- Direct contact with the body fluids or laboratory specimens of a case without recommended PPE or failure of PPE.
- A person who spent 2 hours or longer in the same room (such as a GP or ED waiting room).
- A person in the same hospital room when an aerosol generating procedure is undertaken on the case, without recommended PPE.
- Aircraft passengers who were seated in the same row as the case, or in the two rows in front or two rows behind a confirmed COVID-19 case. Contact tracing of people who may have had close contact on long bus or train trips should also be attempted where possible, using similar seating/proximity criteria.
- All crew-members on an aircraft who worked in the same cabin area as a confirmed case of COVID-19. If a crew member is the COVID-19 case, contact tracing efforts should concentrate on passengers seated in the area where the crew member was working during the flight and all of the other members of the crew.
- Close contacts on cruise ships can be difficult to identify, and a case-by-case risk assessment should be conducted to identify which passengers and crew should be managed as close contacts. See [Special situations](#) for further information.

Contact needs to have occurred within the period extending 24 hours before onset of symptoms in the case until the case is classified as no longer infectious by the treating team (usually 24 hours after the resolution of symptoms).

Casual contact definition

Casual contact is defined as any person having less than 15 minutes face-to-face contact with a symptomatic confirmed case in any setting, or sharing a closed space with a symptomatic confirmed case for less than 2 hours. This will include healthcare workers, other patients, or visitors who were in the same closed healthcare space as a case, but for shorter periods than those required for a close contact. Other closed settings might include schools or offices.

Note that healthcare workers and other contacts who have taken recommended infection control precautions, including the use of full PPE, while caring for a symptomatic confirmed COVID-19 case are not considered to be close contacts. However, these people should be advised to self-monitor and if they develop symptoms consistent with COVID-19 they should isolate themselves and notify their public health unit or staff health unit so they can be tested and managed as a suspected COVID-19 case (see recommendations below under Management of symptomatic contacts).

Other casual contacts may include:

- Extended family groups, e.g. in an Aboriginal community.
- Aircraft passengers who were not seated nearby a symptomatic confirmed case or a crew-member who did not work in the same cabin area as a symptomatic confirmed case (see close contact definition).
- Passengers and crew onboard the same cruise ship as a symptomatic confirmed case (or cases), who are not considered to be close contacts. See [Special situations](#) for further information.

Where resources permit, more active contact tracing may be extended to other persons who have had casual contact (as defined above), particularly in school, office or other closed settings. In these circumstances, the size of the room/space and degree of separation of the case from others should be considered in identifying contacts.

Contact assessment

All persons identified as having had contact with a confirmed case should be assessed to see if they should be classified as a close contact and have demographic and epidemiological data collected. Information on close contacts should be managed according to jurisdictional requirements.

Identification and assessment of the contacts of suspected cases may be deferred pending the results of initial laboratory testing.

Close contact testing

Routine laboratory screening for COVID-19 is not recommended for asymptomatic close contacts.

Prophylaxis

No specific chemoprophylaxis is available for contacts.

Education

Close contacts should be counselled about their risk and the symptoms of COVID-19 and provided with a COVID-19 factsheet. They should be advised to self-quarantine.

Quarantine and restriction

Close contacts

Asymptomatic close contacts should be advised to self-quarantine at home for 14 days following the last contact with the case, and to monitor their health for 14 days after the last possible contact with a confirmed COVID-19 case.

Public health units should conduct active daily monitoring of close contacts for symptoms for 14 days after the last possible contact with a confirmed COVID-19 case.

Self-quarantined close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Less frequent active follow-up together with passive surveillance may be necessary if there are large numbers of close contacts to monitor.

For the purpose of contact management, swabs are **not** indicated during quarantine in well people. A medical clearance from a health care provider is not required for release from quarantine or for other purposes such as returning to work, school or university.

Casual contacts

Casual contacts should monitor their health for 14 days and report any symptoms immediately to the local public health unit. There are no restrictions on movements; however, casual contacts should be advised to isolate themselves and contact the public health unit if they develop symptoms.

Returned travellers who have left or transited through mainland China

Returned travellers who have left or transited through **mainland** China in the last 14 days **who are unwell** with fever or with respiratory symptoms, with or without fever, or other symptoms consistent with COVID-19 should be isolated and managed as per the current recommendations for suspected cases.

Well returned travellers who have left or transited through mainland China should self-quarantine at home for 14 days after leaving mainland China.

Self-quarantined returned travellers should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Healthcare worker close contacts

Healthcare worker close contacts (i.e. persons exposed while unprotected, as described in the [Contact definition section](#)) should be advised not to undertake work in a healthcare setting for 14 days following the last possible contact with the case. They should also be advised to self-quarantine at home for 14 days following the last contact with the case.

Self-quarantined healthcare worker close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Public health units may assist infection control units of health facilities to identify and monitor healthcare worker close contacts.

It is recognised that clinical work restrictions on healthcare worker close contacts may place strain on individuals and on health services. This underlines the importance of ensuring healthcare workers implement appropriate infection control precautions when assessing and managing suspected, confirmed COVID-19 cases.

CDNA will continue to monitor the emerging evidence around COVID-19 transmission risks in healthcare settings and revise these recommendations as needed.

Medical care for quarantined individuals

If individuals under self-quarantine need to see a doctor for any reason (e.g. fever and respiratory symptoms or other illness/injury), they should **telephone their GP or hospital Emergency Department before presenting. Patients with severe symptoms should call 000 and make it clear they are in self-quarantine or isolation because of COVID-19.** If the patient has **symptoms consistent with the COVID-19 case definition**, the local public health unit should be consulted about the most suitable venue for clinical assessment and specimen collection.

Management of symptomatic contacts

If fever or respiratory symptoms, with or without fever, or other symptoms consistent with COVID-19 develop within the first 14 days following the last contact, PHU staff should arrange for the individual to be immediately isolated and managed as per the current recommendations for suspected COVID-19 cases, with urgent testing for COVID-19 undertaken in an environment which minimises the exposure of others.

Ill contacts who are being evaluated for COVID-19 can be appropriately isolated and managed at home, unless their condition is severe enough to require hospitalisation.

Symptomatic contacts who test negative for SARS-CoV-2 by PCR will still need to be monitored for 14 days after their last contact with a confirmed COVID-19 case and may require re-testing.

7. Special situations

Cruise ships

Risk assessment and identification of contacts

Classification of contacts on cruise ships with one or more confirmed cases of COVID-19 should be made on a case-by-case basis.

Hospital transfer of suspect or confirmed cases

If suspect or confirmed cases on board require transfer to a hospital, the Commonwealth Biosecurity Officer will notify the port authority to provide access for medical transport. The jurisdictional Human Biosecurity Officer will then coordinate transfer of the person to an appropriate medical facility for further management, via the most appropriate means that adheres to necessary precautions.

Quarantine for passengers and crew after arrival at a port

Self-quarantine at home should be recommended for close contacts where this is feasible (e.g. persons with a residence nearby) ensuring appropriate PPE precautions are employed during travel. For close contacts for whom this is not possible, matters of self-quarantine should be addressed jurisdictionally.

Disembarking and embarking

After all suspect and confirmed cases have been managed appropriately and the Human Biosecurity Officer has determined that no other passengers or crew have symptoms consistent with COVID-19, remaining passengers and crew will be allowed to disembark. The vessel may be permitted to commence embarking once it is certain there is no risk of ongoing transmission.

8. References

1. WHO. Novel coronavirus (2019-nCoV) situational report-26 15 February 2020 Geneva: WHO; 2020 [cited 16 Feb 2020]. Available from: https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200215-sitrep-26-covid-19.pdf?sfvrsn=a4cc6787_2
2. Chang D, Xu H, Rebaza A, Sharma L, Dela Cruz CS. Protecting health-care workers from subclinical coronavirus infection. *Lancet Respir Med*. 2020.

9. Appendices

Appendix A: SARS-CoV-2 Laboratory testing information

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

Appendix A: SARS-CoV-2 Laboratory testing information

Laboratory testing for SARS-CoV-2 continues to evolve rapidly with the accumulation of clinical data, and as reagents and protocols are refined.

The aim of testing, if clinically appropriate, is to exclude common respiratory viruses using local hospital and community nucleic acid testing capacity, and to simultaneously refer onward to a laboratory with capacity to test for SARS-CoV-2. As co-infection is possible, initial testing protocols should include testing for SARS-CoV-2 in patients with epidemiological risk, even where another infection is shown to be present.

Samples for testing

- (i) upper respiratory tract samples
- (ii) lower respiratory tract sample if the lower tract is involved
- (iii) Serum (to be stored pending serology availability)

Upper respiratory tract samples

1. Nasopharyngeal swab and/or oropharyngeal swab, Dacron or Rayon, flocked preferred
 - nasopharyngeal: insert a swab into each nostril parallel to the palate, leave the swab in place for a few seconds to absorb secretions
 - oropharyngeal: swab the tonsillar beds, avoiding the tongue
 - place swabs back into the accompanying transport media
2. Nasal wash/aspirates
 - collect 2-3 mL into a sterile, leak-proof, screw-top dry sterile container

Lower respiratory tract samples (to be collected in hospital and/or using airborne precautions)

1. Sputum
 - patient should rinse his/her mouth with water before collection
 - expectorate deep cough sputum directly into a sterile, leak-proof, screw-top dry sterile container
2. Bronchoalveolar lavage, tracheal aspirate, pleural fluid
 - collect 2-3 mL into a sterile, leak-proof, screw-top sputum collection cup or dry sterile container

As lower respiratory tract specimens contain the highest viral loads in SARS-CoV and MERS-CoV, it is advised that lower respiratory tract specimens should be collected for SARS-CoV-2 testing where possible. Initial experience in testing for SARS-CoV-2 seems to be consistent with this prior experience. Repeat testing (especially of lower respiratory tract specimens) in clinically compatible cases should be performed if initial results are negative and there remains a high index of suspicion of infection.

Serology

Serum should be collected during the acute phase of the illness (preferably within the first 7 days of symptom onset), stored, and when serology testing becomes available tested in parallel with convalescent sera collected 3 or more weeks after acute infection. If no acute sample was collected, sera collected 14 or more days after symptom onset may be tested.

Specimen handling in the laboratory***Virology***

Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment. Specimens should be transported in accordance with current regulatory requirements as diagnostic samples for testing.

Clinical Pathology

Standard precautions should be used for non-microbial pathology testing (such as routine biochemistry and haematology). Where possible auto-analysers should be used according to standard practices and/or local protocols. There is evidence that capping and uncapping of samples is not a high risk aerosol generating procedure.

Respiratory Virus Diagnostic Testing

Nucleic acid testing of the upper respiratory tract sample is performed for influenza and other common respiratory viruses using standard protocols and methods of the hospital or community laboratory.

Standard protocols of the testing laboratory for respiratory sample processing should be used. This is expected to consist of PC2 laboratory practices, and use of a Class II Biosafety cabinet for aerosol generating procedures (such as centrifuging without sealed carriers, vortexing, sonicating). Attempted viral culture, which would require higher levels of biocontainment would not be routinely attempted.

The residue (original swab and remaining eluate) of the upper tract sample is forwarded together with the lower tract sample and the serum to the reference laboratory with SARS-CoV-2 testing capacity requesting SARS-CoV-2 testing.

Clinical liaison with jurisdictional public health officers is essential to coordinate referral & testing.

Standard protocols should be used for sample packaging and transport as diagnostic samples for testing (i.e. Category B).

SARS-CoV-2 specific testing

Nucleic acid testing (NAT) using real time polymerase chain reaction (RT-PCR) is the method of choice for detection of SARS-CoV-2. Specific diagnostic test approaches for SARS-CoV-2 will be described here only in broad terms. There is significant variation in PCR assays employed by different PHLN member laboratories, and test algorithms are likely to be further refined over time.

Specific Real Time PCR primer sets to detect the SARS-CoV-2 are available. Some PHLN member laboratories have designed their own, and some have implemented primer sets recommended to the World Health Organization (WHO) by leading international coronavirus reference laboratories (available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance>). The majority of PHLN testing capacity now employs relatively swift RT-PCR assays for screening, with a turnaround time of several hours. Confirmation of positives is being done either with RT-PCR assays detecting a different target gene, or broadly reactive PCR tests with sequencing of amplicons (see below).

Well pedigreed PCR primer sets, probes and protocols are available from the WHO/ European Viral Archive (EVAg) (available at: https://www.who.int/docs/default-source/coronaviruse/protocol-v2-1.pdf?sfvrsn=a9ef618c_2).

Many PCR assays, including those available through WHO will also detect other zoonotic coronaviruses such as SARS-CoV, sometimes with a recognisable shift in the cycle threshold value (Ct) compared to the SARS-CoV-2 target, but not commonly circulating coronaviruses usually detected by commercial assays (e.g. NL63, 229E strains).

Several Australasian PHLN reference laboratories began diagnostic testing for the current outbreak using PCR assays capable of detecting a wide range of coronaviruses, including zoonotic and novel pathogens. A number of these were mapped against the promulgated Chinese nucleic acid sequence of SARS-CoV-2 early in the course of the outbreak. Nucleic acid sequencing of amplicons from positive tests is used to identify the coronavirus in this approach. These assays have relatively long turnaround times and have largely been replaced by RT-PCR other than in a confirmatory role in some laboratories.

Complementary DNA (cDNA) synthesized from the VIDRL SARS-CoV-2 has now been made available to all PHLN member laboratories as a test positive control. Synthetic positive control material in the form of nucleic acid templates is also available through WHO/ European Viral Archive (EVAg).

Testing algorithms are likely to be revised pending further information about the virus, and the number of specimens received in the laboratory for testing.

Viral culture should not be performed for routine diagnosis, and should only be attempted in reference laboratories with appropriate experience and containment facilities. Currently where attempted this is being done at Physical Containment Level 3 (PC3), consistent with current recommendations for SARS-CoV, pending specific SARS-CoV-2 international recommendations.

No Quality Assurance Program (QAP) is currently available internationally specific for SARS-CoV-2, although QAPs are available in Australia for respiratory viruses including coronaviruses other than SARS-CoV-2. The RCPAQAP with Commonwealth support will introduce a SARS-CoV-2 specific QAP to supplement previously available SARS-CoV, MERS-CoV and other coronaviruses, during the first half of 2020.

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

These recommendations are intended for hospital personnel who enter a clinical space with COVID-19 patients, including wardspersons, food deliverers, cleaners, and clinical personnel.

Background:

Although Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) which causes COVID-19 has spread rapidly and widely in mainland China, there has been limited transmission elsewhere, i.e. containment precautions have been mostly successful to date. At the time of writing, the crude mortality (~2%) in China is based on laboratory confirmed cases; many milder cases are almost certainly not being tested and the mortality is likely to be lower. Most cases in Australia have been relatively mild but a small number of deaths has been reported outside of mainland China. While a number of healthcare-associated infections have been reported with COVID-19 (in healthcare workers and patients) – as occurred with SARS and MERS - the risk for COVID-19 is likely to be very low, when infection control precautions are adhered to correctly.

General principles:

- **Standard precautions, including hand hygiene (5 Moments)** for all patients with respiratory infections. Patients and staff should observe cough etiquette and respiratory hygiene,
- **Transmission-based precautions** for patients with suspected or confirmed COVID-19:
 - **Contact and droplet precautions** for **routine care** of patients.
 - **Contact and airborne precautions** for **aerosol generating procedures (AGPs)**.

Contact and droplet precautions:

Contact and droplet precautions can be safely used for routine patient care of inpatients with suspected or confirmed COVID-19 (see Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units for case definition)

- On presentation or admission to hospital the patient should be:
 - given a surgical mask to put on, and
 - placed in a single room (ensuring air does not circulate to other areas)
 - placed in a negative pressure room (in the event of AGPs being performed).
- If transfer outside the room is essential, the patient should wear a surgical mask during transfer and follow respiratory hygiene and cough etiquette.
- For most inpatient contacts between healthcare staff and patients the following PPE is safe and appropriate and should be put on before entering the patient's room:
 - long-sleeved gown
 - surgical mask
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- For hospitalised patients requiring frequent attendance by medical and nursing staff, a P2/N95 respirator should be considered for prolonged or very close contact.

Contact and airborne precautions for aerosol-generating procedures (AGPs) and care of clinically ill patients requiring high level/high volume hands-on contact outside of ICU:

- **Contact and airborne precautions should be used routinely for AGPs**, which include:
 - tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy (and bronchoalveolar lavage), high flow nasal oxygen
 - The use of nebulisers should be avoided and alternative medication administration devices (e.g. spacers) used.
- PPE for contact and airborne procedures should be put on before entering patients room:
 - long-sleeved gown
 - P2/N95 respirator (mask) – should be fit-checked with each use
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- P2/N95 respirators (mask) should be used only when required.
- Unless used correctly, i.e. with fit-checking, a P2/N95 respirator (mask) is unlikely to protect against airborne pathogen spread.
 - An air-tight seal may be difficult to achieve for people with facial hair. Fit checking with a range of P2/N95 respirators must occur to assess the most suitable one to achieve a protective seal. If a tight seal cannot be achieved, facial hair should be removed.

Care of critically ill patients in ICU

- Patients who require admission to ICU with severe COVID-19 are likely to have a high viral load, particularly in the lower respiratory tract
- **Contact and airborne precautions** (as above) are required for patient care and are adequate for most AGPs.
 - The risk of aerosol transmission is reduced once the patient is intubated with a closed ventilator circuit but there is a potential, but unknown, risk of transmission from other body fluids such as diarrhoeal stool or vomitus or inadvertent circuit disconnection
- If a health care professional is required to remain in the patient's room continuously for a long period (e.g. more than one hour), because of the need to perform multiple procedures, the use of a powered air purifying respirator (PAPR) may be considered for additional comfort and visibility. A number of different types of relatively lightweight, comfortable PAPRs are now available and should be used according to manufacturer's instructions. Only **PPE marked as reusable** should be reused, following **reprocessing** according to manufacturer's instructions, All other PPE must be disposed of after use.

ICU staff caring for patients with COVID-19 (or any other potentially serious infectious disease) should be trained in the correct use of PPE, including by an infection control professional. This also applies particularly to the use of PAPRs, if required. Particular care should be taken on removal of PAPR, which is associated with a risk of contamination.

Additional precautions:**Staff**

- A staff log for each room entry should be maintained, to allow monitoring of potential breaches of infection control and follow-up contacts, if necessary.

Disposal of PPE and other waste

- Waste should be disposed in the normal way for clinical waste
- All non-clinical waste is disposed of into general waste

Handling of linen

- Routine procedures for handling of infectious linen should be followed
- Visibly soiled linen should be placed in a (soluble) plastic bag inside a linen skip

Environmental cleaning of patient care areas

- Cleaners should observe contact and droplet precautions (as above).
- Frequently touched surfaces (such as doorknobs, bedrails, tabletops, light switches, patient handsets) in the patient's room should be cleaned daily.
- Terminal cleaning of all surfaces in the room (as above plus floor, ceiling, walls, blinds) should be performed after the patient is discharged.
- A combined cleaning and disinfection procedure should be used, either 2-step - detergent clean, followed by disinfectant; or 2-in-1 step - using a product that has both cleaning and disinfectant properties. Any hospital-grade, TGA-listed disinfectant that is commonly against norovirus is suitable, if used according to manufacturer's instructions.

Coronavirus Disease 2019 (COVID-19)

CDNA National Guidelines for Public Health Units

Revision history			
Version	Date	Revised by	Changes
1.10	23 February 2020	Communicable Diseases Network Australia	Inclusion of South Korea and Iran in the list of countries in the Person Under Investigation section.
1.9	21 February 2020	Communicable Diseases Network Australia	Revised: case definition, infectious period, contact management, special situation (cruise ship). Specific changes are highlighted.
1.8	17 February 2020	Communicable Diseases Network Australia	Inclusion of statement reflecting that passengers of the Diamond Princess cruise meet the criteria for close contact.
1.7	15 February 2020	Communicable Diseases Network Australia	Revised case definition.
1.6	14 February 2020	Communicable Diseases Network Australia	Addition of Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19). Updated nomenclature.
1.5	7 February 2020	Communicable Diseases Network Australia	Inclusion of advice on release from isolation.
1.4	6 February 2020	Communicable Diseases Network Australia	Revised case definition and added rationale. Updated infection control advice throughout.
1.3	4 February 2020	Communicable Diseases Network Australia	Revised the case definition and use of the terms 'quarantine' and 'isolation'.
1.2	2 February 2020	Communicable Diseases Network Australia	Revised the case definition, close and casual contact definitions and added self-isolation guidance.
1.1	27 January 2020	Communicable Diseases Network Australia	Removed references to Wuhan and revised the case definition

1.0	23 January 2020	Communicable Diseases Network Australia	Developed by the 2019-nCoV Working Group
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This document summarises interim recommendations for surveillance, infection control, laboratory testing and contact management for coronavirus disease 2019 (COVID-19). It is the first national guidance issued for COVID-19 and will be further developed into the Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units (COVID-19 SoNG).

It has been adapted from CDNA National Guidelines for Public Health Units MERS-CoV, utilising current CDC and WHO guidance, and is based on the current knowledge of the situation in mainland China and other countries, and experiences with SARS-CoV and MERS-CoV.

CDNA will review and update these recommendations as required as new information becomes available on the situation.

These interim Guidelines are to be used in the first instance whilst a Series of National Guidelines is being developed by the Communicable Diseases Network Australia (CDNA).

These interim guidelines capture the knowledge of experienced professionals, and provide guidance on best practice based upon the best available evidence at the time of completion.

Readers should not rely solely on the information contained within these Guidelines. Guideline information is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a health professional. Clinical judgement and discretion may be required in the interpretation and application of these guidelines.

The membership of the CDNA and the AHPPC, and the Commonwealth of Australia as represented by the Department of Health ('the Commonwealth'), do not warrant or represent that the information contained in these Guidelines is accurate, current or complete. The CDNA, the AHPPC and the Commonwealth do not accept any legal liability or responsibility for any loss, damages, costs or expenses incurred by the use of, or reliance on, or interpretation of, the information contained in these Guidelines.

Abbreviations and definitions

COVID-19: coronavirus disease 2019. The name of the disease caused by the virus SARS-CoV-2, as agreed by the World Health Organization, the World Organization for Animal Health and the Food and Agriculture Organization of the United Nations. For more information, see the World Health Organization Director-General's remarks: <https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020>

SARS-CoV-2: severe acute respiratory syndrome coronavirus 2. The formal name of the coronavirus which causes COVID-19, as determined by the International Committee on Taxonomy of Viruses. Previously, this coronavirus was commonly known as 'novel coronavirus 2019 (2019-nCoV)'. For more information see the International Committee on Taxonomy of Viruses manuscript: <https://www.biorxiv.org/content/10.1101/2020.02.07.937862v1.full.pdf>

*This list is in alphabetical order.

1. Case definition

Confirmed case

A person who tests positive to a validated specific SARS-CoV-2 nucleic acid test or has the virus identified by electron microscopy or viral culture.

Suspect case

If the patient satisfies epidemiological and clinical criteria, they are classified as a suspect case.

Epidemiological criteria

- Travel to (including transit through) mainland China in the 14 days before the onset of illness.

OR

- Close or casual contact (see [Contact definition](#) below) in 14 days before illness onset with a confirmed case of COVID-19.

Clinical criteria

- Fever.

OR

- Acute respiratory infection (e.g. shortness of breath or cough) with or without fever.

Person under investigation

It is recommended that clinicians should consider testing people with a clinically compatible illness who travelled to any of the following countries in the 14 days before onset of symptoms:

- Hong Kong
- Indonesia
- Iran
- Japan
- Singapore
- South Korea
- Thailand

This list* is based on the volume of travel between those countries, Australia and China, and/or the current epidemiology of COVID-19; however, the risk of COVID-19 in these countries is currently thought to be low. Clinical and public health judgement should be applied. The recommendation does not apply to passengers who have only been in transit through an airport in these countries.

Note: if a clinician determines that a **person under investigation** should be tested then that person must be managed as a **suspect case** until COVID-19 is confirmed or excluded as the cause of illness.

*This list is in alphabetical order.

Rationale for current case definitions

The case definitions are based on what is currently known about the clinical and epidemiological profile of cases of COVID-19 presenting to date both in Australia and internationally. Health authorities are constantly monitoring the spectrum of clinical symptoms as cases arise, and, if there are any significant shifts, they will be reflected in the above definitions in future versions of this document. The same monitoring and revision applies for epidemiological criteria as new areas of varying risk emerge outside mainland China.

The 14 day period is based upon what is currently known to be the upper time limit of the incubation period. As more precise information about the incubation period emerges, this will be reviewed.

2. Laboratory testing

Patients to be considered for SARS-CoV-2 testing are described under the suspected case definition (above). Where applicable, consult with your state/territory communicable diseases agency to seek advice on which laboratories can provide SARS-CoV-2 testing; appropriate specimen type, collection and transport; and also to facilitate contact management if indicated.

When collecting respiratory specimens, transmission-based precautions should be observed whether or not respiratory symptoms are present.

For most patients with mild illness in the community, collection of upper respiratory specimens (i.e. nasopharyngeal or oropharyngeal swabs) is a low risk procedure and can be performed using **contact and droplet precautions**:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield), and surgical mask.
- To collect throat or nasopharyngeal swab stand slightly to the side of the patient to avoid exposure to respiratory secretions, should the patient cough or sneeze.
- At completion of consultation, remove personal protective equipment (PPE) and perform hand hygiene, wipe any contacted/contaminated surfaces with detergent /disinfectant.
- Note that, for droplet precautions, the room does not need to be left empty after sample collection.

If the patient has severe symptoms suggestive of pneumonia, e.g. fever and breathing difficulty, or frequent, severe or productive coughing episodes then **contact and airborne precautions** should be observed.

Patients with these symptoms should be managed in hospital, and sample collection conducted in a negative pressure room, if available. If referral to hospital for specimen collection is not possible, specimens should be collected in a room from which air does not circulate to other areas. The door should be closed during specimens collection and the room left vacant for at least 30 minutes afterwards (cleaning can be performed during this time by a person wearing PPE).

The following precautions should be observed:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield) and a **P2/N95 respirator – which should be fit checked**.

- At completion of consultation, remove gown and gloves, perform hand hygiene, remove eye protection and P2/N95 respirator. Do not touch the front of any item of PPE during removal; perform hand hygiene.
- The room surfaces should be wiped clean with disinfectant wipes by a person wearing gloves, gown and surgical mask.

For further information on circumstances requiring airborne precautions, see [aerosol generating procedures](#).

Routine tests for acute pneumonia/pneumonitis should be performed where indicated, including bacterial cultures, acute and convalescent serology, urinary antigen testing and nucleic acid tests for respiratory viruses, according to local protocols.

Serology for SARS-CoV-2 is not yet available. Collection of serum for storage by the SARS-CoV-2 testing laboratory is recommended to facilitate retrospective testing, if this is relevant, once serology tests become available.

See [Appendix A](#) for additional SARS-CoV-2 laboratory testing information.

3. Case management

Response times

On the same day as notification of a suspected or confirmed case, begin follow up investigation and, where applicable, notify your central state or territory communicable diseases agency.

PHU staff should be available to contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners.

Response procedure

Case investigation

The response to a notification will normally be carried out in collaboration with the clinicians managing the case, and be guided by the COVID-19 public health unit checklist and the COVID-19 investigation form (currently pending).

Regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend that tests be done.
- Seek the treating doctor's permission to contact the case or relevant care-giver.
- Determine if the diagnosis has been discussed with the case or relevant care-giver before beginning the interview.
- Review case and contact management.
- Ensure appropriate infection control guidelines are followed in caring for the case.
- Identify the likely source of infection.

Note: If interviews with suspected cases are conducted face-to-face, the person conducting the interview must have a thorough understanding of infection control practices and be competent in using appropriate PPE.

Case treatment

In the absence of pathogen-specific interventions, patient management largely depends on supportive treatment, and vigilance for and treatment of complications.

Further advice on clinical management is available from WHO: (https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2)

Education

Provide a COVID-19 factsheet to cases and their close contacts.

Ensure that they are aware of the signs and symptoms of COVID-19, the requirements of quarantine and isolation, contact details of the PHU and the infection control practices that can prevent the transmission of COVID-19.

Isolation and restriction

Cases will generally be managed in hospital. If clinically indicated, cases may be managed at home only if it can be ensured that the case and household contacts are counselled about risk and that appropriate infection control measures are in place.

Healthcare workers and others who come into contact with suspected and confirmed cases must be protected according to recommended infection control guidelines. Visitors should be restricted to close family members.

A risk assessment should be undertaken for suspected cases who initially test negative for SARS-CoV-2. If there is no alternative diagnosis and a high index of suspicion remains that such cases may have COVID-19, consideration should be given to continued isolation and use of the recommended infection control precautions, pending further testing (see [Laboratory testing section](#) and [Appendix A](#)) and re-assessment.

Given the severity of reported infections, the evidence of limited human-to-human transmission, and gaps in knowledge of transmission pathways, the recommendations on isolation and PPE for management of suspected and confirmed cases take a deliberately cautious approach.

In addition to standard precautions, interim recommendations for the use of PPE during clinical care of people with possible COVID-19 are:

- **Contact and droplet precautions** are recommended for **routine care** of patients in quarantine or with suspected or confirmed COVID-19.
- **Contact and airborne precautions** are recommended when performing **aerosol-generating procedures**, including intubation and bronchoscopy.

Other recommended infection control measures include:

- When a patient who meets the suspect case definition presents to a healthcare setting (GP, hospital ED, or pathology collection centre) and whether or not respiratory symptoms are present, the patient should immediately be:
 - given a surgical mask to put on, and
 - directed to a single room. If the patient has severe symptoms suggestive of pneumonia, they should be directed to a negative pressure room, if available, or a room from which the air does not circulate to other areas.

- If a patient with confirmed COVID-19 needs to be transferred out of their isolation room, the patient should wear a “surgical” face mask and follow respiratory hygiene and cough etiquette.

Release from isolation

A confirmed case can be released from isolation if they meet all of the following criteria:

- the person has been afebrile for the previous 48 hours;
- resolution of the acute illness for the previous 24 hours¹;
- be at least 7 days after the onset of the acute illness;
- PCR negative on at least two consecutive specimens collected 24 hours apart after the acute illness has resolved^{2,3}.

¹Some people may have pre-existing illnesses with chronic respiratory signs or symptoms, such as chronic cough. For these people, the treating medical practitioner should make an assessment as to whether the signs and symptoms of COVID-19 have resolved.

²If the patient has a productive cough due to a pre-existing respiratory illness or other ongoing lower respiratory tract disease, then the sputum or other lower respiratory tract specimens must be PCR negative for SARS-CoV-2. Otherwise upper respiratory tract specimens (nasopharyngeal or nose and throat swabs) must be PCR negative.

³A small proportion of people may have an illness that has completely resolved but their respiratory specimens remain persistently PCR positive. A decision on release from isolation for these people should be made on a case-by-case basis after consultation between the person’s treating medical practitioner, the testing laboratory and public health. Results of viral culture, if available, may be included in this consideration.

Follow up should include the person being reviewed seven days after release from isolation for:

- clinical review to ensure full symptom resolution
- collection of a serum specimen for storage and possible later serologic testing (the person should be informed that this is for future test development and does not inform their clinical care).

Routine PCR testing at seven days after release is not recommended unless the person has clinical features consistent with COVID-19.

Aerosol-generating procedures

Appropriate care should be taken during aerosol-generating procedures. Aerosol-generating procedures include: tracheal intubation, non-invasive ventilation, tracheostomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy. Collection of upper respiratory specimens is not generally regarded as aerosol generating, but airborne precautions should be used for collection of specimens from severely symptomatic patients (see [Laboratory testing section](#)).

P2/N95 respirators should be used only when required. Unless used correctly, i.e. with fit-checking, they are unlikely to protect against airborne pathogen spread.

Airborne precautions should be used routinely for aerosol-generating procedures, such as bronchoscopy, intubation, suctioning etc. in hospital settings. Nebuliser use should be discouraged and alternative administration devices (e.g. spacers) should be used.

The [Laboratory testing section](#) provides detailed information on sample collection for SARS-CoV-2.

Active case finding

Contacts (see [Contact management section](#)) should be identified and advised to immediately seek medical advice should they develop symptoms. Contacts or caregivers should be asked to also inform the public health agency if they develop symptoms.

4. Environmental evaluation

Where local transmission of COVID-19 is thought possible, a thorough review of contributing environmental factors should be done. This should include a review of infection control procedures, and opportunities for exposure to respiratory or faecal contamination.

If a case has had occupational exposure to animals it may be appropriate to consult with animal health authorities.

5. Infectious period

Infectious period of COVID-19 remains unknown, however there is some evidence to support the occurrence of pre-symptomatic or asymptomatic transmission (1, 2). As a precautionary approach cases are considered to be infectious 24-hours prior to onset of symptoms. Cases are considered to pose a risk of onward transmission and require isolation until criteria listed in the [release from isolation section](#) have been met.

6. Contact management

As there remain gaps in the understanding of infectivity of COVID-19 cases and transmission modes, the definition of contacts and their public health management is based on available information on COVID-19 together with observations from similar serious coronaviruses – SARS-CoV and MERS-CoV. Distinction is made between close contacts and casual contacts.

Identification of contacts

All persons categorised as a contact (see definitions of “close contacts” and “casual contacts” following) of confirmed cases should be followed-up, and monitored for the development of symptoms for 14 days after the last exposure to the case (i.e. the maximum incubation period).

Contacts of suspected cases should also be considered for contact management if there is likely to be a delay in confirming or excluding COVID-19 in the suspected case, such as delayed testing.

Close contact definition*

A close contact is defined as requiring:

- greater than 15 minutes face-to-face contact in any setting with a confirmed case in the period extending from 24 hours before onset of symptoms in the confirmed case, or
- sharing of a closed space with a confirmed case for a prolonged period (e.g. more than 2 hours) in the period extending from 24 hours before onset of symptoms in the confirmed case.

For the purposes of surveillance, a close contact includes a person meeting any of the following criteria:

- Living in the same household or household-like setting (e.g. in a boarding school or hostel).
- Direct contact with the body fluids or laboratory specimens of a case without recommended PPE or failure of PPE.
- A person who spent 2 hours or longer in the same room (such as a GP or ED waiting room).
- A person in the same hospital room when an aerosol generating procedure is undertaken on the case, without recommended PPE.
- Aircraft passengers who were seated in the same row as the case, or in the two rows in front or two rows behind a confirmed COVID-19 case. Contact tracing of people who may have had close contact on long bus or train trips should also be attempted where possible, using similar seating/proximity criteria.
- All crew-members on an aircraft who worked in the same cabin area as a confirmed case of COVID-19. If a crew member is the COVID-19 case, contact tracing efforts should concentrate on passengers seated in the area where the crew member was working during the flight and all of the other members of the crew.
- Close contacts on cruise ships can be difficult to identify, and a case-by-case risk assessment should be conducted to identify which passengers and crew should be managed as close contacts. See [Special situations](#) for further information.

Contact needs to have occurred within the period extending 24 hours before onset of symptoms in the case until the case is classified as no longer infectious by the treating team (usually 24 hours after the resolution of symptoms).

Casual contact definition

Casual contact is defined as any person having less than 15 minutes face-to-face contact with a symptomatic confirmed case in any setting, or sharing a closed space with a symptomatic confirmed case for less than 2 hours. This will include healthcare workers, other patients, or visitors who were in the same closed healthcare space as a case, but for shorter periods than those required for a close contact. Other closed settings might include schools or offices.

Note that healthcare workers and other contacts who have taken recommended infection control precautions, including the use of full PPE, while caring for a symptomatic confirmed COVID-19 case are not considered to be close contacts. However, these people should be advised to self-monitor and if they develop symptoms consistent with COVID-19 they should isolate themselves and notify their public health unit or staff health unit so they can be tested and managed as a suspected COVID-19 case (see recommendations below under Management of symptomatic contacts).

Other casual contacts may include:

- Extended family groups, e.g. in an Aboriginal community.
- Aircraft passengers who were not seated nearby a symptomatic confirmed case or a crew-member who did not work in the same cabin area as a symptomatic confirmed case (see close contact definition).
- Passengers and crew onboard the same cruise ship as a symptomatic confirmed case (or cases), who are not considered to be close contacts. See [Special situations](#) for further information.

Where resources permit, more active contact tracing may be extended to other persons who have had casual contact (as defined above), particularly in school, office or other closed settings. In these circumstances, the size of the room/space and degree of separation of the case from others should be considered in identifying contacts.

Contact assessment

All persons identified as having had contact with a confirmed case should be assessed to see if they should be classified as a close contact and have demographic and epidemiological data collected. Information on close contacts should be managed according to jurisdictional requirements.

Identification and assessment of the contacts of suspected cases may be deferred pending the results of initial laboratory testing.

Close contact testing

Routine laboratory screening for COVID-19 is not recommended for asymptomatic close contacts.

Prophylaxis

No specific chemoprophylaxis is available for contacts.

Education

Close contacts should be counselled about their risk and the symptoms of COVID-19 and provided with a COVID-19 factsheet. They should be advised to self-quarantine.

Quarantine and restriction

Close contacts

Asymptomatic close contacts should be advised to self-quarantine at home for 14 days following the last contact with the case, and to monitor their health for 14 days after the last possible contact with a confirmed COVID-19 case.

Public health units should conduct active daily monitoring of close contacts for symptoms for 14 days after the last possible contact with a confirmed COVID-19 case.

Self-quarantined close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Less frequent active follow-up together with passive surveillance may be necessary if there are large numbers of close contacts to monitor.

For the purpose of contact management, swabs are **not** indicated during quarantine in well people. A medical clearance from a health care provider is not required for release from quarantine or for other purposes such as returning to work, school or university.

Casual contacts

Casual contacts should monitor their health for 14 days and report any symptoms immediately to the local public health unit. There are no restrictions on movements; however, casual contacts should be advised to isolate themselves and contact the public health unit if they develop symptoms.

Returned travellers who have left or transited through mainland China

Returned travellers who have left or transited through mainland China in the last 14 days **who are unwell** with fever or with respiratory symptoms, with or without fever, or other symptoms consistent with COVID-19 should be isolated and managed as per the current recommendations for suspected cases.

Well returned travellers who have left or transited through mainland China should self-quarantine at home for 14 days after leaving mainland China.

Self-quarantined returned travellers should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Healthcare worker close contacts

Healthcare worker close contacts (i.e. persons exposed while unprotected, as described in the [Contact definition section](#)) should be advised not to undertake work in a healthcare setting for 14 days following the last possible contact with the case. They should also be advised to self-quarantine at home for 14 days following the last contact with the case.

Self-quarantined healthcare worker close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Public health units may assist infection control units of health facilities to identify and monitor healthcare worker close contacts.

It is recognised that clinical work restrictions on healthcare worker close contacts may place strain on individuals and on health services. This underlines the importance of ensuring healthcare workers implement appropriate infection control precautions when assessing and managing suspected, confirmed COVID-19 cases.

CDNA will continue to monitor the emerging evidence around COVID-19 transmission risks in healthcare settings and revise these recommendations as needed.

Medical care for quarantined individuals

If individuals under self-quarantine need to see a doctor for any reason (e.g. fever and respiratory symptoms or other illness/injury), they should **telephone their GP or hospital Emergency Department before presenting. Patients with severe symptoms should call 000 and make it clear they are in self-quarantine or isolation because of COVID-19.** If the patient has **symptoms consistent with the COVID-19 [case definition](#)**, the local public health unit should be consulted about the most suitable venue for clinical assessment and specimen collection.

Management of symptomatic contacts

If fever or respiratory symptoms, with or without fever, or other symptoms consistent with COVID-19 develop within the first 14 days following the last contact, PHU staff should arrange for the individual to be immediately isolated and managed as per the current recommendations for suspected COVID-19 cases, with urgent testing for COVID-19 undertaken in an environment which minimises the exposure of others.

Ill contacts who are being evaluated for COVID-19 can be appropriately isolated and managed at home, unless their condition is severe enough to require hospitalisation.

Symptomatic contacts who test negative for SARS-CoV-2 by PCR will still need to be monitored for 14 days after their last contact with a confirmed COVID-19 case and may require re-testing.

7. Special situations

Cruise ships

Risk assessment and identification of contacts

Classification of contacts on cruise ships with one or more confirmed cases of COVID-19 should be made on a case-by-case basis.

Hospital transfer of suspect or confirmed cases

If suspect or confirmed cases on board require transfer to a hospital, the Commonwealth Biosecurity Officer will notify the port authority to provide access for medical transport. The jurisdictional Human Biosecurity Officer will then coordinate transfer of the person to an appropriate medical facility for further management, via the most appropriate means that adheres to necessary precautions.

Quarantine for passengers and crew after arrival at a port

Self-quarantine at home should be recommended for close contacts where this is feasible (e.g. persons with a residence nearby) ensuring appropriate PPE precautions are employed during travel. For close contacts for whom this is not possible, matters of self-quarantine should be addressed jurisdictionally.

Disembarking and embarking

After all suspect and confirmed cases have been managed appropriately and the Human Biosecurity Officer has determined that no other passengers or crew have symptoms consistent with COVID-19, remaining passengers and crew will be allowed to disembark. The vessel may be permitted to commence embarking once it is certain there is no risk of ongoing transmission.

8. References

1. WHO. Novel coronavirus (2019-nCoV) situational report-26 15 February 2020 Geneva: WHO; 2020 [cited 16 Feb 2020]. Available from: https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200215-sitrep-26-covid-19.pdf?sfvrsn=a4cc6787_2
2. Chang D, Xu H, Rebaza A, Sharma L, Dela Cruz CS. Protecting health-care workers from subclinical coronavirus infection. *Lancet Respir Med*. 2020.

9. Appendices

Appendix A: SARS-CoV-2 Laboratory testing information

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

Appendix A: SARS-CoV-2 Laboratory testing information

Laboratory testing for SARS-CoV-2 continues to evolve rapidly with the accumulation of clinical data, and as reagents and protocols are refined.

The aim of testing, if clinically appropriate, is to exclude common respiratory viruses using local hospital and community nucleic acid testing capacity, and to simultaneously refer onward to a laboratory with capacity to test for SARS-CoV-2. As co-infection is possible, initial testing protocols should include testing for SARS-CoV-2 in patients with epidemiological risk, even where another infection is shown to be present.

Samples for testing

- (i) upper respiratory tract samples
- (ii) lower respiratory tract sample if the lower tract is involved
- (iii) Serum (to be stored pending serology availability)

Upper respiratory tract samples

1. Nasopharyngeal swab and/or oropharyngeal swab, Dacron or Rayon, flocked preferred
 - nasopharyngeal: insert a swab into each nostril parallel to the palate, leave the swab in place for a few seconds to absorb secretions
 - oropharyngeal: swab the tonsillar beds, avoiding the tongue
 - place swabs back into the accompanying transport media
2. Nasal wash/aspirates
 - collect 2-3 mL into a sterile, leak-proof, screw-top dry sterile container

Lower respiratory tract samples (to be collected in hospital and/or using airborne precautions)

1. Sputum
 - patient should rinse his/her mouth with water before collection
 - expectorate deep cough sputum directly into a sterile, leak-proof, screw-top dry sterile container
2. Bronchoalveolar lavage, tracheal aspirate, pleural fluid
 - collect 2-3 mL into a sterile, leak-proof, screw-top sputum collection cup or dry sterile container

As lower respiratory tract specimens contain the highest viral loads in SARS-CoV and MERS-CoV, it is advised that lower respiratory tract specimens should be collected for SARS-CoV-2 testing where possible. Initial experience in testing for SARS-CoV-2 seems to be consistent with this prior experience. Repeat testing (especially of lower respiratory tract specimens) in clinically compatible cases should be performed if initial results are negative and there remains a high index of suspicion of infection.

Serology

Serum should be collected during the acute phase of the illness (preferably within the first 7 days of symptom onset), stored, and when serology testing becomes available tested in parallel with convalescent sera collected 3 or more weeks after acute infection. If no acute sample was collected, sera collected 14 or more days after symptom onset may be tested.

Specimen handling in the laboratory

Virology

Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment. Specimens should be transported in accordance with current regulatory requirements as diagnostic samples for testing.

Clinical Pathology

Standard precautions should be used for non-microbial pathology testing (such as routine biochemistry and haematology). Where possible auto-analysers should be used according to standard practices and/or local protocols. There is evidence that capping and uncapping of samples is not a high risk aerosol generating procedure.

Respiratory Virus Diagnostic Testing

Nucleic acid testing of the upper respiratory tract sample is performed for influenza and other common respiratory viruses using standard protocols and methods of the hospital or community laboratory.

Standard protocols of the testing laboratory for respiratory sample processing should be used. This is expected to consist of PC2 laboratory practices, and use of a Class II Biosafety cabinet for aerosol generating procedures (such as centrifuging without sealed carriers, vortexing, sonicating). Attempted viral culture, which would require higher levels of biocontainment would not be routinely attempted.

The residue (original swab and remaining eluate) of the upper tract sample is forwarded together with the lower tract sample and the serum to the reference laboratory with SARS-CoV-2 testing capacity requesting SARS-CoV-2 testing.

Clinical liaison with jurisdictional public health officers is essential to coordinate referral & testing.

Standard protocols should be used for sample packaging and transport as diagnostic samples for testing (i.e. Category B).

SARS-CoV-2 specific testing

Nucleic acid testing (NAT) using real time polymerase chain reaction (RT-PCR) is the method of choice for detection of SARS-CoV-2. Specific diagnostic test approaches for SARS-CoV-2 will be described here only in broad terms. There is significant variation in PCR assays employed by different PHLN member laboratories, and test algorithms are likely to be further refined over time.

Specific Real Time PCR primer sets to detect the SARS-CoV-2 are available. Some PHLN member laboratories have designed their own, and some have implemented primer sets recommended to the World Health Organization (WHO) by leading international coronavirus reference laboratories (available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance>). The majority of PHLN testing capacity now employs relatively swift RT-PCR assays for screening, with a turnaround time of several hours. Confirmation of positives is being done either with RT-PCR assays detecting a different target gene, or broadly reactive PCR tests with sequencing of amplicons (see below).

Well pedigreed PCR primer sets, probes and protocols are available from the WHO/ European Viral Archive (EVAg) (available at: https://www.who.int/docs/default-source/coronaviruse/protocol-v2-1.pdf?sfvrsn=a9ef618c_2).

Many PCR assays, including those available through WHO will also detect other zoonotic coronaviruses such as SARS-CoV, sometimes with a recognisable shift in the cycle threshold value (Ct) compared to the SARS-CoV-2 target, but not commonly circulating coronaviruses usually detected by commercial assays (e.g. NL63, 229E strains).

Several Australasian PHLN reference laboratories began diagnostic testing for the current outbreak using PCR assays capable of detecting a wide range of coronaviruses, including zoonotic and novel pathogens. A number of these were mapped against the promulgated Chinese nucleic acid sequence of SARS-CoV-2 early in the course of the outbreak. Nucleic acid sequencing of amplicons from positive tests is used to identify the coronavirus in this approach. These assays have relatively long turnaround times and have largely been replaced by RT-PCR other than in a confirmatory role in some laboratories.

Complementary DNA (cDNA) synthesized from the VIDRL SARS-CoV-2 has now been made available to all PHLN member laboratories as a test positive control. Synthetic positive control material in the form of nucleic acid templates is also available through WHO/ European Viral Archive (EVAg).

Testing algorithms are likely to be revised pending further information about the virus, and the number of specimens received in the laboratory for testing.

Viral culture should not be performed for routine diagnosis, and should only be attempted in reference laboratories with appropriate experience and containment facilities. Currently where attempted this is being done at Physical Containment Level 3 (PC3), consistent with current recommendations for SARS-CoV, pending specific SARS-CoV-2 international recommendations.

No Quality Assurance Program (QAP) is currently available internationally specific for SARS-CoV-2, although QAPs are available in Australia for respiratory viruses including coronaviruses other than SARS-CoV-2. The RCPAQAP with Commonwealth support will introduce a SARS-CoV-2 specific QAP to supplement previously available SARS-CoV, MERS-CoV and other coronaviruses, during the first half of 2020.

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

These recommendations are intended for hospital personnel who enter a clinical space with COVID-19 patients, including wardspersons, food deliverers, cleaners, and clinical personnel.

Background:

Although Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) which causes COVID-19 has spread rapidly and widely in mainland China, there has been limited transmission elsewhere, i.e. containment precautions have been mostly successful to date. At the time of writing, the crude mortality (~2%) in China is based on laboratory confirmed cases; many milder cases are almost certainly not being tested and the mortality is likely to be lower. Most cases in Australia have been relatively mild but a small number of deaths has been reported outside of mainland China. While a number of healthcare-associated infections have been reported with COVID-19 (in healthcare workers and patients) – as occurred with SARS and MERS - the risk for COVID-19 is likely to be very low, when infection control precautions are adhered to correctly.

General principles:

- **Standard precautions, including hand hygiene (5 Moments)** for all patients with respiratory infections. Patients and staff should observe cough etiquette and respiratory hygiene,
- **Transmission-based precautions** for patients with suspected or confirmed COVID-19:
 - **Contact and droplet precautions** for **routine care** of patients.
 - **Contact and airborne precautions** for **aerosol generating procedures (AGPs)**.

Contact and droplet precautions:

Contact and droplet precautions can be safely used for routine patient care of inpatients with suspected or confirmed COVID-19 (see Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units for case definition)

- On presentation or admission to hospital the patient should be:
 - given a surgical mask to put on, and
 - placed in a single room (ensuring air does not circulate to other areas)
 - placed in a negative pressure room (in the event of AGPs being performed).
- If transfer outside the room is essential, the patient should wear a surgical mask during transfer and follow respiratory hygiene and cough etiquette.
- For most inpatient contacts between healthcare staff and patients the following PPE is safe and appropriate and should be put on before entering the patient's room:
 - long-sleeved gown
 - surgical mask
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- For hospitalised patients requiring frequent attendance by medical and nursing staff, a P2/N95 respirator should be considered for prolonged or very close contact.

Contact and airborne precautions for aerosol-generating procedures (AGPs) and care of clinically ill patients requiring high level/high volume hands-on contact outside of ICU:

- **Contact and airborne precautions should be used routinely for AGPs**, which include:
 - tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy (and bronchoalveolar lavage), high flow nasal oxygen
 - The use of nebulisers should be avoided and alternative medication administration devices (e.g. spacers) used.
- PPE for contact and airborne procedures should be put on before entering patients room:
 - long-sleeved gown
 - P2/N95 respirator (mask) – should be fit-checked with each use
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- P2/N95 respirators (mask) should be used only when required.
- Unless used correctly, i.e. with fit-checking, a P2/N95 respirator (mask) is unlikely to protect against airborne pathogen spread.
 - An air-tight seal may be difficult to achieve for people with facial hair. Fit checking with a range of P2/N95 respirators must occur to assess the most suitable one to achieve a protective seal. If a tight seal cannot be achieved, facial hair should be removed.

Care of critically ill patients in ICU

- Patients who require admission to ICU with severe COVID-19 are likely to have a high viral load, particularly in the lower respiratory tract
- **Contact and airborne precautions** (as above) are required for patient care and are adequate for most AGPs.
 - The risk of aerosol transmission is reduced once the patient is intubated with a closed ventilator circuit but there is a potential, but unknown, risk of transmission from other body fluids such as diarrhoeal stool or vomitus or inadvertent circuit disconnection
- If a health care professional is required to remain in the patient's room continuously for a long period (e.g. more than one hour), because of the need to perform multiple procedures, the use of a powered air purifying respirator (PAPR) may be considered for additional comfort and visibility. A number of different types of relatively lightweight, comfortable PAPRs are now available and should be used according to manufacturer's instructions. Only **PPE marked as reusable** should be reused, following **reprocessing** according to manufacturer's instructions, All other PPE must be disposed of after use.

ICU staff caring for patients with COVID-19 (or any other potentially serious infectious disease) should be trained in the correct use of PPE, including by an infection control professional. This also applies particularly to the use of PAPRs, if required. Particular care should be taken on removal of PAPR, which is associated with a risk of contamination.

Additional precautions:**Staff**

- A staff log for each room entry should be maintained, to allow monitoring of potential breaches of infection control and follow-up contacts, if necessary.

Disposal of PPE and other waste

- Waste should be disposed in the normal way for clinical waste
- All non-clinical waste is disposed of into general waste

Handling of linen

- Routine procedures for handling of infectious linen should be followed
- Visibly soiled linen should be placed in a (soluble) plastic bag inside a linen skip

Environmental cleaning of patient care areas

- Cleaners should observe contact and droplet precautions (as above).
- Frequently touched surfaces (such as doorknobs, bedrails, tabletops, light switches, patient handsets) in the patient's room should be cleaned daily.
- Terminal cleaning of all surfaces in the room (as above plus floor, ceiling, walls, blinds) should be performed after the patient is discharged.
- A combined cleaning and disinfection procedure should be used, either 2-step - detergent clean, followed by disinfectant; or 2-in-1 step - using a product that has both cleaning and disinfectant properties. Any hospital-grade, TGA-listed disinfectant that is commonly against norovirus is suitable, if used according to manufacturer's instructions.

Coronavirus Disease 2019 (COVID-19)

CDNA National Guidelines for Public Health Units

Revision history			
Version	Date	Revised by	Changes
1.11	26 February 2020	Communicable Diseases Network Australia	Inclusion of Italy in the list of countries in the Person Under Investigation section.
1.10	23 February 2020	Communicable Diseases Network Australia	Inclusion of South Korea and Iran in the list of countries in the Person Under Investigation section.
1.9	21 February 2020	Communicable Diseases Network Australia	Revised: case definition, infectious period, contact management, special situation (cruise ship). Specific changes are highlighted.
1.8	17 February 2020	Communicable Diseases Network Australia	Inclusion of statement reflecting that passengers of the Diamond Princess cruise meet the criteria for close contact.
1.7	15 February 2020	Communicable Diseases Network Australia	Revised case definition.
1.6	14 February 2020	Communicable Diseases Network Australia	Addition of Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19). Updated nomenclature.
1.5	7 February 2020	Communicable Diseases Network Australia	Inclusion of advice on release from isolation.
1.4	6 February 2020	Communicable Diseases Network Australia	Revised case definition and added rationale. Updated infection control advice throughout.
1.3	4 February 2020	Communicable Diseases Network Australia	Revised the case definition and use of the terms 'quarantine' and 'isolation'.
1.2	2 February 2020	Communicable Diseases Network Australia	Revised the case definition, close and casual contact definitions and added self-isolation guidance.

1.1	27 January 2020	Communicable Diseases Network Australia	Removed references to Wuhan and revised the case definition
1.0	23 January 2020	Communicable Diseases Network Australia	Developed by the 2019-nCoV Working Group

This document summarises interim recommendations for surveillance, infection control, laboratory testing and contact management for coronavirus disease 2019 (COVID-19). It is the first national guidance issued for COVID-19 and will be further developed into the Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units (COVID-19 SoNG).

It has been adapted from CDNA National Guidelines for Public Health Units MERS-CoV, utilising current CDC and WHO guidance, and is based on the current knowledge of the situation in mainland China and other countries, and experiences with SARS-CoV and MERS-CoV.

CDNA will review and update these recommendations as required as new information becomes available on the situation.

These interim Guidelines are to be used in the first instance whilst a Series of National Guidelines is being developed by the Communicable Diseases Network Australia (CDNA).

These interim guidelines capture the knowledge of experienced professionals, and provide guidance on best practice based upon the best available evidence at the time of completion.

Readers should not rely solely on the information contained within these Guidelines. Guideline information is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a health professional. Clinical judgement and discretion may be required in the interpretation and application of these guidelines.

The membership of the CDNA and the AHPPC, and the Commonwealth of Australia as represented by the Department of Health ('the Commonwealth'), do not warrant or represent that the information contained in these Guidelines is accurate, current or complete. The CDNA, the AHPPC and the Commonwealth do not accept any legal liability or responsibility for any loss, damages, costs or expenses incurred by the use of, or reliance on, or interpretation of, the information contained in these Guidelines.

Abbreviations and definitions

- COVID-19: coronavirus disease 2019. The name of the disease caused by the virus SARS-CoV-2, as agreed by the World Health Organization, the World Organization for Animal Health and the Food and Agriculture Organization of the United Nations. For more information, see the World Health Organization Director-General's remarks: <https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020>
- SARS-CoV-2: severe acute respiratory syndrome coronavirus 2. The formal name of the coronavirus which causes COVID-19, as determined by the International Committee on Taxonomy of Viruses. Previously, this coronavirus was commonly known as 'novel coronavirus 2019 (2019-nCoV)'. For more information see the International Committee on Taxonomy of Viruses manuscript: <https://www.biorxiv.org/content/10.1101/2020.02.07.937862v1.full.pdf>

1. Case definition

Confirmed case

A person who tests positive to a validated specific SARS-CoV-2 nucleic acid test or has the virus identified by electron microscopy or viral culture.

Suspect case

If the patient satisfies epidemiological and clinical criteria, they are classified as a suspect case.

Epidemiological criteria

- Travel to (including transit through) mainland China in the 14 days before the onset of illness.

OR

- Close or casual contact (see [Contact definition](#) below) in 14 days before illness onset with a confirmed case of COVID-19.

Clinical criteria

- Fever.

OR

- Acute respiratory infection (e.g. shortness of breath or cough) with or without fever.

Person under investigation

It is recommended that clinicians should consider testing people with a clinically compatible illness who travelled to any of the following countries in the 14 days before onset of symptoms:

- Hong Kong
- Indonesia
- Iran
- Italy
- Japan
- Singapore
- South Korea
- Thailand

This list* is based on the volume of travel between those countries, Australia and China, and/or the current epidemiology of COVID-19; however, the risk of COVID-19 in these countries is currently thought to be low. Clinical and public health judgement should be applied. The recommendation does not apply to passengers who have only been in transit through an airport in these countries.

Note: if a clinician determines that a **person under investigation** should be tested then that person must be managed as a **suspect case** until COVID-19 is confirmed or excluded as the cause of illness.

*This list is in alphabetical order.

Rationale for current case definitions

The case definitions are based on what is currently known about the clinical and epidemiological profile of cases of COVID-19 presenting to date both in Australia and internationally. Health authorities are constantly monitoring the spectrum of clinical symptoms as cases arise, and, if there are any significant shifts, they will be reflected in the above definitions in future versions of this document. The same monitoring and revision applies for epidemiological criteria as new areas of varying risk emerge outside mainland China.

The 14 day period is based upon what is currently known to be the upper time limit of the incubation period. As more precise information about the incubation period emerges, this will be reviewed.

2. Laboratory testing

Patients to be considered for SARS-CoV-2 testing are described under the suspect case definition ([above](#)). Where applicable, consult with your state/territory communicable diseases agency to seek advice on which laboratories can provide SARS-CoV-2 testing; appropriate specimen type, collection and transport; and also to facilitate contact management if indicated.

When collecting respiratory specimens, transmission-based precautions should be observed whether or not respiratory symptoms are present.

For most patients with mild illness in the community, collection of upper respiratory specimens (i.e. nasopharyngeal or oropharyngeal swabs) is a low risk procedure and can be performed using **contact and droplet precautions**:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield), and surgical mask.
- To collect throat or nasopharyngeal swab stand slightly to the side of the patient to avoid exposure to respiratory secretions, should the patient cough or sneeze.
- At completion of consultation, remove personal protective equipment (PPE) and perform hand hygiene, wipe any contacted/contaminated surfaces with detergent /disinfectant.
- Note that, for droplet precautions, the room does not need to be left empty after sample collection.

If the patient has severe symptoms suggestive of pneumonia, e.g. fever and breathing difficulty, or frequent, severe or productive coughing episodes then **contact and airborne precautions** should be observed.

Patients with these symptoms should be managed in hospital, and sample collection conducted in a negative pressure room, if available. If referral to hospital for specimen collection is not possible, specimens should be collected in a room from which air does not circulate to other areas. The door should be closed during specimens collection and the room left vacant for at least 30 minutes afterwards (cleaning can be performed during this time by a person wearing PPE).

The following precautions should be observed:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield) and a **P2/N95 respirator – which should be fit checked**.

- At completion of consultation, remove gown and gloves, perform hand hygiene, remove eye protection and P2/N95 respirator. Do not touch the front of any item of PPE during removal; perform hand hygiene.
- The room surfaces should be wiped clean with disinfectant wipes by a person wearing gloves, gown and surgical mask.

For further information on circumstances requiring airborne precautions, see [aerosol generating procedures](#).

Routine tests for acute pneumonia/pneumonitis should be performed where indicated, including bacterial cultures, acute and convalescent serology, urinary antigen testing and nucleic acid tests for respiratory viruses, according to local protocols.

Serology for SARS-CoV-2 is not yet available. Collection of serum for storage by the SARS-CoV-2 testing laboratory is recommended to facilitate retrospective testing, if this is relevant, once serology tests become available.

See [Appendix A](#) for additional SARS-CoV-2 laboratory testing information.

3. Case management

Response times

On the same day as notification of a suspected or confirmed case, begin follow up investigation and, where applicable, notify your central state or territory communicable diseases agency.

PHU staff should be available to contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners.

Response procedure

Case investigation

The response to a notification will normally be carried out in collaboration with the clinicians managing the case, and be guided by the COVID-19 public health unit checklist and the COVID-19 investigation form (currently pending).

Regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend that tests be done.
- Seek the treating doctor's permission to contact the case or relevant care-giver.
- Determine if the diagnosis has been discussed with the case or relevant care-giver before beginning the interview.
- Review case and contact management.
- Ensure appropriate infection control guidelines are followed in caring for the case.
- Identify the likely source of infection.

Note: If interviews with suspected cases are conducted face-to-face, the person conducting the interview must have a thorough understanding of infection control practices and be competent in using appropriate PPE.

Case treatment

In the absence of pathogen-specific interventions, patient management largely depends on supportive treatment, and vigilance for and treatment of complications.

Further advice on clinical management is available from WHO: (https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2)

Education

Provide a COVID-19 factsheet to cases and their close contacts.

Ensure that they are aware of the signs and symptoms of COVID-19, the requirements of quarantine and isolation, contact details of the PHU and the infection control practices that can prevent the transmission of COVID-19.

Isolation and restriction

Cases will generally be managed in hospital. If clinically indicated, cases may be managed at home only if it can be ensured that the case and household contacts are counselled about risk and that appropriate infection control measures are in place.

Healthcare workers and others who come into contact with suspected and confirmed cases must be protected according to recommended infection control guidelines. Visitors should be restricted to close family members.

A risk assessment should be undertaken for suspected cases who initially test negative for SARS-CoV-2. If there is no alternative diagnosis and a high index of suspicion remains that such cases may have COVID-19, consideration should be given to continued isolation and use of the recommended infection control precautions, pending further testing (see [Laboratory testing section](#) and [Appendix A](#)) and re-assessment.

Given the severity of reported infections, the evidence of limited human-to-human transmission, and gaps in knowledge of transmission pathways, the recommendations on isolation and PPE for management of suspected and confirmed cases take a deliberately cautious approach.

In addition to standard precautions, interim recommendations for the use of PPE during clinical care of people with possible COVID-19 are:

- **Contact and droplet precautions** are recommended for **routine care** of patients in quarantine or with suspected or confirmed COVID-19.
- **Contact and airborne precautions** are recommended when performing **aerosol-generating procedures**, including intubation and bronchoscopy.

Other recommended infection control measures include:

- When a patient who meets the suspect case definition presents to a healthcare setting (GP, hospital ED, or pathology collection centre) and whether or not respiratory symptoms are present, the patient should immediately be:
 - given a surgical mask to put on, and
 - directed to a single room. If the patient has severe symptoms suggestive of pneumonia, they should be directed to a negative pressure room, if available, or a room from which the air does not circulate to other areas.

- If a patient with confirmed COVID-19 needs to be transferred out of their isolation room, the patient should wear a “surgical” face mask and follow respiratory hygiene and cough etiquette.

Release from isolation

A confirmed case can be released from isolation if they meet all of the following criteria:

- the person has been afebrile for the previous 48 hours;
- resolution of the acute illness for the previous 24 hours¹;
- be at least 7 days after the onset of the acute illness;
- PCR negative on at least two consecutive specimens collected 24 hours apart after the acute illness has resolved^{2,3}.

¹Some people may have pre-existing illnesses with chronic respiratory signs or symptoms, such as chronic cough. For these people, the treating medical practitioner should make an assessment as to whether the signs and symptoms of COVID-19 have resolved.

²If the patient has a productive cough due to a pre-existing respiratory illness or other ongoing lower respiratory tract disease, then the sputum or other lower respiratory tract specimens must be PCR negative for SARS-CoV-2. Otherwise upper respiratory tract specimens (nasopharyngeal or nose and throat swabs) must be PCR negative.

³A small proportion of people may have an illness that has completely resolved but their respiratory specimens remain persistently PCR positive. A decision on release from isolation for these people should be made on a case-by-case basis after consultation between the person’s treating medical practitioner, the testing laboratory and public health. Results of viral culture, if available, may be included in this consideration.

Follow up should include the person being reviewed seven days after release from isolation for:

- clinical review to ensure full symptom resolution
- collection of a serum specimen for storage and possible later serologic testing (the person should be informed that this is for future test development and does not inform their clinical care).

Routine PCR testing at seven days after release is not recommended unless the person has clinical features consistent with COVID-19.

Aerosol-generating procedures

Appropriate care should be taken during aerosol-generating procedures. Aerosol-generating procedures include: tracheal intubation, non-invasive ventilation, tracheostomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy. Collection of upper respiratory specimens is not generally regarded as aerosol generating, but airborne precautions should be used for collection of specimens from severely symptomatic patients (see [Laboratory testing section](#)).

P2/N95 respirators should be used only when required. Unless used correctly, i.e. with fit-checking, they are unlikely to protect against airborne pathogen spread.

Airborne precautions should be used routinely for aerosol-generating procedures, such as bronchoscopy, intubation, suctioning etc. in hospital settings. Nebuliser use should be discouraged and alternative administration devices (e.g. spacers) should be used.

The [Laboratory testing section](#) provides detailed information on sample collection for SARS-CoV-2.

Active case finding

Contacts (see [Contact management section](#)) should be identified and advised to immediately seek medical advice should they develop symptoms. Contacts or caregivers should be asked to also inform the public health agency if they develop symptoms.

4. Environmental evaluation

Where local transmission of COVID-19 is thought possible, a thorough review of contributing environmental factors should be done. This should include a review of infection control procedures, and opportunities for exposure to respiratory or faecal contamination.

If a case has had occupational exposure to animals it may be appropriate to consult with animal health authorities.

5. Infectious period

Infectious period of COVID-19 remains unknown, however there is some evidence to support the occurrence of pre-symptomatic or asymptomatic transmission (1). As a precautionary approach cases are considered to be infectious 24-hours prior to onset of symptoms. Cases are considered to pose a risk of onward transmission and require isolation until criteria listed in the [release from isolation section](#) have been met.

6. Contact management

As there remain gaps in the understanding of infectivity of COVID-19 cases and transmission modes, the definition of contacts and their public health management is based on available information on COVID-19 together with observations from similar serious coronaviruses – SARS-CoV and MERS-CoV. Distinction is made between close contacts and casual contacts.

Identification of contacts

All persons categorised as a contact (see definitions of “close contacts” and “casual contacts” following) of confirmed cases should be followed-up, and monitored for the development of symptoms for 14 days after the last exposure to the case (i.e. the maximum incubation period).

Contacts of suspected cases should also be considered for contact management if there is likely to be a delay in confirming or excluding COVID-19 in the suspected case, such as delayed testing.

Close contact definition*

A close contact is defined as requiring:

- greater than 15 minutes face-to-face contact in any setting with a confirmed case in the period extending from 24 hours before onset of symptoms in the confirmed case, or
- sharing of a closed space with a confirmed case for a prolonged period (e.g. more than 2 hours) in the period extending from 24 hours before onset of symptoms in the confirmed case.

For the purposes of surveillance, a close contact includes a person meeting any of the following criteria:

- Living in the same household or household-like setting (e.g. in a boarding school or hostel).
- Direct contact with the body fluids or laboratory specimens of a case without recommended PPE or failure of PPE.
- A person who spent 2 hours or longer in the same room (such as a GP or ED waiting room).
- A person in the same hospital room when an aerosol generating procedure is undertaken on the case, without recommended PPE.
- Aircraft passengers who were seated in the same row as the case, or in the two rows in front or two rows behind a confirmed COVID-19 case. Contact tracing of people who may have had close contact on long bus or train trips should also be attempted where possible, using similar seating/proximity criteria.
- All crew-members on an aircraft who worked in the same cabin area as a confirmed case of COVID-19. If a crew member is the COVID-19 case, contact tracing efforts should concentrate on passengers seated in the area where the crew member was working during the flight and all of the other members of the crew.
- Close contacts on cruise ships can be difficult to identify, and a case-by-case risk assessment should be conducted to identify which passengers and crew should be managed as close contacts. See [Special situations](#) for further information.

Contact needs to have occurred within the period extending 24 hours before onset of symptoms in the case until the case is classified as no longer infectious by the treating team (usually 24 hours after the resolution of symptoms).

Casual contact definition

Casual contact is defined as any person having less than 15 minutes face-to-face contact with a symptomatic confirmed case in any setting, or sharing a closed space with a symptomatic confirmed case for less than 2 hours. This will include healthcare workers, other patients, or visitors who were in the same closed healthcare space as a case, but for shorter periods than those required for a close contact. Other closed settings might include schools or offices.

Note that healthcare workers and other contacts who have taken recommended infection control precautions, including the use of full PPE, while caring for a symptomatic confirmed COVID-19 case are not considered to be close contacts. However, these people should be advised to self-monitor and if they develop symptoms consistent with COVID-19 they should isolate themselves and notify their public health unit or staff health unit so they can be tested and managed as a suspected COVID-19 case (see recommendations below under Management of symptomatic contacts).

Other casual contacts may include:

- Extended family groups, e.g. in an Aboriginal community.
- Aircraft passengers who were not seated nearby a symptomatic confirmed case or a crew-member who did not work in the same cabin area as a symptomatic confirmed case (see close contact definition).
- Passengers and crew onboard the same cruise ship as a symptomatic confirmed case (or cases), who are not considered to be close contacts. See [Special situations](#) for further information.

Where resources permit, more active contact tracing may be extended to other persons who have had casual contact (as defined above), particularly in school, office or other closed settings. In these circumstances, the size of the room/space and degree of separation of the case from others should be considered in identifying contacts.

Contact assessment

All persons identified as having had contact with a confirmed case should be assessed to see if they should be classified as a close contact and have demographic and epidemiological data collected. Information on close contacts should be managed according to jurisdictional requirements.

Identification and assessment of the contacts of suspected cases may be deferred pending the results of initial laboratory testing.

Close contact testing

Routine laboratory screening for COVID-19 is not recommended for asymptomatic close contacts.

Prophylaxis

No specific chemoprophylaxis is available for contacts.

Education

Close contacts should be counselled about their risk and the symptoms of COVID-19 and provided with a COVID-19 factsheet. They should be advised to self-quarantine.

Quarantine and restriction

Close contacts

Asymptomatic close contacts should be advised to self-quarantine at home for 14 days following the last contact with the case, and to monitor their health for 14 days after the last possible contact with a confirmed COVID-19 case.

Public health units should conduct active daily monitoring of close contacts for symptoms for 14 days after the last possible contact with a confirmed COVID-19 case.

Self-quarantined close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Less frequent active follow-up together with passive surveillance may be necessary if there are large numbers of close contacts to monitor.

For the purpose of contact management, swabs are **not** indicated during quarantine in well people. A medical clearance from a health care provider is not required for release from quarantine or for other purposes such as returning to work, school or university.

Casual contacts

Casual contacts should monitor their health for 14 days and report any symptoms immediately to the local public health unit. There are no restrictions on movements; however, casual contacts should be advised to isolate themselves and contact the public health unit if they develop symptoms.

Returned travellers who have left or transited through mainland China

Returned travellers who have left or transited through mainland China in the last 14 days **who are unwell** with fever or with respiratory symptoms, with or without fever, or other symptoms consistent with COVID-19 should be isolated and managed as per the current recommendations for suspected cases.

Well returned travellers who have left or transited through mainland China should self-quarantine at home for 14 days after leaving mainland China.

Self-quarantined returned travellers should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Healthcare worker close contacts

Healthcare worker close contacts (i.e. persons exposed while unprotected, as described in the [Contact definition section](#)) should be advised not to undertake work in a healthcare setting for 14 days following the last possible contact with the case. They should also be advised to self-quarantine at home for 14 days following the last contact with the case.

Self-quarantined healthcare worker close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Public health units may assist infection control units of health facilities to identify and monitor healthcare worker close contacts.

It is recognised that clinical work restrictions on healthcare worker close contacts may place strain on individuals and on health services. This underlines the importance of ensuring healthcare workers implement appropriate infection control precautions when assessing and managing suspected, confirmed COVID-19 cases.

CDNA will continue to monitor the emerging evidence around COVID-19 transmission risks in healthcare settings and revise these recommendations as needed.

Medical care for quarantined individuals

If individuals under self-quarantine need to see a doctor for any reason (e.g. fever and respiratory symptoms or other illness/injury), they should **telephone their GP or hospital Emergency Department before presenting. Patients with severe symptoms should call 000 and make it clear they are in self-quarantine or isolation because of COVID-19.** If the patient has **symptoms consistent with the COVID-19 [case definition](#)**, the local public health unit should be consulted about the most suitable venue for clinical assessment and specimen collection.

Management of symptomatic contacts

If fever or respiratory symptoms, with or without fever, or other symptoms consistent with COVID-19 develop within the first 14 days following the last contact, PHU staff should arrange for the individual to be immediately isolated and managed as per the current recommendations for suspected COVID-19 cases, with urgent testing for COVID-19 undertaken in an environment which minimises the exposure of others.

Ill contacts who are being evaluated for COVID-19 can be appropriately isolated and managed at home, unless their condition is severe enough to require hospitalisation.

Symptomatic contacts who test negative for SARS-CoV-2 by PCR will still need to be monitored for 14 days after their last contact with a confirmed COVID-19 case and may require re-testing.

7. Special situations

Cruise ships

Risk assessment and identification of contacts

Classification of contacts on cruise ships with one or more confirmed cases of COVID-19 should be made on a case-by-case basis.

Hospital transfer of suspect or confirmed cases

If suspect or confirmed cases on board require transfer to a hospital, the Commonwealth Biosecurity Officer will notify the port authority to provide access for medical transport. The jurisdictional Human Biosecurity Officer will then coordinate transfer of the person to an appropriate medical facility for further management, via the most appropriate means that adheres to necessary precautions.

Quarantine for passengers and crew after arrival at a port

Self-quarantine at home should be recommended for close contacts where this is feasible (e.g. persons with a residence nearby) ensuring appropriate PPE precautions are employed during travel. For close contacts for whom this is not possible, matters of self-quarantine should be addressed jurisdictionally.

Disembarking and embarking

After all suspect and confirmed cases have been managed appropriately and the Human Biosecurity Officer has determined that no other passengers or crew have symptoms consistent with COVID-19, remaining passengers and crew will be allowed to disembark. The vessel may be permitted to commence embarking once it is certain there is no risk of ongoing transmission.

8. References

1. Chang D, Xu H, Rebaza A, Sharma L, Dela Cruz CS. Protecting health-care workers from subclinical coronavirus infection. *Lancet Respir Med*. 2020.

9. Appendices

Appendix A: SARS-CoV-2 Laboratory testing information

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

Appendix A: SARS-CoV-2 Laboratory testing information

Laboratory testing for SARS-CoV-2 continues to evolve rapidly with the accumulation of clinical data, and as reagents and protocols are refined.

The aim of testing, if clinically appropriate, is to exclude common respiratory viruses using local hospital and community nucleic acid testing capacity, and to simultaneously refer onward to a laboratory with capacity to test for SARS-CoV-2. As co-infection is possible, initial testing protocols should include testing for SARS-CoV-2 in patients with epidemiological risk, even where another infection is shown to be present.

Samples for testing

- (i) upper respiratory tract samples
- (ii) lower respiratory tract sample if the lower tract is involved
- (iii) Serum (to be stored pending serology availability)

Upper respiratory tract samples

1. Nasopharyngeal swab and/or oropharyngeal swab, Dacron or Rayon, flocked preferred
 - nasopharyngeal: insert a swab into each nostril parallel to the palate, leave the swab in place for a few seconds to absorb secretions
 - oropharyngeal: swab the tonsillar beds, avoiding the tongue
 - place swabs back into the accompanying transport media
2. Nasal wash/aspirates
 - collect 2-3 mL into a sterile, leak-proof, screw-top dry sterile container

Lower respiratory tract samples (to be collected in hospital and/or using airborne precautions)

1. Sputum
 - patient should rinse his/her mouth with water before collection
 - expectorate deep cough sputum directly into a sterile, leak-proof, screw-top dry sterile container
2. Bronchoalveolar lavage, tracheal aspirate, pleural fluid
 - collect 2-3 mL into a sterile, leak-proof, screw-top sputum collection cup or dry sterile container

As lower respiratory tract specimens contain the highest viral loads in SARS-CoV and MERS-CoV, it is advised that lower respiratory tract specimens should be collected for SARS-CoV-2 testing where possible. Initial experience in testing for SARS-CoV-2 seems to be consistent with this prior experience. Repeat testing (especially of lower respiratory tract specimens) in clinically compatible cases should be performed if initial results are negative and there remains a high index of suspicion of infection.

Serology

Serum should be collected during the acute phase of the illness (preferably within the first 7 days of symptom onset), stored, and when serology testing becomes available tested in parallel with convalescent sera collected 3 or more weeks after acute infection. If no acute sample was collected, sera collected 14 or more days after symptom onset may be tested.

Specimen handling in the laboratory***Virology***

Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment. Specimens should be transported in accordance with current regulatory requirements as diagnostic samples for testing.

Clinical Pathology

Standard precautions should be used for non-microbial pathology testing (such as routine biochemistry and haematology). Where possible auto-analysers should be used according to standard practices and/or local protocols. There is evidence that capping and uncapping of samples is not a high risk aerosol generating procedure.

Respiratory Virus Diagnostic Testing

Nucleic acid testing of the upper respiratory tract sample is performed for influenza and other common respiratory viruses using standard protocols and methods of the hospital or community laboratory.

Standard protocols of the testing laboratory for respiratory sample processing should be used. This is expected to consist of PC2 laboratory practices, and use of a Class II Biosafety cabinet for aerosol generating procedures (such as centrifuging without sealed carriers, vortexing, sonicating). Attempted viral culture, which would require higher levels of biocontainment would not be routinely attempted.

The residue (original swab and remaining eluate) of the upper tract sample is forwarded together with the lower tract sample and the serum to the reference laboratory with SARS-CoV-2 testing capacity requesting SARS-CoV-2 testing.

Clinical liaison with jurisdictional public health officers is essential to coordinate referral & testing.

Standard protocols should be used for sample packaging and transport as diagnostic samples for testing (i.e. Category B).

SARS-CoV-2 specific testing

Nucleic acid testing (NAT) using real time polymerase chain reaction (RT-PCR) is the method of choice for detection of SARS-CoV-2. Specific diagnostic test approaches for SARS-CoV-2 will be described here only in broad terms. There is significant variation in PCR assays employed by different PHLN member laboratories, and test algorithms are likely to be further refined over time.

Specific Real Time PCR primer sets to detect the SARS-CoV-2 are available. Some PHLN member laboratories have designed their own, and some have implemented primer sets recommended to the World Health Organization (WHO) by leading international coronavirus reference laboratories (available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance>). The majority of PHLN testing capacity now employs relatively swift RT-PCR assays for screening, with a turnaround time of several hours. Confirmation of positives is being done either with RT-PCR assays detecting a different target gene, or broadly reactive PCR tests with sequencing of amplicons (see below).

Well pedigreed PCR primer sets, probes and protocols are available from the WHO/ European Viral Archive (EVAg) (available at: https://www.who.int/docs/default-source/coronaviruse/protocol-v2-1.pdf?sfvrsn=a9ef618c_2).

Many PCR assays, including those available through WHO will also detect other zoonotic coronaviruses such as SARS-CoV, sometimes with a recognisable shift in the cycle threshold value (Ct) compared to the SARS-CoV-2 target, but not commonly circulating coronaviruses usually detected by commercial assays (e.g. NL63, 229E strains).

Several Australasian PHLN reference laboratories began diagnostic testing for the current outbreak using PCR assays capable of detecting a wide range of coronaviruses, including zoonotic and novel pathogens. A number of these were mapped against the promulgated Chinese nucleic acid sequence of SARS-CoV-2 early in the course of the outbreak. Nucleic acid sequencing of amplicons from positive tests is used to identify the coronavirus in this approach. These assays have relatively long turnaround times and have largely been replaced by RT-PCR other than in a confirmatory role in some laboratories.

Complementary DNA (cDNA) synthesized from the VIDRL SARS-CoV-2 has now been made available to all PHLN member laboratories as a test positive control. Synthetic positive control material in the form of nucleic acid templates is also available through WHO/ European Viral Archive (EVAg).

Testing algorithms are likely to be revised pending further information about the virus, and the number of specimens received in the laboratory for testing.

Viral culture should not be performed for routine diagnosis, and should only be attempted in reference laboratories with appropriate experience and containment facilities. Currently where attempted this is being done at Physical Containment Level 3 (PC3), consistent with current recommendations for SARS-CoV, pending specific SARS-CoV-2 international recommendations.

No Quality Assurance Program (QAP) is currently available internationally specific for SARS-CoV-2, although QAPs are available in Australia for respiratory viruses including coronaviruses other than SARS-CoV-2. The RCPAQAP with Commonwealth support will introduce a SARS-CoV-2 specific QAP to supplement previously available SARS-CoV, MERS-CoV and other coronaviruses, during the first half of 2020.

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

These recommendations are intended for hospital personnel who enter a clinical space with COVID-19 patients, including wardspersons, food deliverers, cleaners, and clinical personnel.

Background:

Although Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) which causes COVID-19 has spread rapidly and widely in mainland China, there has been limited transmission elsewhere, i.e. containment precautions have been mostly successful to date. At the time of writing, the crude mortality (~2%) in China is based on laboratory confirmed cases; many milder cases are almost certainly not being tested and the mortality is likely to be lower. Most cases in Australia have been relatively mild but a small number of deaths has been reported outside of mainland China. While a number of healthcare-associated infections have been reported with COVID-19 (in healthcare workers and patients) – as occurred with SARS and MERS - the risk for COVID-19 is likely to be very low, when infection control precautions are adhered to correctly.

General principles:

- **Standard precautions, including hand hygiene (5 Moments)** for all patients with respiratory infections. Patients and staff should observe cough etiquette and respiratory hygiene,
- **Transmission-based precautions** for patients with suspected or confirmed COVID-19:
 - **Contact and droplet precautions** for **routine care** of patients.
 - **Contact and airborne precautions** for **aerosol generating procedures (AGPs)**.

Contact and droplet precautions:

Contact and droplet precautions can be safely used for routine patient care of inpatients with suspected or confirmed COVID-19 (see Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units for case definition)

- On presentation or admission to hospital the patient should be:
 - given a surgical mask to put on, and
 - placed in a single room (ensuring air does not circulate to other areas)
 - placed in a negative pressure room (in the event of AGPs being performed).
- If transfer outside the room is essential, the patient should wear a surgical mask during transfer and follow respiratory hygiene and cough etiquette.
- For most inpatient contacts between healthcare staff and patients the following PPE is safe and appropriate and should be put on before entering the patient's room:
 - long-sleeved gown
 - surgical mask
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- For hospitalised patients requiring frequent attendance by medical and nursing staff, a P2/N95 respirator should be considered for prolonged or very close contact.

Contact and airborne precautions for aerosol-generating procedures (AGPs) and care of clinically ill patients requiring high level/high volume hands-on contact outside of ICU:

- **Contact and airborne precautions should be used routinely for AGPs**, which include:
 - tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy (and bronchoalveolar lavage), high flow nasal oxygen
 - The use of nebulisers should be avoided and alternative medication administration devices (e.g. spacers) used.
- PPE for contact and airborne procedures should be put on before entering patients room:
 - long-sleeved gown
 - P2/N95 respirator (mask) – should be fit-checked with each use
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- P2/N95 respirators (mask) should be used only when required.
- Unless used correctly, i.e. with fit-checking, a P2/N95 respirator (mask) is unlikely to protect against airborne pathogen spread.
 - An air-tight seal may be difficult to achieve for people with facial hair. Fit checking with a range of P2/N95 respirators must occur to assess the most suitable one to achieve a protective seal. If a tight seal cannot be achieved, facial hair should be removed.

Care of critically ill patients in ICU

- Patients who require admission to ICU with severe COVID-19 are likely to have a high viral load, particularly in the lower respiratory tract
- **Contact and airborne precautions** (as above) are required for patient care and are adequate for most AGPs.
 - The risk of aerosol transmission is reduced once the patient is intubated with a closed ventilator circuit but there is a potential, but unknown, risk of transmission from other body fluids such as diarrhoeal stool or vomitus or inadvertent circuit disconnection
- If a health care professional is required to remain in the patient's room continuously for a long period (e.g. more than one hour), because of the need to perform multiple procedures, the use of a powered air purifying respirator (PAPR) may be considered for additional comfort and visibility. A number of different types of relatively lightweight, comfortable PAPRs are now available and should be used according to manufacturer's instructions. Only **PPE marked as reusable** should be reused, following **reprocessing** according to manufacturer's instructions, All other PPE must be disposed of after use.

ICU staff caring for patients with COVID-19 (or any other potentially serious infectious disease) should be trained in the correct use of PPE, including by an infection control professional. This also applies particularly to the use of PAPRs, if required. Particular care should be taken on removal of PAPR, which is associated with a risk of contamination.

Additional precautions:**Staff**

- A staff log for each room entry should be maintained, to allow monitoring of potential breaches of infection control and follow-up contacts, if necessary.

Disposal of PPE and other waste

- Waste should be disposed in the normal way for clinical waste
- All non-clinical waste is disposed of into general waste

Handling of linen

- Routine procedures for handling of infectious linen should be followed
- Visibly soiled linen should be placed in a (soluble) plastic bag inside a linen skip

Environmental cleaning of patient care areas

- Cleaners should observe contact and droplet precautions (as above).
- Frequently touched surfaces (such as doorknobs, bedrails, tabletops, light switches, patient handsets) in the patient's room should be cleaned daily.
- Terminal cleaning of all surfaces in the room (as above plus floor, ceiling, walls, blinds) should be performed after the patient is discharged.
- A combined cleaning and disinfection procedure should be used, either 2-step - detergent clean, followed by disinfectant; or 2-in-1 step - using a product that has both cleaning and disinfectant properties. Any hospital-grade, TGA-listed disinfectant that is commonly against norovirus is suitable, if used according to manufacturer's instructions.

Coronavirus Disease 2019 (COVID-19)

CDNA National Guidelines for Public Health Units

Revision history			
Version	Date	Revised by	Changes
1.12	27 February 2020	Communicable Diseases Network Australia	Inclusion of Cambodia in the list of countries in the Person under investigation section.
1.11	26 February 2020	Communicable Diseases Network Australia	Inclusion of Italy in the list of countries in the Person under investigation section.
1.10	23 February 2020	Communicable Diseases Network Australia	Inclusion of South Korea and Iran in the list of countries in the Person under investigation section.
1.9	21 February 2020	Communicable Diseases Network Australia	Revised: case definition, infectious period, contact management, special situation (cruise ship). Specific changes are highlighted.
1.8	17 February 2020	Communicable Diseases Network Australia	Inclusion of statement reflecting that passengers of the Diamond Princess cruise meet the criteria for close contact.
1.7	15 February 2020	Communicable Diseases Network Australia	Revised case definition.
1.6	14 February 2020	Communicable Diseases Network Australia	Addition of Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19). Updated nomenclature.
1.5	7 February 2020	Communicable Diseases Network Australia	Inclusion of advice on release from isolation.
1.4	6 February 2020	Communicable Diseases Network Australia	Revised case definition and added rationale. Updated infection control advice throughout.
1.3	4 February 2020	Communicable Diseases Network Australia	Revised the case definition and use of the terms 'quarantine' and 'isolation'.

1.2	2 February 2020	Communicable Diseases Network Australia	Revised the case definition, close and casual contact definitions and added self-isolation guidance.
1.1	27 January 2020	Communicable Diseases Network Australia	Removed references to Wuhan and revised the case definition
1.0	23 January 2020	Communicable Diseases Network Australia	Developed by the 2019-nCoV Working Group

This document summarises interim recommendations for surveillance, infection control, laboratory testing and contact management for coronavirus disease 2019 (COVID-19). It is the first national guidance issued for COVID-19 and will be further developed into the Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units (COVID-19 SoNG).

It has been adapted from CDNA National Guidelines for Public Health Units MERS-CoV, utilising current CDC and WHO guidance, and is based on the current knowledge of the situation in mainland China and other countries, and experiences with SARS-CoV and MERS-CoV.

CDNA will review and update these recommendations as required as new information becomes available on the situation.

These interim Guidelines are to be used in the first instance whilst a Series of National Guidelines is being developed by the Communicable Diseases Network Australia (CDNA).

These interim guidelines capture the knowledge of experienced professionals, and provide guidance on best practice based upon the best available evidence at the time of completion.

Readers should not rely solely on the information contained within these Guidelines. Guideline information is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a health professional. Clinical judgement and discretion may be required in the interpretation and application of these guidelines.

The membership of the CDNA and the AHPPC, and the Commonwealth of Australia as represented by the Department of Health ('the Commonwealth'), do not warrant or represent that the information contained in these Guidelines is accurate, current or complete. The CDNA, the AHPPC and the Commonwealth do not accept any legal liability or responsibility for any loss, damages, costs or expenses incurred by the use of, or reliance on, or interpretation of, the information contained in these Guidelines.

Abbreviations and definitions

- COVID-19: coronavirus disease 2019. The name of the disease caused by the virus SARS-CoV-2, as agreed by the World Health Organization, the World Organization for Animal Health and the Food and Agriculture Organization of the United Nations. For more information, see the World Health Organization Director-General's remarks: <https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020>
- SARS-CoV-2: severe acute respiratory syndrome coronavirus 2. The formal name of the coronavirus which causes COVID-19, as determined by the International Committee on Taxonomy of Viruses. Previously, this coronavirus was commonly known as 'novel coronavirus 2019 (2019-nCoV)'. For more information see the International Committee on Taxonomy of Viruses manuscript: <https://www.biorxiv.org/content/10.1101/2020.02.07.937862v1.full.pdf>

1. Case definition

Confirmed case

A person who tests positive to a validated specific SARS-CoV-2 nucleic acid test or has the virus identified by electron microscopy or viral culture.

Suspect case

If the patient satisfies epidemiological and clinical criteria, they are classified as a suspect case.

Epidemiological criteria

- Travel to (including transit through) mainland China in the 14 days before the onset of illness.

OR

- Close or casual contact (see [Contact definition](#) below) in 14 days before illness onset with a confirmed case of COVID-19.

Clinical criteria

- Fever.

OR

- Acute respiratory infection (e.g. shortness of breath or cough) with or without fever.

Person under investigation

It is recommended that clinicians should consider testing people with a clinically compatible illness who travelled to any of the following countries in the 14 days before onset of symptoms:

- Cambodia
- Hong Kong
- Indonesia
- Iran
- Italy
- Japan
- Singapore
- South Korea
- Thailand

This list* is based on the volume of travel between those countries, Australia and China, and/or the current epidemiology of COVID-19; however, the risk of COVID-19 in these countries is currently thought to be low. Clinical and public health judgement should be applied. The recommendation does not apply to passengers who have only been in transit through an airport in these countries.

Note: if a clinician determines that a **person under investigation** should be tested then that person must be managed as a **suspect case** until COVID-19 is confirmed or excluded as the cause of illness.

*This list is in alphabetical order.

Rationale for current case definitions

The case definitions are based on what is currently known about the clinical and epidemiological profile of cases of COVID-19 presenting to date both in Australia and internationally. Health authorities are constantly monitoring the spectrum of clinical symptoms as cases arise, and, if there are any significant shifts, they will be reflected in the above definitions in future versions of this document. The same monitoring and revision applies for epidemiological criteria as new areas of varying risk emerge outside mainland China.

The 14 day period is based upon what is currently known to be the upper time limit of the incubation period. As more precise information about the incubation period emerges, this will be reviewed.

2. Laboratory testing

Patients to be considered for SARS-CoV-2 testing are described under the suspect case definition ([above](#)). Where applicable, consult with your state/territory communicable diseases agency to seek advice on which laboratories can provide SARS-CoV-2 testing; appropriate specimen type, collection and transport; and also to facilitate contact management if indicated.

When collecting respiratory specimens, transmission-based precautions should be observed whether or not respiratory symptoms are present.

For most patients with mild illness in the community, collection of upper respiratory specimens (i.e. nasopharyngeal or oropharyngeal swabs) is a low risk procedure and can be performed using **contact and droplet precautions**:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield), and surgical mask.
- To collect throat or nasopharyngeal swab stand slightly to the side of the patient to avoid exposure to respiratory secretions, should the patient cough or sneeze.
- At completion of consultation, remove personal protective equipment (PPE) and perform hand hygiene, wipe any contacted/contaminated surfaces with detergent /disinfectant.
- Note that, for droplet precautions, the room does not need to be left empty after sample collection.

If the patient has severe symptoms suggestive of pneumonia, e.g. fever and breathing difficulty, or frequent, severe or productive coughing episodes then **contact and airborne precautions** should be observed.

Patients with these symptoms should be managed in hospital, and sample collection conducted in a negative pressure room, if available. If referral to hospital for specimen collection is not possible, specimens should be collected in a room from which air does not circulate to other areas. The door should be closed during specimens collection and the room left vacant for at least 30 minutes afterwards (cleaning can be performed during this time by a person wearing PPE).

The following precautions should be observed:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield) and a **P2/N95 respirator – which should be fit checked**.

- At completion of consultation, remove gown and gloves, perform hand hygiene, remove eye protection and P2/N95 respirator. Do not touch the front of any item of PPE during removal; perform hand hygiene.
- The room surfaces should be wiped clean with disinfectant wipes by a person wearing gloves, gown and surgical mask.

For further information on circumstances requiring airborne precautions, see [aerosol generating procedures](#).

Routine tests for acute pneumonia/pneumonitis should be performed where indicated, including bacterial cultures, acute and convalescent serology, urinary antigen testing and nucleic acid tests for respiratory viruses, according to local protocols.

Serology for SARS-CoV-2 is not yet available. Collection of serum for storage by the SARS-CoV-2 testing laboratory is recommended to facilitate retrospective testing, if this is relevant, once serology tests become available.

See [Appendix A](#) for additional SARS-CoV-2 laboratory testing information.

3. Case management

Response times

On the same day as notification of a suspected or confirmed case, begin follow up investigation and, where applicable, notify your central state or territory communicable diseases agency.

PHU staff should be available to contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners.

Response procedure

Case investigation

The response to a notification will normally be carried out in collaboration with the clinicians managing the case, and be guided by the COVID-19 public health unit checklist and the COVID-19 investigation form (currently pending).

Regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend that tests be done.
- Seek the treating doctor's permission to contact the case or relevant care-giver.
- Determine if the diagnosis has been discussed with the case or relevant care-giver before beginning the interview.
- Review case and contact management.
- Ensure appropriate infection control guidelines are followed in caring for the case.
- Identify the likely source of infection.

Note: If interviews with suspected cases are conducted face-to-face, the person conducting the interview must have a thorough understanding of infection control practices and be competent in using appropriate PPE.

Case treatment

In the absence of pathogen-specific interventions, patient management largely depends on supportive treatment, and vigilance for and treatment of complications.

Further advice on clinical management is available from WHO: (https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2)

Education

Provide a COVID-19 factsheet to cases and their close contacts.

Ensure that they are aware of the signs and symptoms of COVID-19, the requirements of quarantine and isolation, contact details of the PHU and the infection control practices that can prevent the transmission of COVID-19.

Isolation and restriction

Cases will generally be managed in hospital. If clinically indicated, cases may be managed at home only if it can be ensured that the case and household contacts are counselled about risk and that appropriate infection control measures are in place.

Healthcare workers and others who come into contact with suspected and confirmed cases must be protected according to recommended infection control guidelines. Visitors should be restricted to close family members.

A risk assessment should be undertaken for suspected cases who initially test negative for SARS-CoV-2. If there is no alternative diagnosis and a high index of suspicion remains that such cases may have COVID-19, consideration should be given to continued isolation and use of the recommended infection control precautions, pending further testing (see [Laboratory testing section](#) and [Appendix A](#)) and re-assessment.

Given the severity of reported infections, the evidence of limited human-to-human transmission, and gaps in knowledge of transmission pathways, the recommendations on isolation and PPE for management of suspected and confirmed cases take a deliberately cautious approach.

In addition to standard precautions, interim recommendations for the use of PPE during clinical care of people with possible COVID-19 are:

- **Contact and droplet precautions** are recommended for **routine care** of patients in quarantine or with suspected or confirmed COVID-19.
- **Contact and airborne precautions** are recommended when performing **aerosol-generating procedures**, including intubation and bronchoscopy.

Other recommended infection control measures include:

- When a patient who meets the suspect case definition presents to a healthcare setting (GP, hospital ED, or pathology collection centre) and whether or not respiratory symptoms are present, the patient should immediately be:
 - given a surgical mask to put on, and
 - directed to a single room. If the patient has severe symptoms suggestive of pneumonia, they should be directed to a negative pressure room, if available, or a room from which the air does not circulate to other areas.

- If a patient with confirmed COVID-19 needs to be transferred out of their isolation room, the patient should wear a “surgical” face mask and follow respiratory hygiene and cough etiquette.

Release from isolation

A confirmed case can be released from isolation if they meet all of the following criteria:

- the person has been afebrile for the previous 48 hours;
- resolution of the acute illness for the previous 24 hours¹;
- be at least 7 days after the onset of the acute illness;
- PCR negative on at least two consecutive specimens collected 24 hours apart after the acute illness has resolved^{2,3}.

¹Some people may have pre-existing illnesses with chronic respiratory signs or symptoms, such as chronic cough. For these people, the treating medical practitioner should make an assessment as to whether the signs and symptoms of COVID-19 have resolved.

²If the patient has a productive cough due to a pre-existing respiratory illness or other ongoing lower respiratory tract disease, then the sputum or other lower respiratory tract specimens must be PCR negative for SARS-CoV-2. Otherwise upper respiratory tract specimens (nasopharyngeal or nose and throat swabs) must be PCR negative.

³A small proportion of people may have an illness that has completely resolved but their respiratory specimens remain persistently PCR positive. A decision on release from isolation for these people should be made on a case-by-case basis after consultation between the person’s treating medical practitioner, the testing laboratory and public health. Results of viral culture, if available, may be included in this consideration.

Follow up should include the person being reviewed seven days after release from isolation for:

- clinical review to ensure full symptom resolution
- collection of a serum specimen for storage and possible later serologic testing (the person should be informed that this is for future test development and does not inform their clinical care).

Routine PCR testing at seven days after release is not recommended unless the person has clinical features consistent with COVID-19.

Aerosol-generating procedures

Appropriate care should be taken during aerosol-generating procedures. Aerosol-generating procedures include: tracheal intubation, non-invasive ventilation, tracheostomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy. Collection of upper respiratory specimens is not generally regarded as aerosol generating, but airborne precautions should be used for collection of specimens from severely symptomatic patients (see [Laboratory testing section](#)).

P2/N95 respirators should be used only when required. Unless used correctly, i.e. with fit-checking, they are unlikely to protect against airborne pathogen spread.

Airborne precautions should be used routinely for aerosol-generating procedures, such as bronchoscopy, intubation, suctioning etc. in hospital settings. Nebuliser use should be discouraged and alternative administration devices (e.g. spacers) should be used.

The [Laboratory testing section](#) provides detailed information on sample collection for SARS-CoV-2.

Active case finding

Contacts (see [Contact management section](#)) should be identified and advised to immediately seek medical advice should they develop symptoms. Contacts or caregivers should be asked to also inform the public health agency if they develop symptoms.

4. Environmental evaluation

Where local transmission of COVID-19 is thought possible, a thorough review of contributing environmental factors should be done. This should include a review of infection control procedures, and opportunities for exposure to respiratory or faecal contamination.

If a case has had occupational exposure to animals it may be appropriate to consult with animal health authorities.

5. Infectious period

Infectious period of COVID-19 remains unknown, however there is some evidence to support the occurrence of pre-symptomatic or asymptomatic transmission (1). As a precautionary approach cases are considered to be infectious 24-hours prior to onset of symptoms. Cases are considered to pose a risk of onward transmission and require isolation until criteria listed in the [release from isolation section](#) have been met.

6. Contact management

As there remain gaps in the understanding of infectivity of COVID-19 cases and transmission modes, the definition of contacts and their public health management is based on available information on COVID-19 together with observations from similar serious coronaviruses – SARS-CoV and MERS-CoV. Distinction is made between close contacts and casual contacts.

Identification of contacts

All persons categorised as a contact (see definitions of “close contacts” and “casual contacts” following) of confirmed cases should be followed-up, and monitored for the development of symptoms for 14 days after the last exposure to the case (i.e. the maximum incubation period).

Contacts of suspected cases should also be considered for contact management if there is likely to be a delay in confirming or excluding COVID-19 in the suspected case, such as delayed testing.

Close contact definition*

A close contact is defined as requiring:

- greater than 15 minutes face-to-face contact in any setting with a confirmed case in the period extending from 24 hours before onset of symptoms in the confirmed case, or
- sharing of a closed space with a confirmed case for a prolonged period (e.g. more than 2 hours) in the period extending from 24 hours before onset of symptoms in the confirmed case.

For the purposes of surveillance, a close contact includes a person meeting any of the following criteria:

- Living in the same household or household-like setting (e.g. in a boarding school or hostel).
- Direct contact with the body fluids or laboratory specimens of a case without recommended PPE or failure of PPE.
- A person who spent 2 hours or longer in the same room (such as a GP or ED waiting room).
- A person in the same hospital room when an aerosol generating procedure is undertaken on the case, without recommended PPE.
- Aircraft passengers who were seated in the same row as the case, or in the two rows in front or two rows behind a confirmed COVID-19 case. Contact tracing of people who may have had close contact on long bus or train trips should also be attempted where possible, using similar seating/proximity criteria.
- All crew-members on an aircraft who worked in the same cabin area as a confirmed case of COVID-19. If a crew member is the COVID-19 case, contact tracing efforts should concentrate on passengers seated in the area where the crew member was working during the flight and all of the other members of the crew.
- Close contacts on cruise ships can be difficult to identify, and a case-by-case risk assessment should be conducted to identify which passengers and crew should be managed as close contacts. See [Special situations](#) for further information.

Contact needs to have occurred within the period extending 24 hours before onset of symptoms in the case until the case is classified as no longer infectious by the treating team (usually 24 hours after the resolution of symptoms).

Casual contact definition

Casual contact is defined as any person having less than 15 minutes face-to-face contact with a symptomatic confirmed case in any setting, or sharing a closed space with a symptomatic confirmed case for less than 2 hours. This will include healthcare workers, other patients, or visitors who were in the same closed healthcare space as a case, but for shorter periods than those required for a close contact. Other closed settings might include schools or offices.

Note that healthcare workers and other contacts who have taken recommended infection control precautions, including the use of full PPE, while caring for a symptomatic confirmed COVID-19 case are not considered to be close contacts. However, these people should be advised to self-monitor and if they develop symptoms consistent with COVID-19 they should isolate themselves and notify their public health unit or staff health unit so they can be tested and managed as a suspected COVID-19 case (see recommendations below under Management of symptomatic contacts).

Other casual contacts may include:

- Extended family groups, e.g. in an Aboriginal community.
- Aircraft passengers who were not seated nearby a symptomatic confirmed case or a crew-member who did not work in the same cabin area as a symptomatic confirmed case (see close contact definition).
- Passengers and crew onboard the same cruise ship as a symptomatic confirmed case (or cases), who are not considered to be close contacts. See [Special situations](#) for further information.

Where resources permit, more active contact tracing may be extended to other persons who have had casual contact (as defined above), particularly in school, office or other closed settings. In these circumstances, the size of the room/space and degree of separation of the case from others should be considered in identifying contacts.

Contact assessment

All persons identified as having had contact with a confirmed case should be assessed to see if they should be classified as a close contact and have demographic and epidemiological data collected. Information on close contacts should be managed according to jurisdictional requirements.

Identification and assessment of the contacts of suspected cases may be deferred pending the results of initial laboratory testing.

Close contact testing

Routine laboratory screening for COVID-19 is not recommended for asymptomatic close contacts.

Prophylaxis

No specific chemoprophylaxis is available for contacts.

Education

Close contacts should be counselled about their risk and the symptoms of COVID-19 and provided with a COVID-19 factsheet. They should be advised to self-quarantine.

Quarantine and restriction

Close contacts

Asymptomatic close contacts should be advised to self-quarantine at home for 14 days following the last contact with the case, and to monitor their health for 14 days after the last possible contact with a confirmed COVID-19 case.

Public health units should conduct active daily monitoring of close contacts for symptoms for 14 days after the last possible contact with a confirmed COVID-19 case.

Self-quarantined close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Less frequent active follow-up together with passive surveillance may be necessary if there are large numbers of close contacts to monitor.

For the purpose of contact management, swabs are **not** indicated during quarantine in well people. A medical clearance from a health care provider is not required for release from quarantine or for other purposes such as returning to work, school or university.

Casual contacts

Casual contacts should monitor their health for 14 days and report any symptoms immediately to the local public health unit. There are no restrictions on movements; however, casual contacts should be advised to isolate themselves and contact the public health unit if they develop symptoms.

Returned travellers who have left or transited through mainland China

Returned travellers who have left or transited through mainland China in the last 14 days **who are unwell** with fever or with respiratory symptoms, with or without fever, or other symptoms consistent with COVID-19 should be isolated and managed as per the current recommendations for suspected cases.

Well returned travellers who have left or transited through mainland China should self-quarantine at home for 14 days after leaving mainland China.

Self-quarantined returned travellers should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Healthcare worker close contacts

Healthcare worker close contacts (i.e. persons exposed while unprotected, as described in the [Contact definition section](#)) should be advised not to undertake work in a healthcare setting for 14 days following the last possible contact with the case. They should also be advised to self-quarantine at home for 14 days following the last contact with the case.

Self-quarantined healthcare worker close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Public health units may assist infection control units of health facilities to identify and monitor healthcare worker close contacts.

It is recognised that clinical work restrictions on healthcare worker close contacts may place strain on individuals and on health services. This underlines the importance of ensuring healthcare workers implement appropriate infection control precautions when assessing and managing suspected, confirmed COVID-19 cases.

CDNA will continue to monitor the emerging evidence around COVID-19 transmission risks in healthcare settings and revise these recommendations as needed.

Medical care for quarantined individuals

If individuals under self-quarantine need to see a doctor for any reason (e.g. fever and respiratory symptoms or other illness/injury), they should **telephone their GP or hospital Emergency Department before presenting. Patients with severe symptoms should call 000 and make it clear they are in self-quarantine or isolation because of COVID-19.** If the patient has **symptoms consistent with the COVID-19 [case definition](#)**, the local public health unit should be consulted about the most suitable venue for clinical assessment and specimen collection.

Management of symptomatic contacts

If fever or respiratory symptoms, with or without fever, or other symptoms consistent with COVID-19 develop within the first 14 days following the last contact, PHU staff should arrange for the individual to be immediately isolated and managed as per the current recommendations for suspected COVID-19 cases, with urgent testing for COVID-19 undertaken in an environment which minimises the exposure of others.

Ill contacts who are being evaluated for COVID-19 can be appropriately isolated and managed at home, unless their condition is severe enough to require hospitalisation.

Symptomatic contacts who test negative for SARS-CoV-2 by PCR will still need to be monitored for 14 days after their last contact with a confirmed COVID-19 case and may require re-testing.

7. Special situations

Cruise ships

Risk assessment and identification of contacts

Classification of contacts on cruise ships with one or more confirmed cases of COVID-19 should be made on a case-by-case basis.

Hospital transfer of suspect or confirmed cases

If suspect or confirmed cases on board require transfer to a hospital, the Commonwealth Biosecurity Officer will notify the port authority to provide access for medical transport. The jurisdictional Human Biosecurity Officer will then coordinate transfer of the person to an appropriate medical facility for further management, via the most appropriate means that adheres to necessary precautions.

Quarantine for passengers and crew after arrival at a port

Self-quarantine at home should be recommended for close contacts where this is feasible (e.g. persons with a residence nearby) ensuring appropriate PPE precautions are employed during travel. For close contacts for whom this is not possible, matters of self-quarantine should be addressed jurisdictionally.

Disembarking and embarking

After all suspect and confirmed cases have been managed appropriately and the Human Biosecurity Officer has determined that no other passengers or crew have symptoms consistent with COVID-19, remaining passengers and crew will be allowed to disembark. The vessel may be permitted to commence embarking once it is certain there is no risk of ongoing transmission.

8. References

1. Chang D, Xu H, Rebaza A, Sharma L, Dela Cruz CS. Protecting health-care workers from subclinical coronavirus infection. *Lancet Respir Med*. 2020.

9. Appendices

Appendix A: SARS-CoV-2 Laboratory testing information

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

Appendix A: SARS-CoV-2 Laboratory testing information

Laboratory testing for SARS-CoV-2 continues to evolve rapidly with the accumulation of clinical data, and as reagents and protocols are refined.

The aim of testing, if clinically appropriate, is to exclude common respiratory viruses using local hospital and community nucleic acid testing capacity, and to simultaneously refer onward to a laboratory with capacity to test for SARS-CoV-2. As co-infection is possible, initial testing protocols should include testing for SARS-CoV-2 in patients with epidemiological risk, even where another infection is shown to be present.

Samples for testing

- (i) upper respiratory tract samples
- (ii) lower respiratory tract sample if the lower tract is involved
- (iii) Serum (to be stored pending serology availability)

Upper respiratory tract samples

1. Nasopharyngeal swab and/or oropharyngeal swab, Dacron or Rayon, flocked preferred
 - nasopharyngeal: insert a swab into each nostril parallel to the palate, leave the swab in place for a few seconds to absorb secretions
 - oropharyngeal: swab the tonsillar beds, avoiding the tongue
 - place swabs back into the accompanying transport media
2. Nasal wash/aspirates
 - collect 2-3 mL into a sterile, leak-proof, screw-top dry sterile container

Lower respiratory tract samples (to be collected in hospital and/or using airborne precautions)

1. Sputum
 - patient should rinse his/her mouth with water before collection
 - expectorate deep cough sputum directly into a sterile, leak-proof, screw-top dry sterile container
2. Bronchoalveolar lavage, tracheal aspirate, pleural fluid
 - collect 2-3 mL into a sterile, leak-proof, screw-top sputum collection cup or dry sterile container

As lower respiratory tract specimens contain the highest viral loads in SARS-CoV and MERS-CoV, it is advised that lower respiratory tract specimens should be collected for SARS-CoV-2 testing where possible. Initial experience in testing for SARS-CoV-2 seems to be consistent with this prior experience. Repeat testing (especially of lower respiratory tract specimens) in clinically compatible cases should be performed if initial results are negative and there remains a high index of suspicion of infection.

Serology

Serum should be collected during the acute phase of the illness (preferably within the first 7 days of symptom onset), stored, and when serology testing becomes available tested in parallel with convalescent sera collected 3 or more weeks after acute infection. If no acute sample was collected, sera collected 14 or more days after symptom onset may be tested.

Specimen handling in the laboratory

Virology

Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment. Specimens should be transported in accordance with current regulatory requirements as diagnostic samples for testing.

Clinical Pathology

Standard precautions should be used for non-microbial pathology testing (such as routine biochemistry and haematology). Where possible auto-analysers should be used according to standard practices and/or local protocols. There is evidence that capping and uncapping of samples is not a high risk aerosol generating procedure.

Respiratory Virus Diagnostic Testing

Nucleic acid testing of the upper respiratory tract sample is performed for influenza and other common respiratory viruses using standard protocols and methods of the hospital or community laboratory.

Standard protocols of the testing laboratory for respiratory sample processing should be used. This is expected to consist of PC2 laboratory practices, and use of a Class II Biosafety cabinet for aerosol generating procedures (such as centrifuging without sealed carriers, vortexing, sonicating). Attempted viral culture, which would require higher levels of biocontainment would not be routinely attempted.

The residue (original swab and remaining eluate) of the upper tract sample is forwarded together with the lower tract sample and the serum to the reference laboratory with SARS-CoV-2 testing capacity requesting SARS-CoV-2 testing.

Clinical liaison with jurisdictional public health officers is essential to coordinate referral & testing.

Standard protocols should be used for sample packaging and transport as diagnostic samples for testing (i.e. Category B).

SARS-CoV-2 specific testing

Nucleic acid testing (NAT) using real time polymerase chain reaction (RT-PCR) is the method of choice for detection of SARS-CoV-2. Specific diagnostic test approaches for SARS-CoV-2 will be described here only in broad terms. There is significant variation in PCR assays employed by different PHLN member laboratories, and test algorithms are likely to be further refined over time.

Specific Real Time PCR primer sets to detect the SARS-CoV-2 are available. Some PHLN member laboratories have designed their own, and some have implemented primer sets recommended to the World Health Organization (WHO) by leading international coronavirus reference laboratories (available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance>). The majority of PHLN testing capacity now employs relatively swift RT-PCR assays for screening, with a turnaround time of several hours. Confirmation of positives is being done either with RT-PCR assays detecting a different target gene, or broadly reactive PCR tests with sequencing of amplicons (see below).

Well pedigreed PCR primer sets, probes and protocols are available from the WHO/ European Viral Archive (EVAg) (available at: https://www.who.int/docs/default-source/coronaviruse/protocol-v2-1.pdf?sfvrsn=a9ef618c_2).

Many PCR assays, including those available through WHO will also detect other zoonotic coronaviruses such as SARS-CoV, sometimes with a recognisable shift in the cycle threshold value (Ct) compared to the SARS-CoV-2 target, but not commonly circulating coronaviruses usually detected by commercial assays (e.g. NL63, 229E strains).

Several Australasian PHLN reference laboratories began diagnostic testing for the current outbreak using PCR assays capable of detecting a wide range of coronaviruses, including zoonotic and novel pathogens. A number of these were mapped against the promulgated Chinese nucleic acid sequence of SARS-CoV-2 early in the course of the outbreak. Nucleic acid sequencing of amplicons from positive tests is used to identify the coronavirus in this approach. These assays have relatively long turnaround times and have largely been replaced by RT-PCR other than in a confirmatory role in some laboratories.

Complementary DNA (cDNA) synthesized from the VIDRL SARS-CoV-2 has now been made available to all PHLN member laboratories as a test positive control. Synthetic positive control material in the form of nucleic acid templates is also available through WHO/ European Viral Archive (EVAg).

Testing algorithms are likely to be revised pending further information about the virus, and the number of specimens received in the laboratory for testing.

Viral culture should not be performed for routine diagnosis, and should only be attempted in reference laboratories with appropriate experience and containment facilities. Currently where attempted this is being done at Physical Containment Level 3 (PC3), consistent with current recommendations for SARS-CoV, pending specific SARS-CoV-2 international recommendations.

No Quality Assurance Program (QAP) is currently available internationally specific for SARS-CoV-2, although QAPs are available in Australia for respiratory viruses including coronaviruses other than SARS-CoV-2. The RCPAQAP with Commonwealth support will introduce a SARS-CoV-2 specific QAP to supplement previously available SARS-CoV, MERS-CoV and other coronaviruses, during the first half of 2020.

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

These recommendations are intended for hospital personnel who enter a clinical space with COVID-19 patients, including wardspersons, food deliverers, cleaners, and clinical personnel.

Background:

Although Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) which causes COVID-19 has spread rapidly and widely in mainland China, there has been limited transmission elsewhere, i.e. containment precautions have been mostly successful to date. At the time of writing, the crude mortality (~2%) in China is based on laboratory confirmed cases; many milder cases are almost certainly not being tested and the mortality is likely to be lower. Most cases in Australia have been relatively mild but a small number of deaths has been reported outside of mainland China. While a number of healthcare-associated infections have been reported with COVID-19 (in healthcare workers and patients) – as occurred with SARS and MERS - the risk for COVID-19 is likely to be very low, when infection control precautions are adhered to correctly.

General principles:

- **Standard precautions, including hand hygiene (5 Moments)** for all patients with respiratory infections. Patients and staff should observe cough etiquette and respiratory hygiene,
- **Transmission-based precautions** for patients with suspected or confirmed COVID-19:
 - **Contact and droplet precautions** for **routine care** of patients.
 - **Contact and airborne precautions** for **aerosol generating procedures (AGPs)**.

Contact and droplet precautions:

Contact and droplet precautions can be safely used for routine patient care of inpatients with suspected or confirmed COVID-19 (see Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units for case definition)

- On presentation or admission to hospital the patient should be:
 - given a surgical mask to put on, and
 - placed in a single room (ensuring air does not circulate to other areas)
 - placed in a negative pressure room (in the event of AGPs being performed).
- If transfer outside the room is essential, the patient should wear a surgical mask during transfer and follow respiratory hygiene and cough etiquette.
- For most inpatient contacts between healthcare staff and patients the following PPE is safe and appropriate and should be put on before entering the patient's room:
 - long-sleeved gown
 - surgical mask
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- For hospitalised patients requiring frequent attendance by medical and nursing staff, a P2/N95 respirator should be considered for prolonged or very close contact.

Contact and airborne precautions for aerosol-generating procedures (AGPs) and care of clinically ill patients requiring high level/high volume hands-on contact outside of ICU:

- **Contact and airborne precautions should be used routinely for AGPs**, which include:
 - tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy (and bronchoalveolar lavage), high flow nasal oxygen
 - The use of nebulisers should be avoided and alternative medication administration devices (e.g. spacers) used.
- PPE for contact and airborne procedures should be put on before entering patients room:
 - long-sleeved gown
 - P2/N95 respirator (mask) – should be fit-checked with each use
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- P2/N95 respirators (mask) should be used only when required.
- Unless used correctly, i.e. with fit-checking, a P2/N95 respirator (mask) is unlikely to protect against airborne pathogen spread.
 - An air-tight seal may be difficult to achieve for people with facial hair. Fit checking with a range of P2/N95 respirators must occur to assess the most suitable one to achieve a protective seal. If a tight seal cannot be achieved, facial hair should be removed.

Care of critically ill patients in ICU

- Patients who require admission to ICU with severe COVID-19 are likely to have a high viral load, particularly in the lower respiratory tract
- **Contact and airborne precautions** (as above) are required for patient care and are adequate for most AGPs.
 - The risk of aerosol transmission is reduced once the patient is intubated with a closed ventilator circuit but there is a potential, but unknown, risk of transmission from other body fluids such as diarrhoeal stool or vomitus or inadvertent circuit disconnection
- If a health care professional is required to remain in the patient's room continuously for a long period (e.g. more than one hour), because of the need to perform multiple procedures, the use of a powered air purifying respirator (PAPR) may be considered for additional comfort and visibility. A number of different types of relatively lightweight, comfortable PAPRs are now available and should be used according to manufacturer's instructions. Only **PPE marked as reusable** should be reused, following **reprocessing** according to manufacturer's instructions, All other PPE must be disposed of after use.

ICU staff caring for patients with COVID-19 (or any other potentially serious infectious disease) should be trained in the correct use of PPE, including by an infection control professional. This also applies particularly to the use of PAPRs, if required. Particular care should be taken on removal of PAPR, which is associated with a risk of contamination.

Additional precautions:**Staff**

- A staff log for each room entry should be maintained, to allow monitoring of potential breaches of infection control and follow-up contacts, if necessary.

Disposal of PPE and other waste

- Waste should be disposed in the normal way for clinical waste
- All non-clinical waste is disposed of into general waste

Handling of linen

- Routine procedures for handling of infectious linen should be followed
- Visibly soiled linen should be placed in a (soluble) plastic bag inside a linen skip

Environmental cleaning of patient care areas

- Cleaners should observe contact and droplet precautions (as above).
- Frequently touched surfaces (such as doorknobs, bedrails, tabletops, light switches, patient handsets) in the patient's room should be cleaned daily.
- Terminal cleaning of all surfaces in the room (as above plus floor, ceiling, walls, blinds) should be performed after the patient is discharged.
- A combined cleaning and disinfection procedure should be used, either 2-step - detergent clean, followed by disinfectant; or 2-in-1 step - using a product that has both cleaning and disinfectant properties. Any hospital-grade, TGA-listed disinfectant that is commonly against norovirus is suitable, if used according to manufacturer's instructions.

Coronavirus Disease 2019 (COVID-19)

CDNA National Guidelines for Public Health Units

Revision history			
Version	Date	Revised by	Changes
1.13	28 February 2020	Communicable Diseases Network Australia	Revised: Laboratory testing, isolation and restriction and Appendix A: laboratory testing information.
1.12	27 February 2020	Communicable Diseases Network Australia	Inclusion of Cambodia in the list of countries in the Person under investigation section.
1.11	26 February 2020	Communicable Diseases Network Australia	Inclusion of Italy in the list of countries in the Person Under Investigation section.
1.10	23 February 2020	Communicable Diseases Network Australia	Inclusion of South Korea and Iran in the list of countries in the Person Under Investigation section.
1.9	21 February 2020	Communicable Diseases Network Australia	Revised: case definition, infectious period, contact management, special situation (cruise ship). Specific changes are highlighted.
1.8	17 February 2020	Communicable Diseases Network Australia	Inclusion of statement reflecting that passengers of the Diamond Princess cruise meet the criteria for close contact.
1.7	15 February 2020	Communicable Diseases Network Australia	Revised case definition.
1.6	14 February 2020	Communicable Diseases Network Australia	Addition of Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19). Updated nomenclature.
1.5	7 February 2020	Communicable Diseases Network Australia	Inclusion of advice on release from isolation.
1.4	6 February 2020	Communicable Diseases Network Australia	Revised case definition and added rationale. Updated infection control advice throughout.

1.3	4 February 2020	Communicable Diseases Network Australia	Revised the case definition and use of the terms 'quarantine' and 'isolation'.
1.2	2 February 2020	Communicable Diseases Network Australia	Revised the case definition, close and casual contact definitions and added self-isolation guidance.
1.1	27 January 2020	Communicable Diseases Network Australia	Removed references to Wuhan and revised the case definition
1.0	23 January 2020	Communicable Diseases Network Australia	Developed by the 2019-nCoV Working Group

This document summarises interim recommendations for surveillance, infection control, laboratory testing and contact management for coronavirus disease 2019 (COVID-19). It is the first national guidance issued for COVID-19 and will be further developed into the Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units (COVID-19 SoNG).

It has been adapted from CDNA National Guidelines for Public Health Units MERS-CoV, utilising current CDC and WHO guidance, and is based on the current knowledge of the situation in mainland China and other countries, and experiences with SARS-CoV and MERS-CoV.

CDNA will review and update these recommendations as required as new information becomes available on the situation.

These interim Guidelines are to be used in the first instance whilst a Series of National Guidelines is being developed by the Communicable Diseases Network Australia (CDNA).

These interim guidelines capture the knowledge of experienced professionals, and provide guidance on best practice based upon the best available evidence at the time of completion.

Readers should not rely solely on the information contained within these Guidelines. Guideline information is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a health professional. Clinical judgement and discretion may be required in the interpretation and application of these guidelines.

The membership of the CDNA and the AHPPC, and the Commonwealth of Australia as represented by the Department of Health ('the Commonwealth'), do not warrant or represent that the information contained in these Guidelines is accurate, current or complete. The CDNA, the AHPPC and the Commonwealth do not accept any legal liability or responsibility for any loss, damages, costs or expenses incurred by the use of, or reliance on, or interpretation of, the information contained in these Guidelines.

Abbreviations and definitions

- COVID-19: coronavirus disease 2019. The name of the disease caused by the virus SARS-CoV-2, as agreed by the World Health Organization, the World Organization for Animal Health and the Food and Agriculture Organization of the United Nations. For more information, see the World Health Organization Director-General's remarks: <https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020>
- SARS-CoV-2: severe acute respiratory syndrome coronavirus 2. The formal name of the coronavirus which causes COVID-19, as determined by the International Committee on Taxonomy of Viruses. Previously, this coronavirus was commonly known as 'novel coronavirus 2019 (2019-nCoV)'. For more information see the International Committee on Taxonomy of Viruses manuscript: <https://www.biorxiv.org/content/10.1101/2020.02.07.937862v1.full.pdf>

1. Case definition

Confirmed case

A person who tests positive to a validated specific SARS-CoV-2 nucleic acid test or has the virus identified by electron microscopy or viral culture.

Suspect case

If the patient satisfies epidemiological and clinical criteria, they are classified as a suspect case.

Epidemiological criteria

- Travel to (including transit through) mainland China in the 14 days before the onset of illness.

OR

- Close or casual contact (see [Contact definition](#) below) in 14 days before illness onset with a confirmed case of COVID-19.

Clinical criteria

- Fever.

OR

- Acute respiratory infection (e.g. shortness of breath or cough) with or without fever.

Person under investigation

It is recommended that clinicians should consider testing people with a clinically compatible illness who travelled to any of the following countries in the 14 days before onset of symptoms:

- Cambodia
- Hong Kong
- Indonesia
- Iran
- Italy
- Japan
- Singapore
- South Korea
- Thailand

This list* is based on the volume of travel between those countries, Australia and China, and/or the current epidemiology of COVID-19; however, the risk of COVID-19 in these countries is currently thought to be low. Clinical and public health judgement should be applied. The recommendation does not apply to passengers who have only been in transit through an airport in these countries.

Note: if a clinician determines that a **person under investigation** should be tested then that person must be managed as a **suspect case** until COVID-19 is confirmed or excluded as the cause of illness.

*This list is in alphabetical order.

Rationale for current case definitions

The case definitions are based on what is currently known about the clinical and epidemiological profile of cases of COVID-19 presenting to date both in Australia and internationally. Health authorities are constantly monitoring the spectrum of clinical symptoms as cases arise, and, if there are any significant shifts, they will be reflected in the above definitions in future versions of this document. The same monitoring and revision applies for epidemiological criteria as new areas of varying risk emerge outside mainland China.

The 14 day period is based upon what is currently known to be the upper time limit of the incubation period. As more precise information about the incubation period emerges, this will be reviewed.

2. Laboratory testing

Patients meeting the suspect case definition ([above](#)) should be tested for SARS-CoV-2. Where applicable, consult with your state/territory communicable diseases agency to seek advice on which laboratories can provide SARS-CoV-2 testing; appropriate specimen type, collection and transport; and also to facilitate contact management if indicated.

When collecting respiratory specimens, transmission-based precautions should be observed whether or not respiratory symptoms are present.

For most patients with mild illness in the community, collection of upper respiratory specimens (i.e. nasopharyngeal or oropharyngeal swabs) is a low risk procedure and can be performed using **contact and droplet precautions**:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield), and surgical mask.
- To collect throat or nasopharyngeal swab stand slightly to the side of the patient to avoid exposure to respiratory secretions, should the patient cough or sneeze.
- At completion of consultation, remove personal protective equipment (PPE) and perform hand hygiene, wipe any contacted/contaminated surfaces with detergent /disinfectant.
- Note that, for droplet precautions, the room does not need to be left empty after sample collection.

If the patient has severe symptoms suggestive of pneumonia, e.g. fever and breathing difficulty, or frequent, severe or productive coughing episodes then **contact and airborne precautions** should be observed.

Patients with these symptoms should be managed in hospital, and sample collection conducted in a negative pressure room, if available. If referral to hospital for specimen collection is not possible, specimens should be collected in a room from which air does not circulate to other areas. The door should be closed during specimens collection and the room left vacant for at least 30 minutes afterwards (cleaning can be performed during this time by a person wearing PPE).

The following precautions should be observed:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield) and a **P2/N95 respirator – which should be fit checked**.

- At completion of consultation, remove gown and gloves, perform hand hygiene, remove eye protection and P2/N95 respirator. Do not touch the front of any item of PPE during removal; perform hand hygiene.
- The room surfaces should be wiped clean with disinfectant wipes by a person wearing gloves, gown and surgical mask.

For further information on circumstances requiring airborne precautions, see [aerosol generating procedures](#).

Routine tests for acute pneumonia/pneumonitis should be performed where indicated, including bacterial cultures, acute and convalescent serology, urinary antigen testing and nucleic acid tests for respiratory viruses, according to local protocols.

Serology for SARS-CoV-2 is not yet available. Collection of serum for storage by the SARS-CoV-2 testing laboratory is recommended to facilitate retrospective testing, if this is relevant, once serology tests become available.

See [Appendix A](#) for additional SARS-CoV-2 laboratory testing information.

3. Case management

Response times

On the same day as notification of a suspected or confirmed case, begin follow up investigation and, where applicable, notify your central state or territory communicable diseases agency.

PHU staff should be available to contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners.

Response procedure

Case investigation

The response to a notification will normally be carried out in collaboration with the clinicians managing the case, and be guided by the COVID-19 public health unit checklist and the COVID-19 investigation form (currently pending).

Regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend that tests be done.
- Seek the treating doctor's permission to contact the case or relevant care-giver.
- Determine if the diagnosis has been discussed with the case or relevant care-giver before beginning the interview.
- Review case and contact management.
- Ensure appropriate infection control guidelines are followed in caring for the case.
- Identify the likely source of infection.

Note: If interviews with suspected cases are conducted face-to-face, the person conducting the interview must have a thorough understanding of infection control practices and be competent in using appropriate PPE.

Case treatment

In the absence of pathogen-specific interventions, patient management largely depends on supportive treatment, and vigilance for and treatment of complications.

Further advice on clinical management is available from WHO: (https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2)

Education

Provide a COVID-19 factsheet to cases and their close contacts.

Ensure that they are aware of the signs and symptoms of COVID-19, the requirements of quarantine and isolation, contact details of the PHU and the infection control practices that can prevent the transmission of COVID-19.

Isolation and restriction

Cases will generally be managed in hospital. If clinically indicated, cases may be managed at home only if it can be ensured that the case and household contacts are counselled about risk and that appropriate infection control measures are in place.

Healthcare workers and others who come into contact with suspected and confirmed cases must be protected according to recommended infection control guidelines. Visitors should be restricted to close family members.

A risk assessment should be undertaken for suspected cases who initially test negative for SARS-CoV-2. If there is no alternative diagnosis and a high index of suspicion remains that such cases may have COVID-19, consideration should be given to continued isolation and use of the recommended infection control precautions, pending further testing (see [Laboratory testing section](#) and [Appendix A](#)) and re-assessment.

While recommendations on isolation and PPE for management of suspected and confirmed cases initially took a deliberately cautious approach, emerging evidence and expert advice now supports less stringent requirements in most circumstances.

In addition to standard precautions, interim recommendations for the use of PPE during clinical care of people with possible COVID-19 are:

- **Contact and droplet precautions** are recommended for **routine care** of patients in quarantine or with suspected or confirmed COVID-19.
- **Contact and airborne precautions** are recommended when performing **aerosol-generating procedures**, including intubation and bronchoscopy, **and for care of critically ill patients** (see [Appendix B](#) for further information).

Other recommended infection control measures include:

- When a patient who meets the suspect case definition presents to a healthcare setting (GP, hospital ED, or pathology collection centre) and whether or not respiratory symptoms are present, the patient should immediately be:
 - given a surgical mask to put on, and
 - directed to a single room. If the patient has severe symptoms suggestive of pneumonia, they should be directed to a negative pressure room, if available, or a room from which the air does not circulate to other areas.

- If a patient with confirmed COVID-19 needs to be transferred out of their isolation room, the patient should wear a “surgical” face mask and follow respiratory hygiene and cough etiquette.

Release from isolation

A confirmed case can be released from isolation if they meet all of the following criteria:

- the person has been afebrile for the previous 48 hours;
- resolution of the acute illness for the previous 24 hours¹;
- be at least 7 days after the onset of the acute illness;
- PCR negative on at least two consecutive respiratory specimens collected 24 hours apart after the acute illness has resolved^{2,3}.

¹Some people may have pre-existing illnesses with chronic respiratory signs or symptoms, such as chronic cough. For these people, the treating medical practitioner should make an assessment as to whether the signs and symptoms of COVID-19 have resolved.

²If the patient has a productive cough due to a pre-existing respiratory illness or other ongoing lower respiratory tract disease, then the sputum or other lower respiratory tract specimens must be PCR negative for SARS-CoV-2. Otherwise upper respiratory tract specimens (nasopharyngeal or nose and throat swabs) must be PCR negative.

³A small proportion of people may have an illness that has completely resolved but their respiratory specimens remain persistently PCR positive. A decision on release from isolation for these people should be made on a case-by-case basis after consultation between the person’s treating medical practitioner, the testing laboratory and public health. Results of viral culture, if available, may be included in this consideration.

Follow up should include the person being reviewed seven days after release from isolation for:

- clinical review to ensure full symptom resolution
- collection of a serum specimen for storage and possible later serologic testing (the person should be informed that this is for future test development and does not inform their clinical care).

Routine PCR testing at seven days after release is not recommended unless the person has clinical features consistent with COVID-19.

Aerosol-generating procedures

Appropriate care should be taken during aerosol-generating procedures. Aerosol-generating procedures include: tracheal intubation, non-invasive ventilation, tracheostomy, cardiopulmonary resuscitation, manual ventilation before intubation, bronchoscopy, **and high flow nasal oxygen**. Collection of upper respiratory specimens is not generally regarded as aerosol generating, but airborne precautions should be used for collection of specimens from severely symptomatic patients (see [Laboratory testing section](#)).

P2/N95 respirators should be used only when required. Unless used correctly, i.e. with fit-checking, they are unlikely to protect against airborne pathogen spread.

Airborne precautions should be used routinely for aerosol-generating procedures, such as bronchoscopy, intubation, suctioning etc. in hospital settings. Nebuliser use should be discouraged and alternative administration devices (e.g. spacers) should be used.

The [Laboratory testing section](#) provides detailed information on sample collection for SARS-CoV-2.

Active case finding

Contacts (see [Contact management section](#)) should be identified and advised to immediately seek medical advice should they develop symptoms. Contacts or caregivers should be asked to also inform the public health agency if they develop symptoms.

4. Environmental evaluation

Where local transmission of COVID-19 is thought possible, a thorough review of contributing environmental factors should be done. This should include a review of infection control procedures, and opportunities for exposure to respiratory or faecal contamination.

If a case has had occupational exposure to animals it may be appropriate to consult with animal health authorities.

5. Infectious period

Infectious period of COVID-19 remains unknown, however there is some evidence to support the occurrence of pre-symptomatic or asymptomatic transmission (1). As a precautionary approach cases are considered to be infectious 24-hours prior to onset of symptoms. Cases are considered to pose a risk of onward transmission and require isolation until criteria listed in the [release from isolation section](#) have been met.

6. Contact management

As there remain gaps in the understanding of infectivity of COVID-19 cases and transmission modes, the definition of contacts and their public health management is based on available information on COVID-19 together with observations from similar serious coronaviruses – SARS-CoV and MERS-CoV. Distinction is made between close contacts and casual contacts.

Identification of contacts

All persons categorised as a contact (see definitions of “close contacts” and “casual contacts” following) of confirmed cases should be followed-up, and monitored for the development of symptoms for 14 days after the last exposure to the case (i.e. the maximum incubation period).

Contacts of suspected cases should also be considered for contact management if there is likely to be a delay in confirming or excluding COVID-19 in the suspected case, such as delayed testing.

Close contact definition*

A close contact is defined as requiring:

- greater than 15 minutes face-to-face contact in any setting with a confirmed case in the period extending from 24 hours before onset of symptoms in the confirmed case, or
- sharing of a closed space with a confirmed case for a prolonged period (e.g. more than 2 hours) in the period extending from 24 hours before onset of symptoms in the confirmed case.

For the purposes of surveillance, a close contact includes a person meeting any of the following criteria:

- Living in the same household or household-like setting (e.g. in a boarding school or hostel).
- Direct contact with the body fluids or laboratory specimens of a case without recommended PPE or failure of PPE.
- A person who spent 2 hours or longer in the same room (such as a GP or ED waiting room).
- A person in the same hospital room when an aerosol generating procedure is undertaken on the case, without recommended PPE.
- Aircraft passengers who were seated in the same row as the case, or in the two rows in front or two rows behind a confirmed COVID-19 case. Contact tracing of people who may have had close contact on long bus or train trips should also be attempted where possible, using similar seating/proximity criteria.
- All crew-members on an aircraft who worked in the same cabin area as a confirmed case of COVID-19. If a crew member is the COVID-19 case, contact tracing efforts should concentrate on passengers seated in the area where the crew member was working during the flight and all of the other members of the crew.
- Close contacts on cruise ships can be difficult to identify, and a case-by-case risk assessment should be conducted to identify which passengers and crew should be managed as close contacts. See [Special situations](#) for further information.

Contact needs to have occurred within the period extending 24 hours before onset of symptoms in the case until the case is classified as no longer infectious by the treating team (usually 24 hours after the resolution of symptoms).

Casual contact definition

Casual contact is defined as any person having less than 15 minutes face-to-face contact with a symptomatic confirmed case in any setting, or sharing a closed space with a symptomatic confirmed case for less than 2 hours. This will include healthcare workers, other patients, or visitors who were in the same closed healthcare space as a case, but for shorter periods than those required for a close contact. Other closed settings might include schools or offices.

Note that healthcare workers and other contacts who have taken recommended infection control precautions, including the use of full PPE, while caring for a symptomatic confirmed COVID-19 case are not considered to be close contacts. However, these people should be advised to self-monitor and if they develop symptoms consistent with COVID-19 they should isolate themselves and notify their public health unit or staff health unit so they can be tested and managed as a suspected COVID-19 case (see recommendations below under Management of symptomatic contacts).

Other casual contacts may include:

- Extended family groups, e.g. in an Aboriginal community.
- Aircraft passengers who were not seated nearby a symptomatic confirmed case or a crew-member who did not work in the same cabin area as a symptomatic confirmed case (see close contact definition).
- Passengers and crew onboard the same cruise ship as a symptomatic confirmed case (or cases), who are not considered to be close contacts. See [Special situations](#) for further information.

Where resources permit, more active contact tracing may be extended to other persons who have had casual contact (as defined above), particularly in school, office or other closed settings. In these circumstances, the size of the room/space and degree of separation of the case from others should be considered in identifying contacts.

Contact assessment

All persons identified as having had contact with a confirmed case should be assessed to see if they should be classified as a close contact and have demographic and epidemiological data collected. Information on close contacts should be managed according to jurisdictional requirements.

Identification and assessment of the contacts of suspected cases may be deferred pending the results of initial laboratory testing.

Close contact testing

Routine laboratory screening for COVID-19 is not recommended for asymptomatic close contacts.

Prophylaxis

No specific chemoprophylaxis is available for contacts.

Education

Close contacts should be counselled about their risk and the symptoms of COVID-19 and provided with a COVID-19 factsheet. They should be advised to self-quarantine.

Quarantine and restriction

Close contacts

Asymptomatic close contacts should be advised to self-quarantine at home for 14 days following the last contact with the case, and to monitor their health for 14 days after the last possible contact with a confirmed COVID-19 case.

Public health units should conduct active daily monitoring of close contacts for symptoms for 14 days after the last possible contact with a confirmed COVID-19 case.

Self-quarantined close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Less frequent active follow-up together with passive surveillance may be necessary if there are large numbers of close contacts to monitor.

For the purpose of contact management, swabs are **not** indicated during quarantine in well people. A medical clearance from a health care provider is not required for release from quarantine or for other purposes such as returning to work, school or university.

Casual contacts

Casual contacts should monitor their health for 14 days and report any symptoms immediately to the local public health unit. There are no restrictions on movements; however, casual contacts should be advised to isolate themselves and contact the public health unit if they develop symptoms.

Returned travellers who have left or transited through mainland China

Returned travellers who have left or transited through mainland China in the last 14 days **who are unwell** with fever or with respiratory symptoms, with or without fever, or other symptoms consistent with COVID-19 should be isolated and managed as per the current recommendations for suspected cases.

Well returned travellers who have left or transited through mainland China should self-quarantine at home for 14 days after leaving mainland China.

Self-quarantined returned travellers should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Healthcare worker close contacts

Healthcare worker close contacts (i.e. persons exposed while unprotected, as described in the [Contact definition section](#)) should be advised not to undertake work in a healthcare setting for 14 days following the last possible contact with the case. They should also be advised to self-quarantine at home for 14 days following the last contact with the case.

Self-quarantined healthcare worker close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Public health units may assist infection control units of health facilities to identify and monitor healthcare worker close contacts.

It is recognised that clinical work restrictions on healthcare worker close contacts may place strain on individuals and on health services. This underlines the importance of ensuring healthcare workers implement appropriate infection control precautions when assessing and managing suspected, confirmed COVID-19 cases.

CDNA will continue to monitor the emerging evidence around COVID-19 transmission risks in healthcare settings and revise these recommendations as needed.

Medical care for quarantined individuals

If individuals under self-quarantine need to see a doctor for any reason (e.g. fever and respiratory symptoms or other illness/injury), they should **telephone their GP or hospital Emergency Department before presenting. Patients with severe symptoms should call 000 and make it clear they are in self-quarantine or isolation because of COVID-19.** If the patient has **symptoms consistent with the COVID-19 [case definition](#)**, the local public health unit should be consulted about the most suitable venue for clinical assessment and specimen collection.

Management of symptomatic contacts

If fever or respiratory symptoms, with or without fever, or other symptoms consistent with COVID-19 develop within the first 14 days following the last contact, PHU staff should arrange for the individual to be immediately isolated and managed as per the current recommendations for suspected COVID-19 cases, with urgent testing for COVID-19 undertaken in an environment which minimises the exposure of others.

Ill contacts who are being evaluated for COVID-19 can be appropriately isolated and managed at home, unless their condition is severe enough to require hospitalisation.

Symptomatic contacts who test negative for SARS-CoV-2 by PCR will still need to be monitored for 14 days after their last contact with a confirmed COVID-19 case and may require re-testing.

7. Special situations

Cruise ships

Risk assessment and identification of contacts

Classification of contacts on cruise ships with one or more confirmed cases of COVID-19 should be made on a case-by-case basis.

Hospital transfer of suspect or confirmed cases

If suspect or confirmed cases on board require transfer to a hospital, the Commonwealth Biosecurity Officer will notify the port authority to provide access for medical transport. The jurisdictional Human Biosecurity Officer will then coordinate transfer of the person to an appropriate medical facility for further management, via the most appropriate means that adheres to necessary precautions.

Quarantine for passengers and crew after arrival at a port

Self-quarantine at home should be recommended for close contacts where this is feasible (e.g. persons with a residence nearby) ensuring appropriate PPE precautions are employed during travel. For close contacts for whom this is not possible, matters of self-quarantine should be addressed jurisdictionally.

Disembarking and embarking

After all suspect and confirmed cases have been managed appropriately and the Human Biosecurity Officer has determined that no other passengers or crew have symptoms consistent with COVID-19, remaining passengers and crew will be allowed to disembark. The vessel may be permitted to commence embarking once it is certain there is no risk of ongoing transmission.

8. References

1. Chang D, Xu H, Rebaza A, Sharma L, Dela Cruz CS. Protecting health-care workers from subclinical coronavirus infection. *Lancet Respir Med*. 2020.

9. Appendices

Appendix A: SARS-CoV-2 Laboratory testing information

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

Appendix A: SARS-CoV-2 Laboratory testing information

Laboratory testing for SARS-CoV-2 continues to evolve rapidly with the accumulation of clinical data, and as reagents and protocols are refined.

The aim of testing, if clinically appropriate, is to exclude common respiratory viruses using local hospital and community nucleic acid testing capacity, and to simultaneously refer onward to a laboratory with capacity to test for SARS-CoV-2. As co-infection is possible, initial testing protocols should include testing for SARS-CoV-2 in patients with epidemiological risk, even where another infection is shown to be present.

Samples for testing

- (i) upper respiratory tract samples
- (ii) lower respiratory tract sample if the lower tract is involved
- (iii) Serum (to be stored pending serology availability)

Upper respiratory tract samples

1. Nasopharyngeal swab and/ oropharyngeal swab, Dacron or Rayon, flocked preferred

- nasopharyngeal: insert a flexible nasopharyngeal swab into one nostril and gently insert it along the floor of the nasal cavity parallel to the palate until resistance is encountered, rotate gently for 10-15 seconds, then withdraw and repeat the process in the other nostril with the same swab to absorb secretions
- oropharyngeal (throat): swab the tonsillar beds and the back of the throat, avoiding the tongue
- place swabs back into the accompanying transport media

As a minimum standard recommendation across all jurisdictions, a nasopharyngeal and an oropharyngeal swab should both be collected, and placed in transport medium, which may be viral transport medium (VTM) or Liquid Amies.

Details of practice above this minimum may vary between jurisdictions, eg pooling both swabs in a single container of transport medium; use of a single swab for collection of both nasopharyngeal and oropharyngeal samples; collection of two nasopharyngeal swabs and one oropharyngeal sample. Liaison with the jurisdiction's PHLN-member laboratory is recommended to obtain clarity on local variations.

If SARS-CoV-2 testing is to be undertaken in a different laboratory to testing for other respiratory viruses, then both nasopharyngeal and oropharyngeal samples should be forwarded for SARS-CoV-2 testing. Use of one swab for respiratory virus testing, and the other for SARS-CoV-2 testing is not recommended.

2. Nasal wash/aspirates

- collect 2-3 mL into a sterile, leak-proof, screw-top dry sterile container

A nasal wash or aspirate if available, may be substituted for the nasopharyngeal swab sample described above.

Lower respiratory tract samples (to be collected in hospital and/or using airborne precautions)

1. Sputum

- patient should rinse his/her mouth with water before collection
- expectorate deep cough sputum directly into a sterile, leak-proof, screw-top dry sterile container

2. Bronchoalveolar lavage, tracheal aspirate, pleural fluid

- collect 2-3 mL into a sterile, leak-proof, screw-top sputum collection cup or dry sterile container

As lower respiratory tract specimens contain the highest viral loads in SARS-CoV and MERS-CoV, it is advised that lower respiratory tract specimens should be collected for SARS-CoV-2 testing where possible. Initial experience in testing for SARS-CoV-2 seems to be consistent with this prior experience. Repeat testing (especially of lower respiratory tract specimens) in clinically compatible cases should be performed if initial results are negative and there remains a high index of suspicion of infection.

Serology

Serum should be collected during the acute phase of the illness (preferably within the first 7 days of symptom onset), stored, and when serology testing becomes available tested in parallel with convalescent sera collected 3 or more weeks after acute infection. If no acute sample was collected, sera collected 14 or more days after symptom onset may be tested.

Specimen handling in the laboratory

Microbiology Laboratory

Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment. Specimens should be transported in accordance with current regulatory requirements as diagnostic samples for testing.

Clinical Pathology

Standard precautions should be used for non-microbial pathology testing (such as routine biochemistry and haematology). Where possible auto-analysers should be used according to standard practices and/or local protocols. There is evidence that capping and uncapping of samples is not a high risk aerosol generating procedure.

Respiratory Virus Diagnostic Testing

Nucleic acid testing of the upper respiratory tract sample is performed for influenza and other common respiratory viruses using standard protocols and methods of the hospital or community laboratory.

Standard protocols of the testing laboratory for respiratory sample processing should be used. This is expected to consist of PC2 laboratory practices, and use of a Class II Biosafety cabinet for aerosol generating procedures (such as centrifuging without sealed carriers, vortexing, sonicating).

Viral culture can only be undertaken in an accredited laboratory that has a PC3 facility.

The residue (original swab and remaining eluate) of the upper tract sample is forwarded together with the lower tract sample and the serum to the reference laboratory with SARS-CoV-2 testing capacity requesting SARS-CoV-2 testing.

Clinical liaison with jurisdictional public health officers is essential to coordinate referral & testing.

Standard protocols should be used for sample packaging and transport as diagnostic samples for testing (i.e. Category B).

SARS-CoV-2 specific testing

Nucleic acid testing (NAT) using real time polymerase chain reaction (RT-PCR) is the method of choice for detection of SARS-CoV-2. Specific diagnostic test approaches for SARS-CoV-2 will be described here only in broad terms. There is significant variation in PCR assays employed by different PHLN member laboratories, and test algorithms are likely to be further refined over time.

Specific Real Time PCR primer sets to detect SARS-CoV-2 are available. Some PHLN member laboratories have designed their own, and some have implemented primer sets recommended to the World Health Organization (WHO) by leading international coronavirus reference laboratories (available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance>). The majority of PHLN testing capacity now employs relatively swift RT-PCR assays for screening, with a turnaround time of several hours. Confirmation of positives is being done either with RT-PCR assays detecting a different target gene, or broadly reactive PCR tests with sequencing of amplicons (see below).

Well pedigreed PCR primer sets, probes and protocols are available from the WHO/ European Viral Archive (EVAg) (available at: https://www.who.int/docs/default-source/coronaviruse/protocol-v2-1.pdf?sfvrsn=a9ef618c_2).

Many PCR assays, including those available through WHO will also detect other zoonotic coronaviruses such as SARS-CoV, sometimes with a recognisable shift in the cycle threshold value (Ct) compared to the SARS-CoV-2 target, but not commonly circulating coronaviruses usually detected by commercial assays (eg NL63, 229E strains).

Several Australian PHLN reference laboratories began diagnostic testing for the current outbreak using PCR assays capable of detecting a wide range of coronaviruses, including zoonotic and novel pathogens. A number of these were mapped against the promulgated Chinese nucleic acid sequence of SARS-CoV-2 early in the course of the outbreak. Nucleic acid sequencing of amplicons from positive tests is used to identify the coronavirus in this approach. These assays have relatively long turnaround times and have largely been replaced by RT-PCR other than in a confirmatory role in some laboratories.

Complementary DNA (cDNA) synthesized from the VIDRL SARS-CoV-2 has now been made available to all PHLN member laboratories as a test positive control. Synthetic positive control material in the form of nucleic acid templates is also available through WHO/ European Viral Archive (EVAg).

Testing algorithms are likely to be revised pending further information about the virus, and the number of specimens received in the laboratory for testing.

Viral culture should not be performed for routine diagnosis, and should only be attempted in reference laboratories with appropriate experience and containment facilities. Currently where attempted this is being done at Physical Containment Level 3 (PC3), consistent with current recommendations for SARS-CoV, pending specific SARS-CoV-2 international recommendations.

No Quality Assurance Program (QAP) is currently available internationally specific for SARS-CoV-2, although QAPs are available in Australia for respiratory viruses including coronaviruses other than 2019-nCoV. The RCPAQAP with Commonwealth support will introduce a SARS-CoV-2 specific QAP to supplement previously available SARS-CoV, MERS-CoV and other coronaviruses, during the first half of 2020.

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

These recommendations are intended for hospital personnel who enter a clinical space with COVID-19 patients, including wardspersons, food deliverers, cleaners, and clinical personnel.

Background:

Although Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) which causes COVID-19 has spread rapidly and widely in mainland China, there has been limited transmission elsewhere, i.e. containment precautions have been mostly successful to date. At the time of writing, the crude mortality (~2%) in China is based on laboratory confirmed cases; many milder cases are almost certainly not being tested and the mortality is likely to be lower. Most cases in Australia have been relatively mild but a small number of deaths has been reported outside of mainland China. While a number of healthcare-associated infections have been reported with COVID-19 (in healthcare workers and patients) – as occurred with SARS and MERS - the risk for COVID-19 is likely to be very low, when infection control precautions are adhered to correctly.

General principles:

- **Standard precautions, including hand hygiene (5 Moments)** for all patients with respiratory infections. Patients and staff should observe cough etiquette and respiratory hygiene,
- **Transmission-based precautions** for patients with suspected or confirmed COVID-19:
 - **Contact and droplet precautions** for **routine care** of patients.
 - **Contact and airborne precautions** for **aerosol generating procedures (AGPs)**.

Contact and droplet precautions:

Contact and droplet precautions can be safely used for routine patient care of inpatients with suspected or confirmed COVID-19 (see Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units for case definition)

- On presentation or admission to hospital the patient should be:
 - given a surgical mask to put on, and
 - placed in a single room (ensuring air does not circulate to other areas)
 - placed in a negative pressure room (in the event of AGPs being performed).
- If transfer outside the room is essential, the patient should wear a surgical mask during transfer and follow respiratory hygiene and cough etiquette.
- For most inpatient contacts between healthcare staff and patients the following PPE is safe and appropriate and should be put on before entering the patient's room:
 - long-sleeved gown
 - surgical mask
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- For hospitalised patients requiring frequent attendance by medical and nursing staff, a P2/N95 respirator should be considered for prolonged or very close contact.

Contact and airborne precautions for aerosol-generating procedures (AGPs) and care of clinically ill patients requiring high level/high volume hands-on contact outside of ICU:

- **Contact and airborne precautions should be used routinely for AGPs**, which include:
 - tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy (and bronchoalveolar lavage), high flow nasal oxygen
 - The use of nebulisers should be avoided and alternative medication administration devices (e.g. spacers) used.
- PPE for contact and airborne procedures should be put on before entering patients room:
 - long-sleeved gown
 - P2/N95 respirator (mask) – should be fit-checked with each use
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- P2/N95 respirators (mask) should be used only when required.
- Unless used correctly, i.e. with fit-checking, a P2/N95 respirator (mask) is unlikely to protect against airborne pathogen spread.
 - An air-tight seal may be difficult to achieve for people with facial hair. Fit checking with a range of P2/N95 respirators must occur to assess the most suitable one to achieve a protective seal. If a tight seal cannot be achieved, facial hair should be removed.

Care of critically ill patients in ICU

- Patients who require admission to ICU with severe COVID-19 are likely to have a high viral load, particularly in the lower respiratory tract
- **Contact and airborne precautions** (as above) are required for patient care and are adequate for most AGPs.
 - The risk of aerosol transmission is reduced once the patient is intubated with a closed ventilator circuit but there is a potential, but unknown, risk of transmission from other body fluids such as diarrhoeal stool or vomitus or inadvertent circuit disconnection
- If a health care professional is required to remain in the patient's room continuously for a long period (e.g. more than one hour), because of the need to perform multiple procedures, the use of a powered air purifying respirator (PAPR) may be considered for additional comfort and visibility. A number of different types of relatively lightweight, comfortable PAPRs are now available and should be used according to manufacturer's instructions. Only **PPE marked as reusable** should be reused, following **reprocessing** according to manufacturer's instructions, All other PPE must be disposed of after use.

ICU staff caring for patients with COVID-19 (or any other potentially serious infectious disease) should be trained in the correct use of PPE, including by an infection control professional. This also applies particularly to the use of PAPRs, if required. Particular care should be taken on removal of PAPR, which is associated with a risk of contamination.

Additional precautions:**Staff**

- A staff log for each room entry should be maintained, to allow monitoring of potential breaches of infection control and follow-up contacts, if necessary.

Disposal of PPE and other waste

- Waste should be disposed in the normal way for clinical waste
- All non-clinical waste is disposed of into general waste

Handling of linen

- Routine procedures for handling of infectious linen should be followed
- Visibly soiled linen should be placed in a (soluble) plastic bag inside a linen skip

Environmental cleaning of patient care areas

- Cleaners should observe contact and droplet precautions (as above).
- Frequently touched surfaces (such as doorknobs, bedrails, tabletops, light switches, patient handsets) in the patient's room should be cleaned daily.
- Terminal cleaning of all surfaces in the room (as above plus floor, ceiling, walls, blinds) should be performed after the patient is discharged.
- A combined cleaning and disinfection procedure should be used, either 2-step - detergent clean, followed by disinfectant; or 2-in-1 step - using a product that has both cleaning and disinfectant properties. Any hospital-grade, TGA-listed disinfectant that is commonly against norovirus is suitable, if used according to manufacturer's instructions.

Coronavirus Disease 2019 (COVID-19)

CDNA National Guidelines for Public Health Units

Revision history			
Version	Date	Revised by	Changes
1.14	02 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Risk stratification of countries, Contact management
1.13	28 February 2020	Communicable Diseases Network Australia	Revised: Laboratory testing, isolation and restriction and Appendix A: laboratory testing information.
1.12	27 February 2020	Communicable Diseases Network Australia	Inclusion of Cambodia in the list of countries in the Person under investigation section.
1.11	26 February 2020	Communicable Diseases Network Australia	Inclusion of Italy in the list of countries in the Person Under Investigation section.
1.10	23 February 2020	Communicable Diseases Network Australia	Inclusion of South Korea and Iran in the list of countries in the Person Under Investigation section.
1.9	21 February 2020	Communicable Diseases Network Australia	Revised: case definition, infectious period, contact management, special situation (cruise ship). Specific changes are highlighted.
1.8	17 February 2020	Communicable Diseases Network Australia	Inclusion of statement reflecting that passengers of the Diamond Princess cruise meet the criteria for close contact.
1.7	15 February 2020	Communicable Diseases Network Australia	Revised case definition.
1.6	14 February 2020	Communicable Diseases Network Australia	Addition of Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19). Updated nomenclature.
1.5	7 February 2020	Communicable Diseases Network Australia	Inclusion of advice on release from isolation.

1.4	6 February 2020	Communicable Diseases Network Australia	Revised case definition and added rationale. Updated infection control advice throughout.
1.3	4 February 2020	Communicable Diseases Network Australia	Revised the case definition and use of the terms 'quarantine' and 'isolation'.
1.2	2 February 2020	Communicable Diseases Network Australia	Revised the case definition, close and casual contact definitions and added self-isolation guidance.
1.1	27 January 2020	Communicable Diseases Network Australia	Removed references to Wuhan and revised the case definition
1.0	23 January 2020	Communicable Diseases Network Australia	Developed by the 2019-nCoV Working Group

This document summarises interim recommendations for surveillance, infection control, laboratory testing and contact management for coronavirus disease 2019 (COVID-19). It is the first national guidance issued for COVID-19 and will be further developed into the Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units (COVID-19 SoNG).

It has been adapted from CDNA National Guidelines for Public Health Units MERS-CoV, utilising current CDC and WHO guidance, and is based on the current knowledge of the situation in mainland China and other countries, and experiences with SARS-CoV and MERS-CoV.

CDNA will review and update these recommendations as required as new information becomes available on the situation.

These interim Guidelines are to be used in the first instance whilst a Series of National Guidelines is being developed by the Communicable Diseases Network Australia (CDNA).

These interim guidelines capture the knowledge of experienced professionals, and provide guidance on best practice based upon the best available evidence at the time of completion.

Readers should not rely solely on the information contained within these Guidelines. Guideline information is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a health professional. Clinical judgement and discretion may be required in the interpretation and application of these guidelines.

The membership of the CDNA and the AHPPC, and the Commonwealth of Australia as represented by the Department of Health ('the Commonwealth'), do not warrant or represent that the information contained in these Guidelines is accurate, current or complete. The CDNA, the AHPPC and the Commonwealth do not accept any legal liability or responsibility for any loss, damages, costs or expenses incurred by the use of, or reliance on, or interpretation of, the information contained in these Guidelines.

Abbreviations and definitions

- COVID-19: coronavirus disease 2019. The name of the disease caused by the virus SARS-CoV-2, as agreed by the World Health Organization, the World Organization for Animal Health and the Food and Agriculture Organization of the United Nations. For more information, see the World Health Organization Director-General's remarks: <https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020>
- SARS-CoV-2: severe acute respiratory syndrome coronavirus 2. The formal name of the coronavirus which causes COVID-19, as determined by the International Committee on Taxonomy of Viruses. Previously, this coronavirus was commonly known as 'novel coronavirus 2019 (2019-nCoV)'. For more information see the International Committee on Taxonomy of Viruses manuscript: <https://www.biorxiv.org/content/10.1101/2020.02.07.937862v1.full.pdf>

1. Case definition

Confirmed case

A person who tests positive to a validated specific SARS-CoV-2 nucleic acid test or has the virus identified by electron microscopy or viral culture.

Suspect case

If the patient satisfies epidemiological and clinical criteria, they are classified as a suspect case.

Epidemiological criteria

- Travel to (including transit through) a country considered to pose a risk of transmission* in the 14 days before the onset of illness.

OR

- Close or casual contact (see [Contact definition](#) below) in 14 days before illness onset with a confirmed case of COVID-19.

Clinical criteria

- Fever.

OR

- Acute respiratory infection (e.g. shortness of breath or cough) with or without fever.

*Country transmission risk assessment

This list is based on the risk of the person having been exposed to COVID-19 due to travel to a country with sustained community transmission and/or based on the patterns of travel between those countries and Australia, and/or the other epidemiological evidence. The recommendation does not apply to passengers who have only been in transit through an airport for moderate risk countries.

Rationale for current case definitions

The case definitions are based on what is currently known about the clinical and epidemiological profile of cases of COVID-19 presenting to date both in Australia and internationally. Health authorities are constantly monitoring the spectrum of clinical symptoms as cases arise, and, if there are any significant shifts, they will be reflected in the above definitions in future versions of this document. The same monitoring and revision applies for epidemiological criteria as new areas of varying risk emerge outside mainland China.

The 14 day period is based upon what is currently known to be the upper time limit of the incubation period. As more precise information about the incubation period emerges, this will be reviewed.

2. Laboratory testing

Patients meeting the suspect case definition ([above](#)) should be tested for SARS-CoV-2. Where applicable, consult with your state/territory communicable diseases agency to seek advice on which laboratories can provide SARS-CoV-2 testing; appropriate specimen type, collection and transport; and also to facilitate contact management if indicated.

When collecting respiratory specimens, transmission-based precautions should be observed whether or not respiratory symptoms are present.

For most patients with mild illness in the community, collection of upper respiratory specimens (i.e. nasopharyngeal or oropharyngeal swabs) is a low risk procedure and can be performed using **contact and droplet precautions**:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield), and surgical mask.
- To collect throat or nasopharyngeal swab stand slightly to the side of the patient to avoid exposure to respiratory secretions, should the patient cough or sneeze.
- At completion of consultation, remove personal protective equipment (PPE) and perform hand hygiene, wipe any contacted/contaminated surfaces with detergent /disinfectant.
- Note that, for droplet precautions, the room does not need to be left empty after sample collection.

If the patient has severe symptoms suggestive of pneumonia, e.g. fever and breathing difficulty, or frequent, severe or productive coughing episodes then **contact and airborne precautions** should be observed.

Patients with these symptoms should be managed in hospital, and sample collection conducted in a negative pressure room, if available. If referral to hospital for specimen collection is not possible, specimens should be collected in a room from which air does not circulate to other areas. The door should be closed during specimens collection and the room left vacant for at least 30 minutes afterwards (cleaning can be performed during this time by a person wearing PPE).

The following precautions should be observed:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield) and a **P2/N95 respirator – which should be fit checked**.
- At completion of consultation, remove gown and gloves, perform hand hygiene, remove eye protection and P2/N95 respirator. Do not touch the front of any item of PPE during removal; perform hand hygiene.
- The room surfaces should be wiped clean with disinfectant wipes by a person wearing gloves, gown and surgical mask.

For further information on circumstances requiring airborne precautions, see [aerosol generating procedures](#).

Routine tests for acute pneumonia/pneumonitis should be performed where indicated, including bacterial cultures, acute and convalescent serology, urinary antigen testing and nucleic acid tests for respiratory viruses, according to local protocols.

Serology for SARS-CoV-2 is not yet available. Collection of serum for storage by the SARS-CoV-2 testing laboratory is recommended to facilitate retrospective testing, if this is relevant, once serology tests become available.

See [Appendix A](#) for additional SARS-CoV-2 laboratory testing information.

3. Case management

Response times

On the same day as notification of a suspected or confirmed case, begin follow up investigation and, where applicable, notify your central state or territory communicable diseases agency.

PHU staff should be available to contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners.

Response procedure

Case investigation

The response to a notification will normally be carried out in collaboration with the clinicians managing the case, and be guided by the COVID-19 public health unit checklist and the COVID-19 investigation form (currently pending).

Regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend that tests be done.
- Seek the treating doctor's permission to contact the case or relevant care-giver.
- Determine if the diagnosis has been discussed with the case or relevant care-giver before beginning the interview.
- Review case and contact management.
- Ensure appropriate infection control guidelines are followed in caring for the case.
- Identify the likely source of infection.

Note: If interviews with suspected cases are conducted face-to-face, the person conducting the interview must have a thorough understanding of infection control practices and be competent in using appropriate PPE.

Case treatment

In the absence of pathogen-specific interventions, patient management largely depends on supportive treatment, and vigilance for and treatment of complications.

Further advice on clinical management is available from WHO: (https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2)

Education

Provide a COVID-19 factsheet to cases and their close contacts.

Ensure that they are aware of the signs and symptoms of COVID-19, the requirements of quarantine and isolation, contact details of the PHU and the infection control practices that can prevent the transmission of COVID-19.

Isolation and restriction

Cases will generally be managed in hospital. If clinically indicated, cases may be managed at home only if it can be ensured that the case and household contacts are counselled about risk and that appropriate infection control measures are in place.

Healthcare workers and others who come into contact with suspected and confirmed cases must be protected according to recommended infection control guidelines. Visitors should be restricted to close family members.

A risk assessment should be undertaken for suspected cases who initially test negative for SARS-CoV-2. If there is no alternative diagnosis and a high index of suspicion remains that such cases may have COVID-19, consideration should be given to continued isolation and use of the recommended infection control precautions, pending further testing (see [Laboratory testing section](#) and [Appendix A](#)) and re-assessment.

While recommendations on isolation and PPE for management of suspected and confirmed cases initially took a deliberately cautious approach, emerging evidence and expert advice now supports requirements commensurate with the risk in particular clinical circumstances.

In addition to standard precautions, interim recommendations for the use of PPE during clinical care of people with possible COVID-19 are:

- **Contact and droplet precautions** are recommended for **routine care** of patients in quarantine or with suspected or confirmed COVID-19.
- **Contact and airborne precautions** are recommended when performing **aerosol-generating procedures**, including intubation and bronchoscopy, and for care of **critically ill patients** (see [Appendix B](#) for further information).

Other recommended infection control measures include:

- When a patient who meets the suspect case definition presents to a healthcare setting (GP, hospital ED, or pathology collection centre) and whether or not respiratory symptoms are present, the patient should immediately be:
 - given a surgical mask to put on, and
 - directed to a single room. If the patient has severe symptoms suggestive of pneumonia, they should be directed to a negative pressure room, if available, or a room from which the air does not circulate to other areas.
- If a patient with confirmed COVID-19 needs to be transferred out of their isolation room, the patient should wear a “surgical” face mask and follow respiratory hygiene and cough etiquette.

Release from isolation

A confirmed case can be released from isolation if they meet all of the following criteria:

- the person has been afebrile for the previous 48 hours;
- resolution of the acute illness for the previous 24 hours¹;
- be at least 7 days after the onset of the acute illness;
- PCR negative on at least two consecutive respiratory specimens collected 24 hours apart after the acute illness has resolved^{2,3}.

¹Some people may have pre-existing illnesses with chronic respiratory signs or symptoms, such as chronic cough. For these people, the treating medical practitioner should make an assessment as to whether the signs and symptoms of COVID-19 have resolved.

²If the patient has a productive cough due to a pre-existing respiratory illness or other ongoing lower respiratory tract disease, then the sputum or other lower respiratory tract specimens must be PCR negative for SARS-CoV-2. Otherwise upper respiratory tract specimens (nasopharyngeal or nose and throat swabs) must be PCR negative.

³A small proportion of people may have an illness that has completely resolved but their respiratory specimens remain persistently PCR positive. A decision on release from isolation for these people should be made on a case-by-case basis after consultation between the person's treating medical practitioner, the testing laboratory and public health. Results of viral culture, if available, may be included in this consideration.

Follow up should include the person being reviewed seven days after release from isolation for:

- clinical review to ensure full symptom resolution
- collection of a serum specimen for storage and possible later serologic testing (the person should be informed that this is for future test development and does not inform their clinical care).

Routine PCR testing at seven days after release is not recommended unless the person has clinical features consistent with COVID-19.

Aerosol-generating procedures

Appropriate care should be taken during aerosol-generating procedures. Aerosol-generating procedures include: tracheal intubation, non-invasive ventilation, tracheostomy, cardiopulmonary resuscitation, manual ventilation before intubation, bronchoscopy, and high flow nasal oxygen. Collection of upper respiratory specimens is not generally regarded as aerosol generating, but airborne precautions should be used for collection of specimens from severely symptomatic patients (see [Laboratory testing section](#)).

P2/N95 respirators should be used only when required. Unless used correctly, i.e. with fit-checking, they are unlikely to protect against airborne pathogen spread.

Airborne precautions should be used routinely for aerosol-generating procedures, such as bronchoscopy, intubation, suctioning etc. in hospital settings. Nebuliser use should be discouraged and alternative administration devices (e.g. spacers) should be used.

The [Laboratory testing section](#) provides detailed information on sample collection for SARS-CoV-2.

Active case finding

Contacts (see [Contact management section](#)) should be identified and advised to immediately seek medical advice should they develop symptoms. Contacts or caregivers should be asked to also inform the public health agency if they develop symptoms.

4. Environmental evaluation

Where local transmission of COVID-19 is thought possible, a thorough review of contributing environmental factors should be done. This should include a review of infection control procedures, and opportunities for exposure to respiratory or faecal contamination.

If a case has had occupational exposure to animals it may be appropriate to consult with animal health authorities.

5. Infectious period

Infectious period of COVID-19 remains unknown, however there is some evidence to support the occurrence of pre-symptomatic or asymptomatic transmission (1). As a precautionary approach cases are considered to be infectious 24-hours prior to onset of symptoms. Cases are considered to pose a risk of onward transmission and require isolation until criteria listed in the [release from isolation section](#) have been met.

6. Contact management

As there remain gaps in the understanding of infectivity of COVID-19 cases and transmission modes, the definition of contacts and their public health management is based on available information on COVID-19 together with observations from similar serious coronaviruses – SARS-CoV and MERS-CoV. Distinction is made between close contacts and casual contacts.

Identification of contacts

All persons categorised as a contact (see definitions of “close contacts” and “casual contacts” following) of confirmed cases should be followed-up, and monitored for the development of symptoms for 14 days after the last exposure to the case (i.e. the maximum incubation period).

Contacts of suspected cases should also be considered for contact management if there is likely to be a delay in confirming or excluding COVID-19 in the suspected case, such as delayed testing

Close contact definition

A close contact is defined as requiring:

- greater than 15 minutes face-to-face contact in any setting with a confirmed case in the period extending from 24 hours before onset of symptoms in the confirmed case, or
- sharing of a closed space with a confirmed case for a prolonged period (e.g. more than 2 hours) in the period extending from 24 hours before onset of symptoms in the confirmed case.

For the purposes of surveillance, a close contact includes a person meeting any of the following criteria:

- Living in the same household or household-like setting (e.g. in a boarding school or hostel).

- Direct contact with the body fluids or laboratory specimens of a case without recommended PPE or failure of PPE.
- A person who spent 2 hours or longer in the same room (such as a GP or ED waiting room).
- A person in the same hospital room when an aerosol generating procedure is undertaken on the case, without recommended PPE.
- Aircraft passengers who were seated in the same row as the case, or in the two rows in front or two rows behind a confirmed COVID-19 case. Contact tracing of people who may have had close contact on long bus or train trips should also be attempted where possible, using similar seating/proximity criteria.
- All crew-members on an aircraft who worked in the same cabin area as a confirmed case of COVID-19. If a crew member is the COVID-19 case, contact tracing efforts should concentrate on passengers seated in the area where the crew member was working during the flight and all of the other members of the crew.
- Close contacts on cruise ships can be difficult to identify, and a case-by-case risk assessment should be conducted to identify which passengers and crew should be managed as close contacts. See [Special situations](#) for further information.

Contact needs to have occurred within the period extending 24 hours before onset of symptoms in the case until the case is classified as no longer infectious by the treating team (usually 24 hours after the resolution of symptoms).

Casual contact definition

Casual contact is defined as any person having less than 15 minutes face-to-face contact with a symptomatic confirmed case in any setting, or sharing a closed space with a symptomatic confirmed case for less than 2 hours. This will include healthcare workers, other patients, or visitors who were in the same closed healthcare space as a case, but for shorter periods than those required for a close contact. Other closed settings might include schools or offices.

Note that healthcare workers and other contacts who have taken recommended infection control precautions, including the use of full PPE, while caring for a symptomatic confirmed COVID-19 case are not considered to be close contacts. However, these people should be advised to self-monitor and if they develop symptoms consistent with COVID-19 they should isolate themselves and notify their public health unit or staff health unit so they can be tested and managed as a suspected COVID-19 case (see recommendations below under Management of symptomatic contacts).

Other casual contacts may include:

- Extended family groups, e.g. in an Aboriginal community.
- Aircraft passengers who were not seated nearby a symptomatic confirmed case or a crew-member who did not work in the same cabin area as a symptomatic confirmed case (see close contact definition).
- Passengers and crew onboard the same cruise ship as a symptomatic confirmed case (or cases), who are not considered to be close contacts. See [Special situations](#) for further information.

Where resources permit, more active contact tracing may be extended to other persons who have had casual contact (as defined above), particularly in school, office or other closed settings. In these circumstances, the size of the room/space and degree of separation of the case from others should be considered in identifying contacts.

Returned Traveller definition

Returned travellers who, in the last 14 days, have left or transited through a [listed country that is considered to pose an increased risk of transmission](#).

Within any risk category, different recommendations may apply in management. See detail below.

Contact assessment

All persons identified as having had contact with a confirmed case should be assessed to see if they should be classified as a close contact and have demographic and epidemiological data collected. Information on close contacts should be managed according to jurisdictional requirements.

Identification and assessment of the contacts of suspected cases may be deferred pending the results of initial laboratory testing.

Close contact testing

Routine laboratory screening for COVID-19 is not recommended for asymptomatic close contacts.

Prophylaxis

No specific chemoprophylaxis is available for contacts.

Education

Close contacts should be counselled about their risk and the symptoms of COVID-19 and provided with a COVID-19 factsheet. They should be advised to self-quarantine.

Quarantine and restriction**Close contacts**

Asymptomatic close contacts should be advised to self-quarantine at home for 14 days following the last contact with the case, and to monitor their health for 14 days after the last possible contact with a confirmed COVID-19 case.

Public health units should conduct active daily monitoring of close contacts for symptoms for 14 days after the last possible contact with a confirmed COVID-19 case.

Self-quarantined close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Less frequent active follow-up together with passive surveillance may be necessary if there are large numbers of close contacts to monitor.

For the purpose of contact management, swabs are **not** indicated during quarantine in well people. A medical clearance from a health care provider is not required for release from quarantine or for other purposes such as returning to work, school or university.

Casual contacts

Casual contacts should monitor their health for 14 days and report any symptoms immediately to the local public health unit. There are no restrictions on movements; however, casual contacts

should be advised to isolate themselves and contact the public health unit if they develop symptoms.

Returned travellers

Returned travellers who have travelled in or transited through **mainland China or Iran** should self-quarantine at home for 14 days after leaving the high risk country. Self-quarantined returned travellers should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

All returned travellers who have travelled in or transited through [the remaining listed higher risk countries or a country considered to pose a moderate risk of transmission](#) in the last 14 days should self-monitor for symptoms, practice social distancing and [immediately isolate themselves if they become unwell](#). Social distancing includes:

- Avoiding crowds and mass gatherings
- Avoiding small gatherings in enclosed spaces, for e.g., family celebrations.
- Keeping a distance of 1.5 metres between themselves and other people when out and about in public.

Returned travellers who, in the last 14 days, have travelled in or transited through [any of the countries considered to pose a risk of transmission](#) **who are unwell** with fever, or with respiratory symptoms (with or without fever) or other symptoms consistent with COVID-19 should be isolated and managed as per the current recommendations for suspected cases.

Special risk settings

Healthcare workers (including in residential and aged care facilities)

Healthcare workers includes people who come into contact with patients in a health care setting and people working with residents in residential care facilities.

Healthcare workers who have returned from any higher risk country should be advised not to undertake work in a health care or residential care setting for 14 days since leaving the high risk country. They should otherwise follow advice provided to other well returned travellers as above.

Healthcare workers who are **close** contacts (i.e. persons exposed while unprotected, as described in the [Contact definition section](#)) should be advised not to undertake work in a **healthcare or residential care setting** for 14 days following the last possible contact with the case. They should also be advised to self-quarantine at home for 14 days following the last contact with the case.

Self-quarantined healthcare worker close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Public health units may assist infection control units of health facilities to identify and monitor healthcare worker close contacts.

It is recognised that clinical work restrictions on healthcare worker close contacts may place strain on individuals and on health services. This underlines the importance of ensuring healthcare workers implement appropriate infection control precautions when assessing and managing suspected, confirmed COVID-19 cases.

Aboriginal and Torres Strait Islander Communities

CDNA will continue to monitor the emerging evidence around COVID-19 transmission risks in healthcare settings and Aboriginal and Torres Strait Islander communities and revise these recommendations as needed.

Medical care for quarantined individuals

If individuals under self-quarantine need to see a doctor for any reason (e.g. fever and respiratory symptoms or other illness/injury), they should **telephone their GP or hospital Emergency Department before presenting. Patients with severe symptoms should call 000 and make it clear they are in self-quarantine or isolation because of COVID-19.** If the patient has **symptoms consistent with the COVID-19 [case definition](#)**, the local public health unit should be consulted about the most suitable venue for clinical assessment and specimen collection.

Management of symptomatic contacts

If fever or respiratory symptoms, with or without fever, or other symptoms consistent with COVID-19 develop within the first 14 days following the last contact, PHU staff should arrange for the individual to be immediately isolated and managed as per the current recommendations for suspected COVID-19 cases, with urgent testing for COVID-19 undertaken in an environment which minimises the exposure of others.

Ill contacts who are being evaluated for COVID-19 can be appropriately isolated and managed at home, unless their condition is severe enough to require hospitalisation.

Symptomatic contacts who test negative for SARS-CoV-2 by PCR will still need to be monitored for 14 days after their last contact with a confirmed COVID-19 case and may require re-testing.

7. Special situations

Cruise ships

Risk assessment and identification of contacts

Classification of contacts on cruise ships with one or more confirmed cases of COVID-19 should be made on a case-by-case basis.

Hospital transfer of suspect or confirmed cases

If suspect or confirmed cases on board require transfer to a hospital, the Commonwealth Biosecurity Officer will notify the port authority to provide access for medical transport. The jurisdictional Human Biosecurity Officer will then coordinate transfer of the person to an appropriate medical facility for further management, via the most appropriate means that adheres to necessary precautions.

Quarantine for passengers and crew after arrival at a port

Self-quarantine at home should be recommended for close contacts where this is feasible (e.g. persons with a residence nearby) ensuring appropriate PPE precautions are employed during travel. For close contacts for whom this is not possible, matters of self-quarantine should be addressed jurisdictionally.

Disembarking and embarking

After all suspect and confirmed cases have been managed appropriately and the Human Biosecurity Officer has determined that no other passengers or crew have symptoms consistent with COVID-19, remaining passengers and crew will be allowed to disembark. The vessel may be permitted to commence embarking once it is certain there is no risk of ongoing transmission.

8. References

1. Chang D, Xu H, Rebaza A, Sharma L, Dela Cruz CS. Protecting health-care workers from subclinical coronavirus infection. *Lancet Respir Med*. 2020.

9. Appendices

Appendix A: SARS-CoV-2 Laboratory testing information

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

Appendix A: SARS-CoV-2 Laboratory testing information

Laboratory testing for SARS-CoV-2 continues to evolve rapidly with the accumulation of clinical data, and as reagents and protocols are refined.

The aim of testing, if clinically appropriate, is to exclude common respiratory viruses using local hospital and community nucleic acid testing capacity, and to simultaneously refer onward to a laboratory with capacity to test for SARS-CoV-2. As co-infection is possible, initial testing protocols should include testing for SARS-CoV-2 in patients with epidemiological risk, even where another infection is shown to be present.

Samples for testing

- (i) upper respiratory tract samples
- (ii) lower respiratory tract sample if the lower tract is involved
- (iii) Serum (to be stored pending serology availability)

Upper respiratory tract samples

1. Nasopharyngeal swab and/ oropharyngeal swab, Dacron or Rayon, flocked preferred
 - nasopharyngeal: insert a flexible nasopharyngeal swab into one nostril and gently insert it along the floor of the nasal cavity parallel to the palate until resistance is encountered, rotate gently for 10-15 seconds, then withdraw and repeat the process in the other nostril with the same swab to absorb secretions
 - oropharyngeal (throat): swab the tonsillar beds and the back of the throat, avoiding the tongue
 - place swabs back into the accompanying transport media

As a minimum standard recommendation across all jurisdictions, a nasopharyngeal and an oropharyngeal swab should both be collected, and placed in transport medium, which may be viral transport medium (VTM) or Liquid Amies.

Details of practice above this minimum may vary between jurisdictions, eg pooling both swabs in a single container of transport medium; use of a single swab for collection of both nasopharyngeal and oropharyngeal samples; collection of two nasopharyngeal swabs and one oropharyngeal sample. Liaison with the jurisdiction's PHLN-member laboratory is recommended to obtain clarity on local variations.

If SARS-CoV-2 testing is to be undertaken in a different laboratory to testing for other respiratory viruses, then both nasopharyngeal and oropharyngeal samples should be forwarded for SARS-CoV-2 testing. Use of one swab for respiratory virus testing, and the other for SARS-CoV-2 testing is not recommended.

2. Nasal wash/aspirates

- collect 2-3 mL into a sterile, leak-proof, screw-top dry sterile container

A nasal wash or aspirate if available, may be substituted for the nasopharyngeal swab sample described above.

Lower respiratory tract samples (to be collected in hospital and/or using airborne precautions)**1. Sputum**

- patient should rinse his/her mouth with water before collection
- expectorate deep cough sputum directly into a sterile, leak-proof, screw-top dry sterile container

2. Bronchoalveolar lavage, tracheal aspirate, pleural fluid

- collect 2-3 mL into a sterile, leak-proof, screw-top sputum collection cup or dry sterile container

As lower respiratory tract specimens contain the highest viral loads in SARS-CoV and MERS-CoV, it is advised that lower respiratory tract specimens should be collected for SARS-CoV-2 testing where possible. Initial experience in testing for SARS-CoV-2 seems to be consistent with this prior experience. Repeat testing (especially of lower respiratory tract specimens) in clinically compatible cases should be performed if initial results are negative and there remains a high index of suspicion of infection.

Serology

Serum should be collected during the acute phase of the illness (preferably within the first 7 days of symptom onset), stored, and when serology testing becomes available tested in parallel with convalescent sera collected 3 or more weeks after acute infection. If no acute sample was collected, sera collected 14 or more days after symptom onset may be tested.

Specimen handling in the laboratory***Microbiology Laboratory***

Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment. Specimens should be transported in accordance with current regulatory requirements as diagnostic samples for testing.

Clinical Pathology

Standard precautions should be used for non-microbial pathology testing (such as routine biochemistry and haematology). Where possible auto-analysers should be used according to standard practices and/or local protocols. There is evidence that capping and uncapping of samples is not a high risk aerosol generating procedure.

Respiratory Virus Diagnostic Testing

Nucleic acid testing of the upper respiratory tract sample is performed for influenza and other common respiratory viruses using standard protocols and methods of the hospital or community laboratory.

Standard protocols of the testing laboratory for respiratory sample processing should be used. This is expected to consist of PC2 laboratory practices, and use of a Class II Biosafety cabinet for aerosol generating procedures (such as centrifuging without sealed carriers, vortexing, sonicating). Viral culture can only be undertaken in an accredited laboratory that has a PC3 facility.

The residue (original swab and remaining eluate) of the upper tract sample is forwarded together with the lower tract sample and the serum to the reference laboratory with SARS-CoV-2 testing capacity requesting SARS-CoV-2 testing.

Clinical liaison with jurisdictional public health officers is essential to coordinate referral & testing.

Standard protocols should be used for sample packaging and transport as diagnostic samples for testing (i.e. Category B).

SARS-CoV-2 specific testing

Nucleic acid testing (NAT) using real time polymerase chain reaction (RT-PCR) is the method of choice for detection of SARS-CoV-2. Specific diagnostic test approaches for SARS-CoV-2 will be described here only in broad terms. There is significant variation in PCR assays employed by different PHLN member laboratories, and test algorithms are likely to be further refined over time.

Specific Real Time PCR primer sets to detect SARS-CoV-2 are available. Some PHLN member laboratories have designed their own, and some have implemented primer sets recommended to the World Health Organization (WHO) by leading international coronavirus reference laboratories (available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance>). The majority of PHLN testing capacity now employs relatively swift RT-PCR assays for screening, with a turnaround time of several hours. Confirmation of positives is being done either with RT-PCR assays detecting a different target gene, or broadly reactive PCR tests with sequencing of amplicons (see below).

Well pedigreed PCR primer sets, probes and protocols are available from the WHO/ European Viral Archive (EVAg) (available at: https://www.who.int/docs/default-source/coronaviruse/protocol-v2-1.pdf?sfvrsn=a9ef618c_2).

Many PCR assays, including those available through WHO will also detect other zoonotic coronaviruses such as SARS-CoV, sometimes with a recognisable shift in the cycle threshold value (Ct) compared to the SARS-CoV-2 target, but not commonly circulating coronaviruses usually detected by commercial assays (eg NL63, 229E strains).

Several Australian PHLN reference laboratories began diagnostic testing for the current outbreak using PCR assays capable of detecting a wide range of coronaviruses, including zoonotic and novel pathogens. A number of these were mapped against the promulgated Chinese nucleic acid sequence of SARS-CoV-2 early in the course of the outbreak. Nucleic acid sequencing of amplicons from positive tests is used to identify the coronavirus in this approach. These assays have relatively long turnaround times and have largely been replaced by RT-PCR other than in a confirmatory role in some laboratories.

Complementary DNA (cDNA) synthesized from the VIDRL SARS-CoV-2 has now been made available to all PHLN member laboratories as a test positive control. Synthetic positive control material in the form of nucleic acid templates is also available through WHO/ European Viral Archive (EVAg).

Testing algorithms are likely to be revised pending further information about the virus, and the number of specimens received in the laboratory for testing.

Viral culture should not be performed for routine diagnosis, and should only be attempted in reference laboratories with appropriate experience and containment facilities. Currently where attempted this is being done at Physical Containment Level 3 (PC3), consistent with current recommendations for SARS-CoV, pending specific SARS-CoV-2 international recommendations.

No Quality Assurance Program (QAP) is currently available internationally specific for SARS-CoV-2, although QAPs are available in Australia for respiratory viruses including coronaviruses other than 2019-nCoV. The RCPAQAP with Commonwealth support will introduce a SARS-CoV-2 specific QAP to supplement previously available SARS-CoV, MERS-CoV and other coronaviruses, during the first half of 2020.

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

These recommendations are intended for hospital personnel who enter a clinical space with COVID-19 patients, including wardspersons, food deliverers, cleaners, and clinical personnel.

Background:

Although Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) which causes COVID-19 has spread rapidly and widely in mainland China, there has been limited transmission elsewhere, i.e. containment precautions have been mostly successful to date. At the time of writing, the crude mortality (~2%) in China is based on laboratory confirmed cases; many milder cases are almost certainly not being tested and the mortality is likely to be lower. Most cases in Australia have been relatively mild but a small number of deaths has been reported outside of mainland China. While a number of healthcare-associated infections have been reported with COVID-19 (in healthcare workers and patients) – as occurred with SARS and MERS - the risk for COVID-19 is likely to be very low, when infection control precautions are adhered to correctly.

General principles:

- **Standard precautions, including hand hygiene (5 Moments)** for all patients with respiratory infections. Patients and staff should observe cough etiquette and respiratory hygiene,
- **Transmission-based precautions** for patients with suspected or confirmed COVID-19:
 - **Contact and droplet precautions** for **routine care** of patients.
 - **Contact and airborne precautions** for **aerosol generating procedures (AGPs)**.

Contact and droplet precautions:

Contact and droplet precautions can be safely used for routine patient care of inpatients with suspected or confirmed COVID-19 (see Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units for case definition)

- On presentation or admission to hospital the patient should be:
 - given a surgical mask to put on, and
 - placed in a single room (ensuring air does not circulate to other areas)
 - placed in a negative pressure room (in the event of AGPs being performed).
- If transfer outside the room is essential, the patient should wear a surgical mask during transfer and follow respiratory hygiene and cough etiquette.
- For most inpatient contacts between healthcare staff and patients the following PPE is safe and appropriate and should be put on before entering the patient's room:
 - long-sleeved gown
 - surgical mask
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- For hospitalised patients requiring frequent attendance by medical and nursing staff, a P2/N95 respirator should be considered for prolonged or very close contact.

Contact and airborne precautions for aerosol-generating procedures (AGPs) and care of clinically ill patients requiring high level/high volume hands-on contact outside of ICU:

- **Contact and airborne precautions should be used routinely for AGPs**, which include:
 - tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy (and bronchoalveolar lavage), high flow nasal oxygen
 - The use of nebulisers should be avoided and alternative medication administration devices (e.g. spacers) used.
- PPE for contact and airborne procedures should be put on before entering patients room:
 - long-sleeved gown
 - P2/N95 respirator (mask) – should be fit-checked with each use
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- P2/N95 respirators (mask) should be used only when required.
- Unless used correctly, i.e. with fit-checking, a P2/N95 respirator (mask) is unlikely to protect against airborne pathogen spread.
 - An air-tight seal may be difficult to achieve for people with facial hair. Fit checking with a range of P2/N95 respirators must occur to assess the most suitable one to achieve a protective seal. If a tight seal cannot be achieved, facial hair should be removed.

Care of critically ill patients in ICU

- Patients who require admission to ICU with severe COVID-19 are likely to have a high viral load, particularly in the lower respiratory tract
- **Contact and airborne precautions** (as above) are required for patient care and are adequate for most AGPs.
 - The risk of aerosol transmission is reduced once the patient is intubated with a closed ventilator circuit but there is a potential, but unknown, risk of transmission from other body fluids such as diarrhoeal stool or vomitus or inadvertent circuit disconnection
- If a health care professional is required to remain in the patient's room continuously for a long period (e.g. more than one hour), because of the need to perform multiple procedures, the use of a powered air purifying respirator (PAPR) may be considered for additional comfort and visibility. A number of different types of relatively lightweight, comfortable PAPRs are now available and should be used according to manufacturer's instructions. Only **PPE marked as reusable** should be reused, following **reprocessing** according to manufacturer's instructions, All other PPE must be disposed of after use.

ICU staff caring for patients with COVID-19 (or any other potentially serious infectious disease) should be trained in the correct use of PPE, including by an infection control professional. This also applies particularly to the use of PAPRs, if required. Particular care should be taken on removal of PAPR, which is associated with a risk of contamination.

Additional precautions:**Staff**

- A staff log for each room entry should be maintained, to allow monitoring of potential breaches of infection control and follow-up contacts, if necessary.

Disposal of PPE and other waste

- Waste should be disposed in the normal way for clinical waste
- All non-clinical waste is disposed of into general waste

Handling of linen

- Routine procedures for handling of infectious linen should be followed
- Visibly soiled linen should be placed in a (soluble) plastic bag inside a linen skip

Environmental cleaning of patient care areas

- Cleaners should observe contact and droplet precautions (as above).
- Frequently touched surfaces (such as doorknobs, bedrails, tabletops, light switches, patient handsets) in the patient's room should be cleaned daily.
- Terminal cleaning of all surfaces in the room (as above plus floor, ceiling, walls, blinds) should be performed after the patient is discharged.
- A combined cleaning and disinfection procedure should be used, either 2-step - detergent clean, followed by disinfectant; or 2-in-1 step - using a product that has both cleaning and disinfectant properties. Any hospital-grade, TGA-listed disinfectant that is commonly against norovirus is suitable, if used according to manufacturer's instructions.

Coronavirus Disease 2019 (COVID-19)

CDNA National Guidelines for Public Health Units

Revision history			
Version	Date	Revised by	Changes
1.15	03 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management.
1.14	02 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Risk stratification of countries, Contact management.
1.13	28 February 2020	Communicable Diseases Network Australia	Revised: Laboratory testing, isolation and restriction and Appendix A: laboratory testing information.
1.12	27 February 2020	Communicable Diseases Network Australia	Inclusion of Cambodia in the list of countries in the Person under investigation section.
1.11	26 February 2020	Communicable Diseases Network Australia	Inclusion of Italy in the list of countries in the Person Under Investigation section.
1.10	23 February 2020	Communicable Diseases Network Australia	Inclusion of South Korea and Iran in the list of countries in the Person Under Investigation section.
1.9	21 February 2020	Communicable Diseases Network Australia	Revised: case definition, infectious period, contact management, special situation (cruise ship). Specific changes are highlighted.
1.8	17 February 2020	Communicable Diseases Network Australia	Inclusion of statement reflecting that passengers of the Diamond Princess cruise meet the criteria for close contact.
1.7	15 February 2020	Communicable Diseases Network Australia	Revised case definition.
1.6	14 February 2020	Communicable Diseases Network Australia	Addition of Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19). Updated nomenclature.
1.5	7 February 2020	Communicable Diseases Network Australia	Inclusion of advice on release from isolation.

1.4	6 February 2020	Communicable Diseases Network Australia	Revised case definition and added rationale. Updated infection control advice throughout.
1.3	4 February 2020	Communicable Diseases Network Australia	Revised the case definition and use of the terms 'quarantine' and 'isolation'.
1.2	2 February 2020	Communicable Diseases Network Australia	Revised the case definition, close and casual contact definitions and added self-isolation guidance.
1.1	27 January 2020	Communicable Diseases Network Australia	Removed references to Wuhan and revised the case definition
1.0	23 January 2020	Communicable Diseases Network Australia	Developed by the 2019-nCoV Working Group

This document summarises interim recommendations for surveillance, infection control, laboratory testing and contact management for coronavirus disease 2019 (COVID-19). It is the first national guidance issued for COVID-19 and will be further developed into the Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units (COVID-19 SoNG).

It has been adapted from CDNA National Guidelines for Public Health Units MERS-CoV, utilising current CDC and WHO guidance, and is based on the current knowledge of the situation in mainland China and other countries, and experiences with SARS-CoV and MERS-CoV.

CDNA will review and update these recommendations as required as new information becomes available on the situation.

These interim Guidelines are to be used in the first instance whilst a Series of National Guidelines is being developed by the Communicable Diseases Network Australia (CDNA).

These interim guidelines capture the knowledge of experienced professionals, and provide guidance on best practise based upon the best available evidence at the time of completion.

Readers should not rely solely on the information contained within these Guidelines. Guideline information is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a health professional. Clinical judgement and discretion may be required in the interpretation and application of these guidelines.

The membership of the CDNA and the AHPPC, and the Commonwealth of Australia as represented by the Department of Health ('the Commonwealth'), do not warrant or represent that the information contained in these Guidelines is accurate, current or complete. The CDNA, the AHPPC and the Commonwealth do not accept any legal liability or responsibility for any loss, damages, costs or expenses incurred by the use of, or reliance on, or interpretation of, the information contained in these Guidelines.

Abbreviations and definitions

- COVID-19: coronavirus disease 2019. The name of the disease caused by the virus SARS-CoV-2, as agreed by the World Health Organization, the World Organization for Animal Health and the Food and Agriculture Organization of the United Nations. For more information, see the World Health Organization Director-General's remarks: <https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020>
- SARS-CoV-2: severe acute respiratory syndrome coronavirus 2. The formal name of the coronavirus which causes COVID-19, as determined by the International Committee on Taxonomy of Viruses. Previously, this coronavirus was commonly known as 'novel coronavirus 2019 (2019-nCoV)'. For more information see the International Committee on Taxonomy of Viruses manuscript: <https://www.biorxiv.org/content/10.1101/2020.02.07.937862v1.full.pdf>

1. Case definition

Confirmed case

A person who tests positive to a validated specific SARS-CoV-2 nucleic acid test or has the virus identified by electron microscopy or viral culture.

Suspect case

A. If the patient satisfies epidemiological and clinical criteria, they are classified as a suspect case.

Epidemiological criteria

- Travel to (including transit through) a country considered to pose a risk of transmission* in the 14 days before the onset of illness.

OR

- Close or casual contact (see [Contact definition](#) below) in 14 days before illness onset with a confirmed case of COVID-19.

Clinical criteria

- Fever.

OR

- Acute respiratory infection (e.g. shortness of breath or cough) with or without fever.

B. If the patient has severe community-acquired pneumonia (critically ill) and no other cause is identified, with or without recent international travel, they are classified as a suspect case.

C. If the patient has moderate or severe community-acquired pneumonia (hospitalised) and is a healthcare worker, with or without international travel, they are classified as a suspect case.

*Country transmission risk assessment

Higher risk:

Mainland China

Iran

Italy

South Korea

Moderate Risk:

Cambodia

Hong Kong

Indonesia

Japan

Singapore
Thailand

This list is based on the risk of the person having been exposed to COVID-19 due to travel to a country with sustained community transmission and/or based on the patterns of travel between those countries and Australia, and/or the other epidemiological evidence.

Rationale for current case definitions

The case definitions are based on what is currently known about the clinical and epidemiological profile of cases of COVID-19 presenting to date both in Australia and internationally. Health authorities are constantly monitoring the spectrum of clinical symptoms as cases arise, and, if there are any significant shifts, they will be reflected in the above definitions in future versions of this document. The same monitoring and revision applies for epidemiological criteria as new areas of varying risk emerge outside mainland China.

The 14 day period is based upon what is currently known to be the upper time limit of the incubation period. As more precise information about the incubation period emerges, this will be reviewed.

2. Laboratory testing

Patients meeting the suspect case definition ([above](#)) should be tested for SARS-CoV-2. Where applicable, consult with your state/territory communicable diseases agency to seek advice on which laboratories can provide SARS-CoV-2 testing; appropriate specimen type, collection and transport; and also to facilitate contact management if indicated.

When collecting respiratory specimens, transmission-based precautions should be observed whether or not respiratory symptoms are present.

For most patients with mild illness in the community, collection of upper respiratory specimens (i.e. nasopharyngeal or oropharyngeal swabs) is a low risk procedure and can be performed using **contact and droplet precautions**:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield), and surgical mask.
- To collect throat or nasopharyngeal swab stand slightly to the side of the patient to avoid exposure to respiratory secretions, should the patient cough or sneeze.
- At completion of consultation, remove personal protective equipment (PPE) and perform hand hygiene, wipe any contacted/contaminated surfaces with detergent /disinfectant.
- Note that, for droplet precautions, the room does not need to be left empty after sample collection.

If the patient has severe symptoms suggestive of pneumonia, e.g. fever and breathing difficulty, or frequent, severe or productive coughing episodes then **contact and airborne precautions** should be observed.

Patients with these symptoms should be managed in hospital, and sample collection conducted in a negative pressure room, if available. If referral to hospital for specimen collection is not possible, specimens should be collected in a room from which air does not circulate to other areas. The door should be closed during specimens collection and the room left vacant for at least 30 minutes afterwards (cleaning can be performed during this time by a person wearing PPE).

The following precautions should be observed:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield) and a **P2/N95 respirator – which should be fit checked.**
- At completion of consultation, remove gown and gloves, perform hand hygiene, remove eye protection and P2/N95 respirator. Do not touch the front of any item of PPE during removal; perform hand hygiene.
- The room surfaces should be wiped clean with disinfectant wipes by a person wearing gloves, gown and surgical mask.

For further information on circumstances requiring airborne precautions, see [aerosol generating procedures](#).

Routine tests for acute pneumonia/pneumonitis should be performed where indicated, including bacterial cultures, acute and convalescent serology, urinary antigen testing and nucleic acid tests for respiratory viruses, according to local protocols.

Serology for SARS-CoV-2 is not yet available. Collection of serum for storage by the SARS-CoV-2 testing laboratory is recommended to facilitate retrospective testing, if this is relevant, once serology tests become available.

See [Appendix A](#) for additional SARS-CoV-2 laboratory testing information.

3. Case management

Response times

On the same day as notification of a suspected or confirmed case, begin follow up investigation and, where applicable, notify your central state or territory communicable diseases agency.

PHU staff should be available to contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners.

Response procedure

Case investigation

The response to a notification will normally be carried out in collaboration with the clinicians managing the case, and be guided by the COVID-19 public health unit checklist and the COVID-19 investigation form (currently pending).

Regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend that tests be done.
- Seek the treating doctor's permission to contact the case or relevant care-giver.
- Determine if the diagnosis has been discussed with the case or relevant care-giver before beginning the interview.
- Review case and contact management.
- Ensure appropriate infection control guidelines are followed in caring for the case.
- Identify the likely source of infection.

Note: If interviews with suspected cases are conducted face-to-face, the person conducting the interview must have a thorough understanding of infection control practises and be competent in using appropriate PPE.

Case treatment

In the absence of pathogen-specific interventions, patient management largely depends on supportive treatment, and vigilance for and treatment of complications.

Further advice on clinical management is available from WHO: (https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2)

Education

Provide a COVID-19 factsheet to cases and their close contacts.

Ensure that they are aware of the signs and symptoms of COVID-19, the requirements of quarantine and isolation, contact details of the PHU and the infection control practises that can prevent the transmission of COVID-19.

Isolation and restriction

Cases will generally be managed in hospital. If clinically indicated, cases may be managed at home only if it can be ensured that the case and household contacts are counselled about risk and that appropriate infection control measures are in place.

Healthcare workers and others who come into contact with suspected and confirmed cases must be protected according to recommended infection control guidelines. Visitors should be restricted to close family members.

A risk assessment should be undertaken for suspected cases who initially test negative for SARS-CoV-2. If there is no alternative diagnosis and a high index of suspicion remains that such cases may have COVID-19, consideration should be given to continued isolation and use of the recommended infection control precautions, pending further testing (see [Laboratory testing section](#) and [Appendix A](#)) and re-assessment.

While recommendations on isolation and PPE for management of suspected and confirmed cases initially took a deliberately cautious approach, emerging evidence and expert advice now supports requirements commensurate with the risk in particular clinical circumstances.

In addition to standard precautions, interim recommendations for the use of PPE during clinical care of people with possible COVID-19 are:

- **Contact and droplet precautions** are recommended for **routine care** of patients in quarantine or with suspected or confirmed COVID-19.
- **Contact and airborne precautions** are recommended when performing **aerosol-generating procedures**, including intubation and bronchoscopy, and for care of **critically ill patients** (see [Appendix B](#) for further information).

Other recommended infection control measures include:

- When a patient who meets the suspect case definition presents to a healthcare setting (GP, hospital ED, or pathology collection centre) and whether or not respiratory symptoms are present, the patient should immediately be:

- given a surgical mask to put on, and
- directed to a single room. If the patient has severe symptoms suggestive of pneumonia, they should be directed to a negative pressure room, if available, or a room from which the air does not circulate to other areas.
- If a patient with confirmed COVID-19 needs to be transferred out of their isolation room, the patient should wear a “surgical” face mask and follow respiratory hygiene and cough etiquette.

Release from isolation

A confirmed case can be released from isolation if they meet all of the following criteria:

- the person has been afebrile for the previous 48 hours;
- resolution of the acute illness for the previous 24 hours¹;
- be at least 7 days after the onset of the acute illness;
- PCR negative on at least two consecutive respiratory specimens collected 24 hours apart after the acute illness has resolved^{2,3}.

¹Some people may have pre-existing illnesses with chronic respiratory signs or symptoms, such as chronic cough. For these people, the treating medical practitioner should make an assessment as to whether the signs and symptoms of COVID-19 have resolved.

²If the patient has a productive cough due to a pre-existing respiratory illness or other ongoing lower respiratory tract disease, then the sputum or other lower respiratory tract specimens must be PCR negative for SARS-CoV-2. Otherwise upper respiratory tract specimens (nasopharyngeal or nose and throat swabs) must be PCR negative.

³A small proportion of people may have an illness that has completely resolved but their respiratory specimens remain persistently PCR positive. A decision on release from isolation for these people should be made on a case-by-case basis after consultation between the person’s treating medical practitioner, the testing laboratory and public health. Results of viral culture, if available, may be included in this consideration.

Follow up should include the person being reviewed seven days after release from isolation for:

- clinical review to ensure full symptom resolution
- collection of a serum specimen for storage and possible later serologic testing (the person should be informed that this is for future test development and does not inform their clinical care).

Routine PCR testing at seven days after release is not recommended unless the person has clinical features consistent with COVID-19.

Aerosol-generating procedures

Appropriate care should be taken during aerosol-generating procedures. Aerosol-generating procedures include: tracheal intubation, non-invasive ventilation, tracheostomy, cardiopulmonary resuscitation, manual ventilation before intubation, bronchoscopy, and high flow nasal oxygen. Collection of upper respiratory specimens is not generally regarded as aerosol generating, but airborne precautions should be used for collection of specimens from severely symptomatic patients (see [Laboratory testing section](#)).

P2/N95 respirators should be used only when required. Unless used correctly, i.e. with fit-checking, they are unlikely to protect against airborne pathogen spread.

Airborne precautions should be used routinely for aerosol-generating procedures, such as bronchoscopy, intubation, suctioning etc. in hospital settings. Nebuliser use should be discouraged and alternative administration devices (e.g. spacers) should be used.

The [Laboratory testing section](#) provides detailed information on sample collection for SARS-CoV-2.

Active case finding

Contacts (see [Contact management section](#)) should be identified and advised to immediately seek medical advice should they develop symptoms. Contacts or caregivers should be asked to also inform the public health agency if they develop symptoms.

4. Environmental evaluation

Where local transmission of COVID-19 is thought possible, a thorough review of contributing environmental factors should be done. This should include a review of infection control procedures, and opportunities for exposure to respiratory or faecal contamination.

If a case has had occupational exposure to animals it may be appropriate to consult with animal health authorities.

5. Infectious period

Infectious period of COVID-19 remains unknown, however there is some evidence to support the occurrence of pre-symptomatic or asymptomatic transmission (1). As a precautionary approach cases are considered to be infectious 24-hours prior to onset of symptoms. Cases are considered to pose a risk of onward transmission and require isolation until criteria listed in the [release from isolation section](#) have been met.

6. Contact management

As there remain gaps in the understanding of infectivity of COVID-19 cases and transmission modes, the definition of contacts and their public health management is based on available information on COVID-19 together with observations from similar serious coronaviruses – SARS-CoV and MERS-CoV. Distinction is made between close contacts and casual contacts.

Identification of contacts

All persons categorised as a contact (see definitions of “close contacts” and “casual contacts” following) of confirmed cases should be followed-up, and monitored for the development of symptoms for 14 days after the last exposure to the case (i.e. the maximum incubation period).

Contacts of suspected cases should also be considered for contact management if there is likely to be a delay in confirming or excluding COVID-19 in the suspected case, such as delayed testing

Close contact definition

A close contact is defined as requiring:

- greater than 15 minutes face-to-face contact in any setting with a confirmed case in the period extending from 24 hours before onset of symptoms in the confirmed case, or
- sharing of a closed space with a confirmed case for a prolonged period (e.g. more than 2 hours) in the period extending from 24 hours before onset of symptoms in the confirmed case.

For the purposes of surveillance, a close contact includes a person meeting any of the following criteria:

- Living in the same household or household-like setting (e.g. in a boarding school or hostel).
- Direct contact with the body fluids or laboratory specimens of a case without recommended PPE or failure of PPE.
- A person who spent 2 hours or longer in the same room (such as a GP or ED waiting room).
- A person in the same hospital room when an aerosol generating procedure is undertaken on the case, without recommended PPE.
- Aircraft passengers who were seated in the same row as the case, or in the two rows in front or two rows behind a confirmed COVID-19 case. Contact tracing of people who may have had close contact on long bus or train trips should also be attempted where possible, using similar seating/proximity criteria.
- All crew-members on an aircraft who worked in the same cabin area as a confirmed case of COVID-19. If a crew member is the COVID-19 case, contact tracing efforts should concentrate on passengers seated in the area where the crew member was working during the flight and all of the other members of the crew.
- Close contacts on cruise ships can be difficult to identify, and a case-by-case risk assessment should be conducted to identify which passengers and crew should be managed as close contacts. See [Special situations](#) for further information.

Contact needs to have occurred within the period extending 24 hours before onset of symptoms in the case until the case is classified as no longer infectious by the treating team (usually 24 hours after the resolution of symptoms).

Casual contact definition

Casual contact is defined as any person having less than 15 minutes face-to-face contact with a symptomatic confirmed case in any setting, or sharing a closed space with a symptomatic confirmed case for less than 2 hours. This will include healthcare workers, other patients, or visitors who were in the same closed healthcare space as a case, but for shorter periods than those required for a close contact. Other closed settings might include schools or offices.

Note that healthcare workers and other contacts who have taken recommended infection control precautions, including the use of full PPE, while caring for a symptomatic confirmed COVID-19 case are not considered to be close contacts. However, these people should be advised to self-monitor and if they develop symptoms consistent with COVID-19 they should isolate themselves and notify their public health unit or staff health unit so they can be tested and managed as a suspected COVID-19 case (see recommendations below under Management of symptomatic contacts).

Other casual contacts may include:

- Extended family groups, e.g. in an Aboriginal community.
- Aircraft passengers who were not seated nearby a symptomatic confirmed case or a crew-member who did not work in the same cabin area as a symptomatic confirmed case (see close contact definition).
- Passengers and crew onboard the same cruise ship as a symptomatic confirmed case (or cases), who are not considered to be close contacts. See [Special situations](#) for further information.

Where resources permit, more active contact tracing may be extended to other persons who have had casual contact (as defined above), particularly in school, office or other closed settings. In these circumstances, the size of the room/space and degree of separation of the case from others should be considered in identifying contacts.

Returned Traveller definition

Returned travellers who, in the last 14 days, have left or transited through a [listed country](#) that is considered to pose an increased risk of transmission.

Within any risk category, different recommendations may apply in management. See detail below.

Contact assessment

All persons identified as having had contact with a confirmed case should be assessed to see if they should be classified as a close contact and have demographic and epidemiological data collected. Information on close contacts should be managed according to jurisdictional requirements.

Identification and assessment of the contacts of suspected cases may be deferred pending the results of initial laboratory testing.

Close contact testing

Routine laboratory screening for COVID-19 is not recommended for asymptomatic close contacts.

Prophylaxis

No specific chemoprophylaxis is available for contacts.

Education

Close contacts should be counselled about their risk and the symptoms of COVID-19 and provided with a COVID-19 factsheet. They should be advised to self-quarantine.

Quarantine and restriction

Close contacts

Asymptomatic close contacts should be advised to self-quarantine at home for 14 days following the last contact with the case, and to monitor their health for 14 days after the last possible contact with a confirmed COVID-19 case.

Public health units should conduct active daily monitoring of close contacts for symptoms for 14 days after the last possible contact with a confirmed COVID-19 case.

Self-quarantined close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Less frequent active follow-up together with passive surveillance may be necessary if there are large numbers of close contacts to monitor.

For the purpose of contact management, swabs are **not** indicated during quarantine in well people. A medical clearance from a health care provider is not required for release from quarantine or for other purposes such as returning to work, school or university.

Casual contacts

Casual contacts should monitor their health for 14 days and report any symptoms immediately to the local public health unit. There are no restrictions on movements; however, casual contacts should be advised to isolate themselves and contact the public health unit if they develop symptoms.

Returned travellers

Returned travellers who have travelled in or transited through **mainland China or Iran** should self-quarantine at home for 14 days after leaving the higher risk country. Self-quarantined returned travellers should be advised on the processes for seeking medical care. See Medical care for quarantined individuals.

All returned travellers who, in the last 14 days, have travelled in or transited through **the remaining countries considered to pose a risk of transmission** should self-monitor for symptoms, practise social distancing **when outside the workplace** and [immediately isolate themselves if they become unwell](#).

Social distancing is an effective measure, but it is recognised that it cannot be practised in all situations and the aim is to generally reduce the potential for transmission. Whilst practising social distancing, people can travel to work (including by public transport) and carry out normal duties. Social distancing outside the workplace is aimed at nonessential activities and includes:

- Avoiding crowds and mass gatherings
- Avoiding small gatherings in enclosed spaces, for example family celebrations.
- **Attempting** to keep a distance of 1.5 metres between themselves and other people where **possible, for example when** out and about in public **spaces**.

Returned travellers who, in the last 14 days, have travelled in or transited through **any of the countries considered to pose a risk of transmission who are unwell** with fever, or with respiratory symptoms (with or without fever) or other symptoms consistent with COVID-19 should be isolated and managed as per the current recommendations for suspected cases. **Table 1 below summarises the recommendations for travellers returning from each at risk country by risk category.**

Special risk settings

Healthcare workers (including in residential and aged care facilities)

Healthcare workers and other staff with close patient contact who work in hospitals or residential/aged care facilities should take additional precautions given they come into contact with a high case load of potentially vulnerable patients.

All healthcare workers should observe usual infection prevention and control practises in the workplace.

All healthcare workers and staff who have close patient contact in hospitals and/or residential/aged care facilities who have returned from any higher risk country should be advised not to undertake work in a health care or residential/aged care facility for 14 days since leaving the higher risk country. They should otherwise follow advice provided to other well returned travellers as above. Table 1 below summarises the recommendations for healthcare workers returning from each at risk country by risk category.

Table 1: Actions for travellers and healthcare workers returning from countries considered to pose a risk of transmission.

Risk	Country	General actions	Action for Hospital and/or Residential/Aged Care facilities*
Higher risk	Mainland China	Self-quarantine for 14 day	No work for 14 days
	Iran		
Higher risk	Italy	Self-monitor for 14 days	No work for 14 days
	South Korea	Practise social distancing	
		Isolate if unwell	
Moderate risk	Cambodia	Self-monitor for 14 days	Can return to work if well
	Hong Kong	Practise social distancing	
	Indonesia	Isolate if unwell	
	Japan		
	Singapore		
	Thailand		

*People working in hospitals or aged/residential care facilities who have patient contact.

Healthcare workers who are close contacts (i.e. persons exposed while unprotected, as described in the [Contact definition section](#)) should be advised not to undertake work in a healthcare or residential/aged care facility for 14 days following the last possible contact with the case. They should also be advised to self-quarantine at home for 14 days following the last contact with the case.

Self-quarantined healthcare worker close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Public health units may assist infection control units of health facilities to identify and monitor healthcare worker close contacts.

It is recognised that clinical work restrictions on healthcare worker close contacts may place strain on individuals and on health services. This underlines the importance of ensuring healthcare workers implement appropriate infection control precautions when assessing and managing suspected, confirmed COVID-19 cases.

Aboriginal and Torres Strait Islander Communities

CDNA will continue to monitor the emerging evidence around COVID-19 transmission risks in healthcare settings and Aboriginal and Torres Strait Islander communities and revise these recommendations as needed.

Medical care for quarantined individuals

If individuals under self-quarantine need to see a doctor for any reason (e.g. fever and respiratory symptoms or other illness/injury), they should **telephone their GP or hospital Emergency Department before presenting. Patients with severe symptoms should call 000 and make it clear they are in self-quarantine or isolation because of COVID-19.** If the patient has **symptoms consistent with the COVID-19 [case definition](#)**, the local public health unit should be consulted about the most suitable venue for clinical assessment and specimen collection.

Management of symptomatic contacts

If fever or respiratory symptoms, with or without fever, or other symptoms consistent with COVID-19 develop within the first 14 days following the last contact, PHU staff should arrange for the individual to be immediately isolated and managed as per the current recommendations for suspected COVID-19 cases, with urgent testing for COVID-19 undertaken in an environment which minimises the exposure of others.

Ill contacts who are being evaluated for COVID-19 can be appropriately isolated and managed at home, unless their condition is severe enough to require hospitalisation.

Symptomatic contacts who test negative for SARS-CoV-2 by PCR will still need to be monitored for 14 days after their last contact with a confirmed COVID-19 case and may require re-testing.

7. Special situations

Cruise ships

Risk assessment and identification of contacts

Classification of contacts on cruise ships with one or more confirmed cases of COVID-19 should be made on a case-by-case basis.

Hospital transfer of suspect or confirmed cases

If suspect or confirmed cases on board require transfer to a hospital, the Commonwealth Biosecurity Officer will notify the port authority to provide access for medical transport. The jurisdictional Human Biosecurity Officer will then coordinate transfer of the person to an appropriate medical facility for further management, via the most appropriate means that adheres to necessary precautions.

Quarantine for passengers and crew after arrival at a port

Self-quarantine at home should be recommended for close contacts where this is feasible (e.g. persons with a residence nearby) ensuring appropriate PPE precautions are employed during travel. For close contacts for whom this is not possible, matters of self-quarantine should be addressed jurisdictionally.

Disembarking and embarking

After all suspect and confirmed cases have been managed appropriately and the Human Biosecurity Officer has determined that no other passengers or crew have symptoms consistent with COVID-19, remaining passengers and crew will be allowed to disembark. The vessel may be permitted to commence embarking once it is certain there is no risk of ongoing transmission.

8. References

1. Chang D, Xu H, Rebaza A, Sharma L, Dela Cruz CS. Protecting health-care workers from subclinical coronavirus infection. *Lancet Respir Med*. 2020.

9. Appendices

Appendix A: SARS-CoV-2 Laboratory testing information

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

Appendix A: SARS-CoV-2 Laboratory testing information

Laboratory testing for SARS-CoV-2 continues to evolve rapidly with the accumulation of clinical data, and as reagents and protocols are refined.

The aim of testing, if clinically appropriate, is to exclude common respiratory viruses using local hospital and community nucleic acid testing capacity, and to simultaneously refer onward to a laboratory with capacity to test for SARS-CoV-2. As co-infection is possible, initial testing protocols should include testing for SARS-CoV-2 in patients with epidemiological risk, even where another infection is shown to be present.

Samples for testing

- (i) upper respiratory tract samples
- (ii) lower respiratory tract sample if the lower tract is involved
- (iii) Serum (to be stored pending serology availability)

Upper respiratory tract samples

1. Nasopharyngeal swab and/ oropharyngeal swab, Dacron or Rayon, flocked preferred
 - nasopharyngeal: insert a flexible nasopharyngeal swab into one nostril and gently insert it along the floor of the nasal cavity parallel to the palate until resistance is encountered, rotate gently for 10-15 seconds, then withdraw and repeat the process in the other nostril with the same swab to absorb secretions
 - oropharyngeal (throat): swab the tonsillar beds and the back of the throat, avoiding the tongue
 - place swabs back into the accompanying transport media

As a minimum standard recommendation across all jurisdictions, a nasopharyngeal and an oropharyngeal swab should both be collected, and placed in transport medium, which may be viral transport medium (VTM) or Liquid Amies.

Details of practise above this minimum may vary between jurisdictions, e.g. pooling both swabs in a single container of transport medium; use of a single swab for collection of both nasopharyngeal and oropharyngeal samples; collection of two nasopharyngeal swabs and one oropharyngeal sample. Liaison with the jurisdiction's PHLN-member laboratory is recommended to obtain clarity on local variations.

If SARS-CoV-2 testing is to be undertaken in a different laboratory to testing for other respiratory viruses, then both nasopharyngeal and oropharyngeal samples should be forwarded for SARS-CoV-2 testing. Use of one swab for respiratory virus testing, and the other for SARS-CoV-2 testing is not recommended.

2. Nasal wash/aspirates

- collect 2-3 mL into a sterile, leak-proof, screw-top dry sterile container

A nasal wash or aspirate if available, may be substituted for the nasopharyngeal swab sample described above.

Lower respiratory tract samples (to be collected in hospital and/or using airborne precautions)**1. Sputum**

- patient should rinse his/her mouth with water before collection
- expectorate deep cough sputum directly into a sterile, leak-proof, screw-top dry sterile container

2. Bronchoalveolar lavage, tracheal aspirate, pleural fluid

- collect 2-3 mL into a sterile, leak-proof, screw-top sputum collection cup or dry sterile container

As lower respiratory tract specimens contain the highest viral loads in SARS-CoV and MERS-CoV, it is advised that lower respiratory tract specimens should be collected for SARS-CoV-2 testing where possible. Initial experience in testing for SARS-CoV-2 seems to be consistent with this prior experience. Repeat testing (especially of lower respiratory tract specimens) in clinically compatible cases should be performed if initial results are negative and there remains a high index of suspicion of infection.

Serology

Serum should be collected during the acute phase of the illness (preferably within the first 7 days of symptom onset), stored, and when serology testing becomes available tested in parallel with convalescent sera collected 3 or more weeks after acute infection. If no acute sample was collected, sera collected 14 or more days after symptom onset may be tested.

Specimen handling in the laboratory***Microbiology Laboratory***

Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment. Specimens should be transported in accordance with current regulatory requirements as diagnostic samples for testing.

Clinical Pathology

Standard precautions should be used for non-microbial pathology testing (such as routine biochemistry and haematology). Where possible auto-analysers should be used according to standard practises and/or local protocols. There is evidence that capping and uncapping of samples is not a high risk aerosol generating procedure.

Respiratory Virus Diagnostic Testing

Nucleic acid testing of the upper respiratory tract sample is performed for influenza and other common respiratory viruses using standard protocols and methods of the hospital or community laboratory.

Standard protocols of the testing laboratory for respiratory sample processing should be used. This is expected to consist of PC2 laboratory practises, and use of a Class II Biosafety cabinet for aerosol generating procedures (such as centrifuging without sealed carriers, vortexing, sonicating). Viral culture can only be undertaken in an accredited laboratory that has a PC3 facility.

The residue (original swab and remaining eluate) of the upper tract sample is forwarded together with the lower tract sample and the serum to the reference laboratory with SARS-CoV-2 testing capacity requesting SARS-CoV-2 testing.

Clinical liaison with jurisdictional public health officers is essential to coordinate referral & testing.

Standard protocols should be used for sample packaging and transport as diagnostic samples for testing (i.e. Category B).

SARS-CoV-2 specific testing

Nucleic acid testing (NAT) using real time polymerase chain reaction (RT-PCR) is the method of choice for detection of SARS-CoV-2. Specific diagnostic test approaches for SARS-CoV-2 will be described here only in broad terms. There is significant variation in PCR assays employed by different PHLN member laboratories, and test algorithms are likely to be further refined over time.

Specific Real Time PCR primer sets to detect SARS-CoV-2 are available. Some PHLN member laboratories have designed their own, and some have implemented primer sets recommended to the World Health Organization (WHO) by leading international coronavirus reference laboratories (available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance>). The majority of PHLN testing capacity now employs relatively swift RT-PCR assays for screening, with a turnaround time of several hours. Confirmation of positives is being done either with RT-PCR assays detecting a different target gene, or broadly reactive PCR tests with sequencing of amplicons (see below).

Well pedigreed PCR primer sets, probes and protocols are available from the WHO/ European Viral Archive (EVAg) (available at: https://www.who.int/docs/default-source/coronaviruse/protocol-v2-1.pdf?sfvrsn=a9ef618c_2).

Many PCR assays, including those available through WHO will also detect other zoonotic coronaviruses such as SARS-CoV, sometimes with a recognisable shift in the cycle threshold value (Ct) compared to the SARS-CoV-2 target, but not commonly circulating coronaviruses usually detected by commercial assays (eg NL63, 229E strains).

Several Australian PHLN reference laboratories began diagnostic testing for the current outbreak using PCR assays capable of detecting a wide range of coronaviruses, including zoonotic and novel pathogens. A number of these were mapped against the promulgated Chinese nucleic acid sequence of SARS-CoV-2 early in the course of the outbreak. Nucleic acid sequencing of amplicons from positive tests is used to identify the coronavirus in this approach. These assays have relatively long turnaround times and have largely been replaced by RT-PCR other than in a confirmatory role in some laboratories.

Complementary DNA (cDNA) synthesized from the VIDRL SARS-CoV-2 has now been made available to all PHLN member laboratories as a test positive control. Synthetic positive control material in the form of nucleic acid templates is also available through WHO/ European Viral Archive (EVAg).

Testing algorithms are likely to be revised pending further information about the virus, and the number of specimens received in the laboratory for testing.

Viral culture should not be performed for routine diagnosis, and should only be attempted in reference laboratories with appropriate experience and containment facilities. Currently where attempted this is being done at Physical Containment Level 3 (PC3), consistent with current recommendations for SARS-CoV, pending specific SARS-CoV-2 international recommendations.

No Quality Assurance Program (QAP) is currently available internationally specific for SARS-CoV-2, although QAPs are available in Australia for respiratory viruses including coronaviruses other than 2019-nCoV. The RCPAQAP with Commonwealth support will introduce a SARS-CoV-2 specific QAP to supplement previously available SARS-CoV, MERS-CoV and other coronaviruses, during the first half of 2020.

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

These recommendations are intended for hospital personnel who enter a clinical space with COVID-19 patients, including wardspersons, food deliverers, cleaners, and clinical personnel.

Background:

Although Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) which causes COVID-19 has spread rapidly and widely in mainland China, there has been limited transmission elsewhere, i.e. containment precautions have been mostly successful to date. At the time of writing, the crude mortality (~2%) in China is based on laboratory confirmed cases; many milder cases are almost certainly not being tested and the mortality is likely to be lower. Most cases in Australia have been relatively mild but a small number of deaths has been reported outside of mainland China. While a number of healthcare-associated infections have been reported with COVID-19 (in healthcare workers and patients) – as occurred with SARS and MERS - the risk for COVID-19 is likely to be very low, when infection control precautions are adhered to correctly.

General principles:

- **Standard precautions, including hand hygiene (5 Moments)** for all patients with respiratory infections. Patients and staff should observe cough etiquette and respiratory hygiene,
- **Transmission-based precautions** for patients with suspected or confirmed COVID-19:
 - **Contact and droplet precautions** for **routine care** of patients.
 - **Contact and airborne precautions** for **aerosol generating procedures (AGPs)**.

Contact and droplet precautions:

Contact and droplet precautions can be safely used for routine patient care of inpatients with suspected or confirmed COVID-19 (see Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units for case definition)

- On presentation or admission to hospital the patient should be:
 - given a surgical mask to put on, and
 - placed in a single room (ensuring air does not circulate to other areas)
 - placed in a negative pressure room (in the event of AGPs being performed).
- If transfer outside the room is essential, the patient should wear a surgical mask during transfer and follow respiratory hygiene and cough etiquette.
- For most inpatient contacts between healthcare staff and patients the following PPE is safe and appropriate and should be put on before entering the patient's room:
 - long-sleeved gown
 - surgical mask
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- For hospitalised patients requiring frequent attendance by medical and nursing staff, a P2/N95 respirator should be considered for prolonged or very close contact.

Contact and airborne precautions for aerosol-generating procedures (AGPs) and care of clinically ill patients requiring high level/high volume hands-on contact outside of ICU:

- **Contact and airborne precautions should be used routinely for AGPs**, which include:
 - tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy (and bronchoalveolar lavage), high flow nasal oxygen
 - The use of nebulisers should be avoided and alternative medication administration devices (e.g. spacers) used.
- PPE for contact and airborne procedures should be put on before entering patients room:
 - long-sleeved gown
 - P2/N95 respirator (mask) – should be fit-checked with each use
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- P2/N95 respirators (mask) should be used only when required.
- Unless used correctly, i.e. with fit-checking, a P2/N95 respirator (mask) is unlikely to protect against airborne pathogen spread.
 - An air-tight seal may be difficult to achieve for people with facial hair. Fit checking with a range of P2/N95 respirators must occur to assess the most suitable one to achieve a protective seal. If a tight seal cannot be achieved, facial hair should be removed.

Care of critically ill patients in ICU

- Patients who require admission to ICU with severe COVID-19 are likely to have a high viral load, particularly in the lower respiratory tract
- **Contact and airborne precautions** (as above) are required for patient care and are adequate for most AGPs.
 - The risk of aerosol transmission is reduced once the patient is intubated with a closed ventilator circuit but there is a potential, but unknown, risk of transmission from other body fluids such as diarrhoeal stool or vomitus or inadvertent circuit disconnection
- If a health care professional is required to remain in the patient's room continuously for a long period (e.g. more than one hour), because of the need to perform multiple procedures, the use of a powered air purifying respirator (PAPR) may be considered for additional comfort and visibility. A number of different types of relatively lightweight, comfortable PAPRs are now available and should be used according to manufacturer's instructions. Only **PPE marked as reusable** should be reused, following **reprocessing** according to manufacturer's instructions, All other PPE must be disposed of after use.

ICU staff caring for patients with COVID-19 (or any other potentially serious infectious disease) should be trained in the correct use of PPE, including by an infection control professional. This also applies particularly to the use of PAPRs, if required. Particular care should be taken on removal of PAPR, which is associated with a risk of contamination.

Additional precautions:**Staff**

- A staff log for each room entry should be maintained, to allow monitoring of potential breaches of infection control and follow-up contacts, if necessary.

Disposal of PPE and other waste

- Waste should be disposed in the normal way for clinical waste
- All non-clinical waste is disposed of into general waste

Handling of linen

- Routine procedures for handling of infectious linen should be followed
- Visibly soiled linen should be placed in a (soluble) plastic bag inside a linen skip

Environmental cleaning of patient care areas

- Cleaners should observe contact and droplet precautions (as above).
- Frequently touched surfaces (such as doorknobs, bedrails, tabletops, light switches, patient handsets) in the patient's room should be cleaned daily.
- Terminal cleaning of all surfaces in the room (as above plus floor, ceiling, walls, blinds) should be performed after the patient is discharged.
- A combined cleaning and disinfection procedure should be used, either 2-step - detergent clean, followed by disinfectant; or 2-in-1 step - using a product that has both cleaning and disinfectant properties. Any hospital-grade, TGA-listed disinfectant that is commonly against norovirus is suitable, if used according to manufacturer's instructions.

Coronavirus Disease 2019 (COVID-19)

CDNA National Guidelines for Public Health Units

Revision history			
Version	Date	Revised by	Changes
1.16	04 March 2020	Communicable Diseases Network Australia	Inclusion of Aboriginal and Torres Strait Islander community advice in Special situations section.
1.15	03 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management.
1.14	02 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Risk stratification of countries, Contact management.
1.13	28 February 2020	Communicable Diseases Network Australia	Revised: Laboratory testing, isolation and restriction and Appendix A: laboratory testing information.
1.12	27 February 2020	Communicable Diseases Network Australia	Inclusion of Cambodia in the list of countries in the Person under investigation section.
1.11	26 February 2020	Communicable Diseases Network Australia	Inclusion of Italy in the list of countries in the Person Under Investigation section.
1.10	23 February 2020	Communicable Diseases Network Australia	Inclusion of South Korea and Iran in the list of countries in the Person Under Investigation section.
1.9	21 February 2020	Communicable Diseases Network Australia	Revised: case definition, infectious period, contact management, special situation (cruise ship). Specific changes are highlighted.
1.8	17 February 2020	Communicable Diseases Network Australia	Inclusion of statement reflecting that passengers of the Diamond Princess cruise meet the criteria for close contact.
1.7	15 February 2020	Communicable Diseases Network Australia	Revised case definition.
1.6	14 February 2020	Communicable Diseases Network Australia	Addition of Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19). Updated nomenclature.

1.5	7 February 2020	Communicable Diseases Network Australia	Inclusion of advice on release from isolation.
1.4	6 February 2020	Communicable Diseases Network Australia	Revised case definition and added rationale. Updated infection control advice throughout.
1.3	4 February 2020	Communicable Diseases Network Australia	Revised the case definition and use of the terms 'quarantine' and 'isolation'.
1.2	2 February 2020	Communicable Diseases Network Australia	Revised the case definition, close and casual contact definitions and added self-isolation guidance.
1.1	27 January 2020	Communicable Diseases Network Australia	Removed references to Wuhan and revised the case definition
1.0	23 January 2020	Communicable Diseases Network Australia	Developed by the 2019-nCoV Working Group

This document summarises interim recommendations for surveillance, infection control, laboratory testing and contact management for coronavirus disease 2019 (COVID-19). It is the first national guidance issued for COVID-19 and will be further developed into the Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units (COVID-19 SoNG).

It has been adapted from CDNA National Guidelines for Public Health Units MERS-CoV, utilising current CDC and WHO guidance, and is based on the current knowledge of the situation in mainland China and other countries, and experiences with SARS-CoV and MERS-CoV.

CDNA will review and update these recommendations as required as new information becomes available on the situation.

These interim Guidelines are to be used in the first instance whilst a Series of National Guidelines is being developed by the Communicable Diseases Network Australia (CDNA).

These interim guidelines capture the knowledge of experienced professionals, and provide guidance on best practise based upon the best available evidence at the time of completion.

Readers should not rely solely on the information contained within these Guidelines. Guideline information is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a health professional. Clinical judgement and discretion may be required in the interpretation and application of these guidelines.

The membership of the CDNA and the AHPPC, and the Commonwealth of Australia as represented by the Department of Health ('the Commonwealth'), do not warrant or represent that the information contained in these Guidelines is accurate, current or complete. The CDNA, the AHPPC and the Commonwealth do not accept any legal liability or responsibility for any loss, damages, costs or expenses incurred by the use of, or reliance on, or interpretation of, the information contained in these Guidelines.

Abbreviations and definitions

- COVID-19: coronavirus disease 2019. The name of the disease caused by the virus SARS-CoV-2, as agreed by the World Health Organization, the World Organization for Animal Health and the Food and Agriculture Organization of the United Nations. For more information, see the World Health Organization Director-General's remarks: <https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020>
- SARS-CoV-2: severe acute respiratory syndrome coronavirus 2. The formal name of the coronavirus which causes COVID-19, as determined by the International Committee on Taxonomy of Viruses. Previously, this coronavirus was commonly known as 'novel coronavirus 2019 (2019-nCoV)'. For more information see the International Committee on Taxonomy of Viruses manuscript: <https://www.biorxiv.org/content/10.1101/2020.02.07.937862v1.full.pdf>

1. Case definition

Confirmed case

A person who tests positive to a validated specific SARS-CoV-2 nucleic acid test or has the virus identified by electron microscopy or viral culture.

Suspect case

- A.** If the patient satisfies epidemiological and clinical criteria, they are classified as a suspect case.

Epidemiological criteria

- Travel to (including transit through) a country considered to pose a risk of transmission* in the 14 days before the onset of illness.

OR

- Close or casual contact (see [Contact definition](#) below) in 14 days before illness onset with a confirmed case of COVID-19.

Clinical criteria

- Fever.

OR

- Acute respiratory infection (e.g. shortness of breath or cough) with or without fever.

- B.** If the patient has severe community-acquired pneumonia (critically ill) and no other cause is identified, with or without recent international travel, they are classified as a suspect case.

- C.** If the patient has moderate or severe community-acquired pneumonia (hospitalised) and is a healthcare worker, with or without international travel, they are classified as a suspect case.

*Country transmission risk assessment

Higher risk:

Mainland China
Iran
Italy
South Korea

Moderate Risk:

Cambodia
Hong Kong
Indonesia

Japan
Singapore
Thailand

This list is based on the risk of the person having been exposed to COVID-19 due to travel to a country with sustained community transmission and/or based on the patterns of travel between those countries and Australia, and/or the other epidemiological evidence.

Rationale for current case definitions

The case definitions are based on what is currently known about the clinical and epidemiological profile of cases of COVID-19 presenting to date both in Australia and internationally. Health authorities are constantly monitoring the spectrum of clinical symptoms as cases arise, and, if there are any significant shifts, they will be reflected in the above definitions in future versions of this document. The same monitoring and revision applies for epidemiological criteria as new areas of varying risk emerge outside mainland China.

The 14 day period is based upon what is currently known to be the upper time limit of the incubation period. As more precise information about the incubation period emerges, this will be reviewed.

2. Laboratory testing

Patients meeting the suspect case definition ([above](#)) should be tested for SARS-CoV-2. Where applicable, consult with your state/territory communicable diseases agency to seek advice on which laboratories can provide SARS-CoV-2 testing; appropriate specimen type, collection and transport; and also to facilitate contact management if indicated.

When collecting respiratory specimens, transmission-based precautions should be observed whether or not respiratory symptoms are present.

For most patients with mild illness in the community, collection of upper respiratory specimens (i.e. nasopharyngeal or oropharyngeal swabs) is a low risk procedure and can be performed using **contact and droplet precautions**:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield), and surgical mask.
- To collect throat or nasopharyngeal swab stand slightly to the side of the patient to avoid exposure to respiratory secretions, should the patient cough or sneeze.
- At completion of consultation, remove personal protective equipment (PPE) and perform hand hygiene, wipe any contacted/contaminated surfaces with detergent /disinfectant.
- Note that, for droplet precautions, the room does not need to be left empty after sample collection.

If the patient has severe symptoms suggestive of pneumonia, e.g. fever and breathing difficulty, or frequent, severe or productive coughing episodes then **contact and airborne precautions** should be observed.

Patients with these symptoms should be managed in hospital, and sample collection conducted in a negative pressure room, if available. If referral to hospital for specimen collection is not possible, specimens should be collected in a room from which air does not circulate to other areas. The door

should be closed during specimens collection and the room left vacant for at least 30 minutes afterwards (cleaning can be performed during this time by a person wearing PPE).

The following precautions should be observed:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield) and a **P2/N95 respirator – which should be fit checked.**
- At completion of consultation, remove gown and gloves, perform hand hygiene, remove eye protection and P2/N95 respirator. Do not touch the front of any item of PPE during removal; perform hand hygiene.
- The room surfaces should be wiped clean with disinfectant wipes by a person wearing gloves, gown and surgical mask.

For further information on circumstances requiring airborne precautions, see [aerosol generating procedures](#).

Routine tests for acute pneumonia/pneumonitis should be performed where indicated, including bacterial cultures, acute and convalescent serology, urinary antigen testing and nucleic acid tests for respiratory viruses, according to local protocols.

Serology for SARS-CoV-2 is not yet available. Collection of serum for storage by the SARS-CoV-2 testing laboratory is recommended to facilitate retrospective testing, if this is relevant, once serology tests become available.

See [Appendix A](#) for additional SARS-CoV-2 laboratory testing information.

3. Case management

Response times

On the same day as notification of a suspected or confirmed case, begin follow up investigation and, where applicable, notify your central state or territory communicable diseases agency.

PHU staff should be available to contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners.

Response procedure

Case investigation

The response to a notification will normally be carried out in collaboration with the clinicians managing the case, and be guided by the COVID-19 public health unit checklist and the COVID-19 investigation form (currently pending).

Regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend that tests be done.
- Seek the treating doctor's permission to contact the case or relevant care-giver.
- Determine if the diagnosis has been discussed with the case or relevant care-giver before beginning the interview.

- Review case and contact management.
- Ensure appropriate infection control guidelines are followed in caring for the case.
- Identify the likely source of infection.

Note: If interviews with suspected cases are conducted face-to-face, the person conducting the interview must have a thorough understanding of infection control practises and be competent in using appropriate PPE.

Case treatment

In the absence of pathogen-specific interventions, patient management largely depends on supportive treatment, and vigilance for and treatment of complications.

Further advice on clinical management is available from WHO: (https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2)

Education

Provide a COVID-19 factsheet to cases and their close contacts.

Ensure that they are aware of the signs and symptoms of COVID-19, the requirements of quarantine and isolation, contact details of the PHU and the infection control practises that can prevent the transmission of COVID-19.

Isolation and restriction

Cases will generally be managed in hospital. If clinically indicated, cases may be managed at home only if it can be ensured that the case and household contacts are counselled about risk and that appropriate infection control measures are in place.

Healthcare workers and others who come into contact with suspected and confirmed cases must be protected according to recommended infection control guidelines. Visitors should be restricted to close family members.

A risk assessment should be undertaken for suspected cases who initially test negative for SARS-CoV-2. If there is no alternative diagnosis and a high index of suspicion remains that such cases may have COVID-19, consideration should be given to continued isolation and use of the recommended infection control precautions, pending further testing (see [Laboratory testing section](#) and [Appendix A](#)) and re-assessment.

While recommendations on isolation and PPE for management of suspected and confirmed cases initially took a deliberately cautious approach, emerging evidence and expert advice now supports requirements commensurate with the risk in particular clinical circumstances.

In addition to standard precautions, interim recommendations for the use of PPE during clinical care of people with possible COVID-19 are:

- **Contact and droplet precautions** are recommended for **routine care** of patients in quarantine or with suspected or confirmed COVID-19.
- **Contact and airborne precautions** are recommended when performing **aerosol-generating procedures**, including intubation and bronchoscopy, and for care of **critically ill patients** (see [Appendix B](#) for further information).

Other recommended infection control measures include:

- When a patient who meets the suspect case definition presents to a healthcare setting (GP, hospital ED, or pathology collection centre) and whether or not respiratory symptoms are present, the patient should immediately be:
 - given a surgical mask to put on, and
 - directed to a single room. If the patient has severe symptoms suggestive of pneumonia, they should be directed to a negative pressure room, if available, or a room from which the air does not circulate to other areas.
- If a patient with confirmed COVID-19 needs to be transferred out of their isolation room, the patient should wear a “surgical” face mask and follow respiratory hygiene and cough etiquette.

Release from isolation

A confirmed case can be released from isolation if they meet all of the following criteria:

- the person has been afebrile for the previous 48 hours;
- resolution of the acute illness for the previous 24 hours¹;
- be at least 7 days after the onset of the acute illness;
- PCR negative on at least two consecutive respiratory specimens collected 24 hours apart after the acute illness has resolved^{2,3}.

¹Some people may have pre-existing illnesses with chronic respiratory signs or symptoms, such as chronic cough. For these people, the treating medical practitioner should make an assessment as to whether the signs and symptoms of COVID-19 have resolved.

²If the patient has a productive cough due to a pre-existing respiratory illness or other ongoing lower respiratory tract disease, then the sputum or other lower respiratory tract specimens must be PCR negative for SARS-CoV-2. Otherwise upper respiratory tract specimens (nasopharyngeal or nose and throat swabs) must be PCR negative.

³A small proportion of people may have an illness that has completely resolved but their respiratory specimens remain persistently PCR positive. A decision on release from isolation for these people should be made on a case-by-case basis after consultation between the person’s treating medical practitioner, the testing laboratory and public health. Results of viral culture, if available, may be included in this consideration.

Follow up should include the person being reviewed seven days after release from isolation for:

- clinical review to ensure full symptom resolution
- collection of a serum specimen for storage and possible later serologic testing (the person should be informed that this is for future test development and does not inform their clinical care).

Routine PCR testing at seven days after release is not recommended unless the person has clinical features consistent with COVID-19.

Aerosol-generating procedures

Appropriate care should be taken during aerosol-generating procedures. Aerosol-generating procedures include: tracheal intubation, non-invasive ventilation, tracheostomy, cardiopulmonary resuscitation, manual ventilation before intubation, bronchoscopy, and high flow nasal oxygen.

Collection of upper respiratory specimens is not generally regarded as aerosol generating, but airborne precautions should be used for collection of specimens from severely symptomatic patients (see [Laboratory testing section](#)).

P2/N95 respirators should be used only when required. Unless used correctly, i.e. with fit-checking, they are unlikely to protect against airborne pathogen spread.

Airborne precautions should be used routinely for aerosol-generating procedures, such as bronchoscopy, intubation, suctioning etc. in hospital settings. Nebuliser use should be discouraged and alternative administration devices (e.g. spacers) should be used.

The [Laboratory testing section](#) provides detailed information on sample collection for SARS-CoV-2.

Active case finding

Contacts (see [Contact management section](#)) should be identified and advised to immediately seek medical advice should they develop symptoms. Contacts or caregivers should be asked to also inform the public health agency if they develop symptoms.

4. Environmental evaluation

Where local transmission of COVID-19 is thought possible, a thorough review of contributing environmental factors should be done. This should include a review of infection control procedures, and opportunities for exposure to respiratory or faecal contamination.

If a case has had occupational exposure to animals it may be appropriate to consult with animal health authorities.

5. Infectious period

Infectious period of COVID-19 remains unknown, however there is some evidence to support the occurrence of pre-symptomatic or asymptomatic transmission (1). As a precautionary approach cases are considered to be infectious 24-hours prior to onset of symptoms. Cases are considered to pose a risk of onward transmission and require isolation until criteria listed in the [release from isolation section](#) have been met.

6. Contact management

As there remain gaps in the understanding of infectivity of COVID-19 cases and transmission modes, the definition of contacts and their public health management is based on available information on COVID-19 together with observations from similar serious coronaviruses – SARS-CoV and MERS-CoV. Distinction is made between close contacts and casual contacts.

Identification of contacts

All persons categorised as a contact (see definitions of “close contacts” and “casual contacts” following) of confirmed cases should be followed-up, and monitored for the development of symptoms for 14 days after the last exposure to the case (i.e. the maximum incubation period).

Contacts of suspected cases should also be considered for contact management if there is likely to be a delay in confirming or excluding COVID-19 in the suspected case, such as delayed testing

Close contact definition

A close contact is defined as requiring:

- greater than 15 minutes face-to-face contact in any setting with a confirmed case in the period extending from 24 hours before onset of symptoms in the confirmed case, or
- sharing of a closed space with a confirmed case for a prolonged period (e.g. more than 2 hours) in the period extending from 24 hours before onset of symptoms in the confirmed case.

For the purposes of surveillance, a close contact includes a person meeting any of the following criteria:

- Living in the same household or household-like setting (e.g. in a boarding school or hostel).
- Direct contact with the body fluids or laboratory specimens of a case without recommended PPE or failure of PPE.
- A person who spent 2 hours or longer in the same room (such as a GP or ED waiting room).
- A person in the same hospital room when an aerosol generating procedure is undertaken on the case, without recommended PPE.
- Aircraft passengers who were seated in the same row as the case, or in the two rows in front or two rows behind a confirmed COVID-19 case. Contact tracing of people who may have had close contact on long bus or train trips should also be attempted where possible, using similar seating/proximity criteria.
- All crew-members on an aircraft who worked in the same cabin area as a confirmed case of COVID-19. If a crew member is the COVID-19 case, contact tracing efforts should concentrate on passengers seated in the area where the crew member was working during the flight and all of the other members of the crew.
- Close contacts on cruise ships can be difficult to identify, and a case-by-case risk assessment should be conducted to identify which passengers and crew should be managed as close contacts. See [Special situations](#) for further information.

Contact needs to have occurred within the period extending 24 hours before onset of symptoms in the case until the case is classified as no longer infectious by the treating team (usually 24 hours after the resolution of symptoms).

Casual contact definition

Casual contact is defined as any person having less than 15 minutes face-to-face contact with a symptomatic confirmed case in any setting, or sharing a closed space with a symptomatic confirmed case for less than 2 hours. This will include healthcare workers, other patients, or visitors who were in the same closed healthcare space as a case, but for shorter periods than those required for a close contact. Other closed settings might include schools or offices.

Note that healthcare workers and other contacts who have taken recommended infection control precautions, including the use of full PPE, while caring for a symptomatic confirmed COVID-19 case are not considered to be close contacts. However, these people should be advised to self-monitor and if they develop symptoms consistent with COVID-19 they should isolate themselves and notify

their public health unit or staff health unit so they can be tested and managed as a suspected COVID-19 case (see recommendations below under Management of symptomatic contacts).

Other casual contacts may include:

- Extended family groups, e.g. in an Aboriginal community.
- Aircraft passengers who were not seated nearby a symptomatic confirmed case or a crew-member who did not work in the same cabin area as a symptomatic confirmed case (see close contact definition).
- Passengers and crew onboard the same cruise ship as a symptomatic confirmed case (or cases), who are not considered to be close contacts. See [Special situations](#) for further information.

Where resources permit, more active contact tracing may be extended to other persons who have had casual contact (as defined above), particularly in school, office or other closed settings. In these circumstances, the size of the room/space and degree of separation of the case from others should be considered in identifying contacts.

Returned Traveller definition

Returned travellers who, in the last 14 days, have left or transited through a [listed country](#) that is considered to pose an increased risk of transmission.

Within any risk category, different recommendations may apply in management. See detail below.

Contact assessment

All persons identified as having had contact with a confirmed case should be assessed to see if they should be classified as a close contact and have demographic and epidemiological data collected. Information on close contacts should be managed according to jurisdictional requirements.

Identification and assessment of the contacts of suspected cases may be deferred pending the results of initial laboratory testing.

Close contact testing

Routine laboratory screening for COVID-19 is not recommended for asymptomatic close contacts.

Prophylaxis

No specific chemoprophylaxis is available for contacts.

Education

Close contacts should be counselled about their risk and the symptoms of COVID-19 and provided with a COVID-19 factsheet. They should be advised to self-quarantine.

Quarantine and restriction

Close contacts

Asymptomatic close contacts should be advised to self-quarantine at home for 14 days following the last contact with the case, and to monitor their health for 14 days after the last possible contact with a confirmed COVID-19 case.

Public health units should conduct active daily monitoring of close contacts for symptoms for 14 days after the last possible contact with a confirmed COVID-19 case.

Self-quarantined close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Less frequent active follow-up together with passive surveillance may be necessary if there are large numbers of close contacts to monitor.

For the purpose of contact management, swabs are **not** indicated during quarantine in well people. A medical clearance from a health care provider is not required for release from quarantine or for other purposes such as returning to work, school or university.

Casual contacts

Casual contacts should monitor their health for 14 days and report any symptoms immediately to the local public health unit. There are no restrictions on movements; however, casual contacts should be advised to isolate themselves and contact the public health unit if they develop symptoms.

Returned travellers

Returned travellers who have travelled in or transited through **mainland China or Iran** should self-quarantine at home for 14 days after leaving the higher risk country. Self-quarantined returned travellers should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

All returned travellers who, in the last 14 days, have travelled in or transited through **the remaining countries considered to pose a risk of transmission** should self-monitor for symptoms, practise social distancing when outside the workplace and [immediately isolate themselves if they become unwell](#).

Social distancing is an effective measure, but it is recognised that it cannot be practised in all situations and the aim is to generally reduce the potential for transmission. Whilst practising social distancing, people can travel to work (including by public transport) and carry out normal duties. Social distancing outside the workplace is aimed at nonessential activities and includes:

- Avoiding crowds and mass gatherings
- Avoiding small gatherings in enclosed spaces, for example family celebrations.
- Attempting to keep a distance of 1.5 metres between themselves and other people where possible, for example when out and about in public spaces.

Returned travellers who, in the last 14 days, have travelled in or transited through **any of the countries considered to pose a risk of transmission who are unwell** with fever, or with respiratory symptoms (with or without fever) or other symptoms consistent with COVID-19 should be isolated and managed as per the current recommendations for suspected cases. Table 1 below summarises the recommendations for travellers returning from each at risk country by risk category.

Special risk settings

Healthcare workers (including in residential and aged care facilities)

Healthcare workers and other staff with close patient contact who work in hospitals or residential/aged care facilities should take additional precautions given they come into contact with a high case load of potentially vulnerable patients.

All healthcare workers should observe usual infection prevention and control practises in the workplace.

All healthcare workers and staff who have close patient contact in hospitals and/or residential/aged care facilities **who have returned from any higher risk country** should be advised not to undertake work in a health care or residential/aged care facility for 14 days since leaving the higher risk country. They should otherwise follow advice provided to other well returned travellers as above. Table 1 below summarises the recommendations for healthcare workers returning from each at risk country by risk category.

Table 1: Actions for travellers and healthcare workers returning from [countries considered to pose a risk of transmission](#).

Risk	Country	General actions	Action for Hospital and/or Residential/Aged Care facilities*
Higher risk	Mainland China	Self-quarantine for 14 days	No work for 14 days
	Iran		
Higher risk	Italy	Self-monitor for 14 days	No work for 14 days
	South Korea	Practise social distancing	
		Isolate if unwell	
Moderate risk	Cambodia	Self-monitor for 14 days	Can return to work if well
	Hong Kong	Practise social distancing	
	Indonesia	Isolate if unwell	
	Japan		
	Singapore		
	Thailand		

*People working in hospitals or aged/residential care facilities who have patient contact.

Healthcare workers who are close contacts (i.e. persons exposed while unprotected, as described in the [Contact definition section](#)) should be advised not to undertake work in a healthcare or residential/aged care facility for 14 days following the last possible contact with the case. They should also be advised to self-quarantine at home for 14 days following the last contact with the case.

Self-quarantined healthcare worker close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Public health units may assist infection control units of health facilities to identify and monitor healthcare worker close contacts.

It is recognised that clinical work restrictions on healthcare worker close contacts may place strain on individuals and on health services. This underlines the importance of ensuring healthcare workers implement appropriate infection control precautions when assessing and managing suspected, confirmed COVID-19 cases.

Aboriginal and Torres Strait Islander Communities

CDNA will continue to monitor the emerging evidence around COVID-19 transmission risks in healthcare settings and Aboriginal and Torres Strait Islander communities and revise these recommendations as needed. For further information, see section 7. [Special situations – Aboriginal and Torres Strait Islander Communities](#).

Medical care for quarantined individuals

If individuals under self-quarantine need to see a doctor for any reason (e.g. fever and respiratory symptoms or other illness/injury), they should **telephone their GP or hospital Emergency Department before presenting. Patients with severe symptoms should call 000 and make it clear they are in self-quarantine or isolation because of COVID-19.** If the patient has **symptoms consistent with the COVID-19 [case definition](#)**, the local public health unit should be consulted about the most suitable venue for clinical assessment and specimen collection.

Management of symptomatic contacts

If fever or respiratory symptoms, with or without fever, or other symptoms consistent with COVID-19 develop within the first 14 days following the last contact, PHU staff should arrange for the individual to be immediately isolated and managed as per the current recommendations for suspected COVID-19 cases, with urgent testing for COVID-19 undertaken in an environment which minimises the exposure of others.

Ill contacts who are being evaluated for COVID-19 can be appropriately isolated and managed at home, unless their condition is severe enough to require hospitalisation.

Symptomatic contacts who test negative for SARS-CoV-2 by PCR will still need to be monitored for 14 days after their last contact with a confirmed COVID-19 case and may require re-testing.

7. Special situations

Cruise ships

Risk assessment and identification of contacts

Classification of contacts on cruise ships with one or more confirmed cases of COVID-19 should be made on a case-by-case basis.

Hospital transfer of suspect or confirmed cases

If suspect or confirmed cases on board require transfer to a hospital, the Commonwealth Biosecurity Officer will notify the port authority to provide access for medical transport. The jurisdictional Human Biosecurity Officer will then coordinate transfer of the person to an appropriate medical facility for further management, via the most appropriate means that adheres to necessary precautions.

Quarantine for passengers and crew after arrival at a port

Self-quarantine at home should be recommended for close contacts where this is feasible (e.g. persons with a residence nearby) ensuring appropriate PPE precautions are employed during travel. For close contacts for whom this is not possible, matters of self-quarantine should be addressed jurisdictionally.

Disembarking and embarking

After all suspect and confirmed cases have been managed appropriately and the Human Biosecurity Officer has determined that no other passengers or crew have symptoms consistent with COVID-19, remaining passengers and crew will be allowed to disembark. The vessel may be permitted to commence embarking once it is certain there is no risk of ongoing transmission.

Aboriginal and Torres Strait Islander communities

Key drivers of increased risk of transmission and severity

- **Mobility:** Aboriginal and Torres Strait Islander peoples are highly mobile, with frequent travel often linked to family and cultural connections and community events involving long distances between cities, towns, and communities. In addition, remote communities have a high flow of visitors (e.g. tourists, fly-in fly-out clinicians and other workers). This increases the risk of transmission even in generally isolated communities.
- **Remoteness:** A fifth of the Aboriginal and Torres Strait Islander population lives in remote and very remote areas. There is often reduced access health services, these are usually at capacity in normal circumstances and are often reliant on temporary staff. Limited transport options may further inhibit presentations and delay laboratory testing.
- **Barriers to access:** Unwell people may present late in disease progression for many reasons including lack of availability of services, institutional racism, and mistrust of mainstream health services.
- **Overcrowding:** Many Aboriginal and Torres Strait Islander communities have insufficient housing infrastructure, which results in people living in overcrowded conditions. This facilitates disease transmission and makes it difficult for cases and contacts to maintain social distance measures and self-quarantine.
- **Burden of disease:** Aboriginal and Torres Strait Islander people experience a burden of disease 2.3 times the rate of other Australians. This may increase the risk of severe disease from SARS-CoV-2.

Key response strategies

- **Shared decision-making and governance:** Throughout all phases, COVID-19 response work should be collaborative to ensure local community leaders are central to the response. Further risk reduction strategies and public health responses should be co-developed, and co-designed, enabling Aboriginal and Torres Strait Islander people to contribute and fully participate in shared decision-making.
- **Social and cultural determinants of health:** Public health strategies should be considered within the context of a holistic approach that prioritises the safety and well-being of individuals, families and communities while acknowledging the centrality of culture, and the addressing racism, intergenerational trauma and other social determinants of health.
- **Community control:** The Aboriginal Community Controlled Health Services (ACCHS) sector provides a comprehensive model of culturally safe care with structured support

and governance systems. The network of ACCHS and peak bodies should be included in the response as a fundamental mechanism of engagement and communication.

- **Appropriate communication:** Messages should be strengths-based and encompass Aboriginal ways of living, including family-centred approaches during both prevention and control phases. They should address factors that may contribute to risk such as social determinants of health, including living arrangements and accessibility to services.
- **Flexible and responsive models of care:** Consider flexible health service delivery and healthcare models (e.g. pandemic assessment centres, flexible ACCHSs clinic hours/location with additional staffing, and home visits). Consider employing the use of point of care influenza tests, where available, to help determine whether influenza is implicated in presentations in the community.
- **Isolation and quarantine:** Families should feel empowered and be part of decision-making around quarantine. This can be achieved through exploring with families what quarantine looks like, working through how it might impact on the family and their way of living, and identifying ways around it. Family members will want to visit unwell people in hospital. It should be made clear that there are other ways to be with sick family members in hospital, maintain communication with families and communities in lieu of gatherings (e.g. staying socially connected through the internet and video calling).

8. References

1. Chang D, Xu H, Rebaza A, Sharma L, Dela Cruz CS. Protecting health-care workers from subclinical coronavirus infection. *Lancet Respir Med*. 2020.

9. Appendices

Appendix A: SARS-CoV-2 Laboratory testing information

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

Appendix A: SARS-CoV-2 Laboratory testing information

Laboratory testing for SARS-CoV-2 continues to evolve rapidly with the accumulation of clinical data, and as reagents and protocols are refined.

The aim of testing, if clinically appropriate, is to exclude common respiratory viruses using local hospital and community nucleic acid testing capacity, and to simultaneously refer onward to a laboratory with capacity to test for SARS-CoV-2. As co-infection is possible, initial testing protocols should include testing for SARS-CoV-2 in patients with epidemiological risk, even where another infection is shown to be present.

Samples for testing

- (i) upper respiratory tract samples
- (ii) lower respiratory tract sample if the lower tract is involved
- (iii) Serum (to be stored pending serology availability)

Upper respiratory tract samples

1. Nasopharyngeal swab and/ oropharyngeal swab, Dacron or Rayon, flocked preferred
 - nasopharyngeal: insert a flexible nasopharyngeal swab into one nostril and gently insert it along the floor of the nasal cavity parallel to the palate until resistance is encountered, rotate gently for 10-15 seconds, then withdraw and repeat the process in the other nostril with the same swab to absorb secretions
 - oropharyngeal (throat): swab the tonsillar beds and the back of the throat, avoiding the tongue
 - place swabs back into the accompanying transport media

As a minimum standard recommendation across all jurisdictions, a nasopharyngeal and an oropharyngeal swab should both be collected, and placed in transport medium, which may be viral transport medium (VTM) or Liquid Amies.

Details of practise above this minimum may vary between jurisdictions, e.g. pooling both swabs in a single container of transport medium; use of a single swab for collection of both nasopharyngeal and oropharyngeal samples; collection of two nasopharyngeal swabs and one oropharyngeal sample. Liaison with the jurisdiction's PHLN-member laboratory is recommended to obtain clarity on local variations.

If SARS-CoV-2 testing is to be undertaken in a different laboratory to testing for other respiratory viruses, then both nasopharyngeal and oropharyngeal samples should be forwarded for SARS-CoV-2 testing. Use of one swab for respiratory virus testing, and the other for SARS-CoV-2 testing is not recommended.

2. Nasal wash/aspirates

- collect 2-3 mL into a sterile, leak-proof, screw-top dry sterile container

A nasal wash or aspirate if available, may be substituted for the nasopharyngeal swab sample described above.

Lower respiratory tract samples (to be collected in hospital and/or using airborne precautions)**1. Sputum**

- patient should rinse his/her mouth with water before collection
- expectorate deep cough sputum directly into a sterile, leak-proof, screw-top dry sterile container

2. Bronchoalveolar lavage, tracheal aspirate, pleural fluid

- collect 2-3 mL into a sterile, leak-proof, screw-top sputum collection cup or dry sterile container

As lower respiratory tract specimens contain the highest viral loads in SARS-CoV and MERS-CoV, it is advised that lower respiratory tract specimens should be collected for SARS-CoV-2 testing where possible. Initial experience in testing for SARS-CoV-2 seems to be consistent with this prior experience. Repeat testing (especially of lower respiratory tract specimens) in clinically compatible cases should be performed if initial results are negative and there remains a high index of suspicion of infection.

Serology

Serum should be collected during the acute phase of the illness (preferably within the first 7 days of symptom onset), stored, and when serology testing becomes available tested in parallel with convalescent sera collected 3 or more weeks after acute infection. If no acute sample was collected, sera collected 14 or more days after symptom onset may be tested.

Specimen handling in the laboratory***Microbiology Laboratory***

Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment. Specimens should be transported in accordance with current regulatory requirements as diagnostic samples for testing.

Clinical Pathology

Standard precautions should be used for non-microbial pathology testing (such as routine biochemistry and haematology). Where possible auto-analysers should be used according to standard practises and/or local protocols. There is evidence that capping and uncapping of samples is not a high risk aerosol generating procedure.

Respiratory Virus Diagnostic Testing

Nucleic acid testing of the upper respiratory tract sample is performed for influenza and other common respiratory viruses using standard protocols and methods of the hospital or community laboratory.

Standard protocols of the testing laboratory for respiratory sample processing should be used. This is expected to consist of PC2 laboratory practises, and use of a Class II Biosafety cabinet for aerosol generating procedures (such as centrifuging without sealed carriers, vortexing, sonicating). Viral culture can only be undertaken in an accredited laboratory that has a PC3 facility.

The residue (original swab and remaining eluate) of the upper tract sample is forwarded together with the lower tract sample and the serum to the reference laboratory with SARS-CoV-2 testing capacity requesting SARS-CoV-2 testing.

Clinical liaison with jurisdictional public health officers is essential to coordinate referral & testing.

Standard protocols should be used for sample packaging and transport as diagnostic samples for testing (i.e. Category B).

SARS-CoV-2 specific testing

Nucleic acid testing (NAT) using real time polymerase chain reaction (RT-PCR) is the method of choice for detection of SARS-CoV-2. Specific diagnostic test approaches for SARS-CoV-2 will be described here only in broad terms. There is significant variation in PCR assays employed by different PHLN member laboratories, and test algorithms are likely to be further refined over time.

Specific Real Time PCR primer sets to detect SARS-CoV-2 are available. Some PHLN member laboratories have designed their own, and some have implemented primer sets recommended to the World Health Organization (WHO) by leading international coronavirus reference laboratories (available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance>). The majority of PHLN testing capacity now employs relatively swift RT-PCR assays for screening, with a turnaround time of several hours. Confirmation of positives is being done either with RT-PCR assays detecting a different target gene, or broadly reactive PCR tests with sequencing of amplicons (see below).

Well pedigreed PCR primer sets, probes and protocols are available from the WHO/ European Viral Archive (EVAg) (available at: https://www.who.int/docs/default-source/coronaviruse/protocol-v2-1.pdf?sfvrsn=a9ef618c_2).

Many PCR assays, including those available through WHO will also detect other zoonotic coronaviruses such as SARS-CoV, sometimes with a recognisable shift in the cycle threshold value (Ct) compared to the SARS-CoV-2 target, but not commonly circulating coronaviruses usually detected by commercial assays (eg NL63, 229E strains).

Several Australian PHLN reference laboratories began diagnostic testing for the current outbreak using PCR assays capable of detecting a wide range of coronaviruses, including zoonotic and novel pathogens. A number of these were mapped against the promulgated Chinese nucleic acid sequence of SARS-CoV-2 early in the course of the outbreak. Nucleic acid sequencing of amplicons from positive tests is used to identify the coronavirus in this approach. These assays have relatively long turnaround times and have largely been replaced by RT-PCR other than in a confirmatory role in some laboratories.

Complementary DNA (cDNA) synthesized from the VIDRL SARS-CoV-2 has now been made available to all PHLN member laboratories as a test positive control. Synthetic positive control material in the form of nucleic acid templates is also available through WHO/ European Viral Archive (EVAg).

Testing algorithms are likely to be revised pending further information about the virus, and the number of specimens received in the laboratory for testing.

Viral culture should not be performed for routine diagnosis, and should only be attempted in reference laboratories with appropriate experience and containment facilities. Currently where attempted this is being done at Physical Containment Level 3 (PC3), consistent with current recommendations for SARS-CoV, pending specific SARS-CoV-2 international recommendations.

No Quality Assurance Program (QAP) is currently available internationally specific for SARS-CoV-2, although QAPs are available in Australia for respiratory viruses including coronaviruses other than 2019-nCoV. The RCPAQAP with Commonwealth support will introduce a SARS-CoV-2 specific QAP to supplement previously available SARS-CoV, MERS-CoV and other coronaviruses, during the first half of 2020.

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

These recommendations are intended for hospital personnel who enter a clinical space with COVID-19 patients, including wardspersons, food deliverers, cleaners, and clinical personnel.

Background:

Although Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) which causes COVID-19 has spread rapidly and widely in mainland China, there has been limited transmission elsewhere, i.e. containment precautions have been mostly successful to date. At the time of writing, the crude mortality (~2%) in China is based on laboratory confirmed cases; many milder cases are almost certainly not being tested and the mortality is likely to be lower. Most cases in Australia have been relatively mild but a small number of deaths has been reported outside of mainland China. While a number of healthcare-associated infections have been reported with COVID-19 (in healthcare workers and patients) – as occurred with SARS and MERS - the risk for COVID-19 is likely to be very low, when infection control precautions are adhered to correctly.

General principles:

- **Standard precautions, including hand hygiene (5 Moments)** for all patients with respiratory infections. Patients and staff should observe cough etiquette and respiratory hygiene,
- **Transmission-based precautions** for patients with suspected or confirmed COVID-19:
 - **Contact and droplet precautions** for **routine care** of patients.
 - **Contact and airborne precautions** for **aerosol generating procedures (AGPs)**.

Contact and droplet precautions:

Contact and droplet precautions can be safely used for routine patient care of inpatients with suspected or confirmed COVID-19 (see Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units for case definition)

- On presentation or admission to hospital the patient should be:
 - given a surgical mask to put on, and
 - placed in a single room (ensuring air does not circulate to other areas)
 - placed in a negative pressure room (in the event of AGPs being performed).
- If transfer outside the room is essential, the patient should wear a surgical mask during transfer and follow respiratory hygiene and cough etiquette.
- For most inpatient contacts between healthcare staff and patients the following PPE is safe and appropriate and should be put on before entering the patient's room:
 - long-sleeved gown
 - surgical mask
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- For hospitalised patients requiring frequent attendance by medical and nursing staff, a P2/N95 respirator should be considered for prolonged or very close contact.

Contact and airborne precautions for aerosol-generating procedures (AGPs) and care of clinically ill patients requiring high level/high volume hands-on contact outside of ICU:

- **Contact and airborne precautions should be used routinely for AGPs**, which include:
 - tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy (and bronchoalveolar lavage), high flow nasal oxygen
 - The use of nebulisers should be avoided and alternative medication administration devices (e.g. spacers) used.
- PPE for contact and airborne procedures should be put on before entering patients room:
 - long-sleeved gown
 - P2/N95 respirator (mask) – should be fit-checked with each use
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- P2/N95 respirators (mask) should be used only when required.
- Unless used correctly, i.e. with fit-checking, a P2/N95 respirator (mask) is unlikely to protect against airborne pathogen spread.
 - An air-tight seal may be difficult to achieve for people with facial hair. Fit checking with a range of P2/N95 respirators must occur to assess the most suitable one to achieve a protective seal. If a tight seal cannot be achieved, facial hair should be removed.

Care of critically ill patients in ICU

- Patients who require admission to ICU with severe COVID-19 are likely to have a high viral load, particularly in the lower respiratory tract
- **Contact and airborne precautions** (as above) are required for patient care and are adequate for most AGPs.
 - The risk of aerosol transmission is reduced once the patient is intubated with a closed ventilator circuit but there is a potential, but unknown, risk of transmission from other body fluids such as diarrhoeal stool or vomitus or inadvertent circuit disconnection
- If a health care professional is required to remain in the patient's room continuously for a long period (e.g. more than one hour), because of the need to perform multiple procedures, the use of a powered air purifying respirator (PAPR) may be considered for additional comfort and visibility. A number of different types of relatively lightweight, comfortable PAPRs are now available and should be used according to manufacturer's instructions. Only **PPE marked as reusable** should be reused, following **reprocessing** according to manufacturer's instructions, All other PPE must be disposed of after use.

ICU staff caring for patients with COVID-19 (or any other potentially serious infectious disease) should be trained in the correct use of PPE, including by an infection control professional. This also applies particularly to the use of PAPRs, if required. Particular care should be taken on removal of PAPR, which is associated with a risk of contamination.

Additional precautions:**Staff**

- A staff log for each room entry should be maintained, to allow monitoring of potential breaches of infection control and follow-up contacts, if necessary.

Disposal of PPE and other waste

- Waste should be disposed in the normal way for clinical waste
- All non-clinical waste is disposed of into general waste

Handling of linen

- Routine procedures for handling of infectious linen should be followed
- Visibly soiled linen should be placed in a (soluble) plastic bag inside a linen skip

Environmental cleaning of patient care areas

- Cleaners should observe contact and droplet precautions (as above).
- Frequently touched surfaces (such as doorknobs, bedrails, tabletops, light switches, patient handsets) in the patient's room should be cleaned daily.
- Terminal cleaning of all surfaces in the room (as above plus floor, ceiling, walls, blinds) should be performed after the patient is discharged.
- A combined cleaning and disinfection procedure should be used, either 2-step - detergent clean, followed by disinfectant; or 2-in-1 step - using a product that has both cleaning and disinfectant properties. Any hospital-grade, TGA-listed disinfectant that is commonly against norovirus is suitable, if used according to manufacturer's instructions.

Coronavirus Disease 2019 (COVID-19)

CDNA National Guidelines for Public Health Units

Revision history			
Version	Date	Revised by	Changes
1.17	05 March 2020	Communicable Diseases Network Australia	Inclusion of self-quarantine advice for returned travellers from South Korea, revised Case management, inclusion of table of contents.
1.16	04 March 2020	Communicable Diseases Network Australia	Inclusion of Aboriginal and Torres Strait Islander community advice in Special situations section.
1.15	03 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management.
1.14	02 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Risk stratification of countries, Contact management.
1.13	28 February 2020	Communicable Diseases Network Australia	Revised: Laboratory testing, isolation and restriction and Appendix A: laboratory testing information.
1.12	27 February 2020	Communicable Diseases Network Australia	Inclusion of Cambodia in the list of countries in the Person under investigation section.
1.11	26 February 2020	Communicable Diseases Network Australia	Inclusion of Italy in the list of countries in the Person Under Investigation section.
1.10	23 February 2020	Communicable Diseases Network Australia	Inclusion of South Korea and Iran in the list of countries in the Person Under Investigation section.
1.9	21 February 2020	Communicable Diseases Network Australia	Revised: case definition, infectious period, contact management, special situation (cruise ship). Specific changes are highlighted.
1.8	17 February 2020	Communicable Diseases Network Australia	Inclusion of statement reflecting that passengers of the Diamond Princess cruise meet the criteria for close contact.
1.7	15 February 2020	Communicable Diseases Network Australia	Revised case definition.
1.6	14 February 2020	Communicable Diseases Network Australia	Addition of Appendix B: Interim recommendations for the use of personal protective equipment

			(PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19). Updated nomenclature.
1.5	7 February 2020	Communicable Diseases Network Australia	Inclusion of advice on release from isolation.
1.4	6 February 2020	Communicable Diseases Network Australia	Revised case definition and added rationale. Updated infection control advice throughout.
1.3	4 February 2020	Communicable Diseases Network Australia	Revised the case definition and use of the terms 'quarantine' and 'isolation'.
1.2	2 February 2020	Communicable Diseases Network Australia	Revised the case definition, close and casual contact definitions and added self-isolation guidance.
1.1	27 January 2020	Communicable Diseases Network Australia	Removed references to Wuhan and revised the case definition
1.0	23 January 2020	Communicable Diseases Network Australia	Developed by the 2019-nCoV Working Group

This document summarises interim recommendations for surveillance, infection control, laboratory testing and contact management for coronavirus disease 2019 (COVID-19). It is the first national guidance issued for COVID-19 and will be further developed into the Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units (COVID-19 SoNG).

It has been adapted from CDNA National Guidelines for Public Health Units MERS-CoV, utilising current CDC and WHO guidance, and is based on the current knowledge of the situation in mainland China and other countries, and experiences with SARS-CoV and MERS-CoV.

CDNA will review and update these recommendations as required as new information becomes available on the situation.

These interim Guidelines are to be used in the first instance whilst a Series of National Guidelines is being developed by the Communicable Diseases Network Australia (CDNA).

These interim guidelines capture the knowledge of experienced professionals, and provide guidance on best practise based upon the best available evidence at the time of completion.

Readers should not rely solely on the information contained within these Guidelines. Guideline information is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a health professional. Clinical judgement and discretion may be required in the interpretation and application of these guidelines.

The membership of the CDNA and the AHPPC, and the Commonwealth of Australia as represented by the Department of Health ('the Commonwealth'), do not warrant or represent that the information contained in these Guidelines is accurate, current or complete. The CDNA, the AHPPC and the Commonwealth do not accept any legal liability or responsibility for any loss, damages, costs or

expenses incurred by the use of, or reliance on, or interpretation of, the information contained in these Guidelines.

Abbreviations and definitions

- COVID-19: coronavirus disease 2019. The name of the disease caused by the virus SARS-CoV-2, as agreed by the World Health Organization, the World Organization for Animal Health and the Food and Agriculture Organization of the United Nations. For more information, see the World Health Organization Director-General's remarks: <https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020>
- SARS-CoV-2: severe acute respiratory syndrome coronavirus 2. The formal name of the coronavirus which causes COVID-19, as determined by the International Committee on Taxonomy of Viruses. Previously, this coronavirus was commonly known as 'novel coronavirus 2019 (2019-nCoV)'. For more information see the International Committee on Taxonomy of Viruses manuscript: <https://www.biorxiv.org/content/10.1101/2020.02.07.937862v1.full.pdf>

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1. Case definition

Confirmed case

A person who tests positive to a validated specific SARS-CoV-2 nucleic acid test or has the virus identified by electron microscopy or viral culture.

Suspect case

- A.** If the patient satisfies epidemiological and clinical criteria, they are classified as a suspect case.

Epidemiological criteria

- Travel to (including transit through) a country considered to pose a risk of transmission* in the 14 days before the onset of illness.

OR

- Close or casual contact (see [Contact definition](#) below) in 14 days before illness onset with a confirmed case of COVID-19.

Clinical criteria

- Fever.

OR

- Acute respiratory infection (e.g. shortness of breath or cough) with or without fever.

- B.** If the patient has severe community-acquired pneumonia (critically ill) and no other cause is identified, with or without recent international travel, they are classified as a suspect case.

- C.** If the patient has moderate or severe community-acquired pneumonia (hospitalised) and is a healthcare worker, with or without international travel, they are classified as a suspect case.

*Country transmission risk assessment

Higher risk:

Mainland China
Iran
Italy
South Korea

Moderate Risk:

Cambodia
Hong Kong
Indonesia

Japan
Singapore
Thailand

This list is based on the risk of the person having been exposed to COVID-19 due to travel to a country with sustained community transmission and/or based on the patterns of travel between those countries and Australia, and/or the other epidemiological evidence.

Rationale for current case definitions

The case definitions are based on what is currently known about the clinical and epidemiological profile of cases of COVID-19 presenting to date both in Australia and internationally. Health authorities are constantly monitoring the spectrum of clinical symptoms as cases arise, and, if there are any significant shifts, they will be reflected in the above definitions in future versions of this document. The same monitoring and revision applies for epidemiological criteria as new areas of varying risk emerge outside mainland China.

The 14 day period is based upon what is currently known to be the upper time limit of the incubation period. As more precise information about the incubation period emerges, this will be reviewed.

2. Laboratory testing

Patients meeting the suspect case definition ([above](#)) should be tested for SARS-CoV-2. Where applicable, consult with your state/territory communicable diseases agency to seek advice on which laboratories can provide SARS-CoV-2 testing; appropriate specimen type, collection and transport; and also to facilitate contact management if indicated.

When collecting respiratory specimens, transmission-based precautions should be observed whether or not respiratory symptoms are present.

For most patients with mild illness in the community, collection of upper respiratory specimens (i.e. nasopharyngeal or oropharyngeal swabs) is a low risk procedure and can be performed using **contact and droplet precautions**:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield), and surgical mask.
- To collect throat or nasopharyngeal swab stand slightly to the side of the patient to avoid exposure to respiratory secretions, should the patient cough or sneeze.
- At completion of consultation, remove personal protective equipment (PPE) and perform hand hygiene, wipe any contacted/contaminated surfaces with detergent /disinfectant.
- Note that, for droplet precautions, the room does not need to be left empty after sample collection.

If the patient has severe symptoms suggestive of pneumonia, e.g. fever and breathing difficulty, or frequent, severe or productive coughing episodes then **contact and airborne precautions** should be observed.

Patients with these symptoms should be managed in hospital, and sample collection conducted in a negative pressure room, if available. If referral to hospital for specimen collection is not possible, specimens should be collected in a room from which air does not circulate to other areas. The door

should be closed during specimens collection and the room left vacant for at least 30 minutes afterwards (cleaning can be performed during this time by a person wearing PPE).

The following precautions should be observed:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield) and a **P2/N95 respirator – which should be fit checked.**
- At completion of consultation, remove gown and gloves, perform hand hygiene, remove eye protection and P2/N95 respirator. Do not touch the front of any item of PPE during removal; perform hand hygiene.
- The room surfaces should be wiped clean with disinfectant wipes by a person wearing gloves, gown and surgical mask.

For further information on circumstances requiring airborne precautions, see [aerosol generating procedures](#).

Routine tests for acute pneumonia/pneumonitis should be performed where indicated, including bacterial cultures, acute and convalescent serology, urinary antigen testing and nucleic acid tests for respiratory viruses, according to local protocols.

Serology for SARS-CoV-2 is not yet available. Collection of serum for storage by the SARS-CoV-2 testing laboratory is recommended to facilitate retrospective testing, if this is relevant, once serology tests become available.

See [Appendix A](#) for additional SARS-CoV-2 laboratory testing information.

3. Case management

Response times

On the same day as notification of a suspected or confirmed case, begin follow up investigation and, where applicable, notify your central state or territory communicable diseases agency.

PHU staff should be available to contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners.

Response procedure

Case investigation

The response to a notification will normally be carried out in collaboration with the clinicians managing the case, and be guided by the COVID-19 public health unit checklist and the COVID-19 investigation form (currently pending).

Regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend that tests be done.
- Seek the treating doctor's permission to contact the case or relevant care-giver.
- Determine if the diagnosis has been discussed with the case or relevant care-giver before beginning the interview.

- Review case and contact management.
- Ensure appropriate infection control guidelines are followed in caring for the case.
- Identify the likely source of infection.

Note: If interviews with suspected cases are conducted face-to-face, the person conducting the interview must have a thorough understanding of infection control practises and be competent in using appropriate PPE.

Case treatment

In the absence of pathogen-specific interventions, patient management largely depends on supportive treatment, and vigilance for and treatment of complications.

Further advice on clinical management is available from WHO: (https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2)

Education

Provide a COVID-19 factsheet to cases and their close contacts.

Ensure that they are aware of the signs and symptoms of COVID-19, the requirements of quarantine and isolation, contact details of the PHU and the infection control practises that can prevent the transmission of COVID-19.

Isolation and restriction

Cases will generally be managed in hospital. If clinically indicated, cases may be managed at home only if it can be ensured that the case and household contacts are counselled about risk and that appropriate infection control measures are in place.

Healthcare workers and others who come into contact with suspected and confirmed cases must be protected according to recommended infection control guidelines. Visitors should be restricted to close family members.

A risk assessment should be undertaken for suspected cases who initially test negative for SARS-CoV-2. If there is no alternative diagnosis and a high index of suspicion remains that such cases may have COVID-19, consideration should be given to continued isolation and use of the recommended infection control precautions, pending further testing (see [Laboratory testing section](#) and [Appendix A](#)) and re-assessment.

While recommendations on isolation and PPE for management of suspected and confirmed cases initially took a deliberately cautious approach, emerging evidence and expert advice now supports requirements commensurate with the risk in particular clinical circumstances.

In addition to standard precautions, interim recommendations for the use of PPE during clinical care of people with possible COVID-19 are:

- **Contact and droplet precautions** are recommended for **routine care** of patients in quarantine or with suspected or confirmed COVID-19.
- **Contact and airborne precautions** are recommended when performing **aerosol-generating procedures**, including intubation and bronchoscopy, and for care of **critically ill patients** (see [Appendix B](#) for further information).

Other recommended infection control measures include:

- When a patient who meets the suspect case definition presents to a healthcare setting (GP, hospital ED, or pathology collection centre) and whether or not respiratory symptoms are present, the patient should immediately be:
 - given a surgical mask to put on, and
 - directed to a single room. If the patient has severe symptoms suggestive of pneumonia, they should be directed to a negative pressure room, if available, or a room from which the air does not circulate to other areas.
- If a patient with confirmed COVID-19 needs to be transferred out of their isolation room, the patient should wear a “surgical” face mask and follow respiratory hygiene and cough etiquette.

Release from isolation

A confirmed case can be released from isolation if they meet all of the following criteria:

- the person has been afebrile for the previous 48 hours;
- resolution of the acute illness for the previous 24 hours¹;
- be at least 7 days after the onset of the acute illness;
- PCR negative on at least two consecutive respiratory specimens collected 24 hours apart after the acute illness has resolved^{2,3}.

¹Some people may have pre-existing illnesses with chronic respiratory signs or symptoms, such as chronic cough. For these people, the treating medical practitioner should make an assessment as to whether the signs and symptoms of COVID-19 have resolved.

²If the patient has a productive cough due to a pre-existing respiratory illness or other ongoing lower respiratory tract disease, then the sputum or other lower respiratory tract specimens must be PCR negative for SARS-CoV-2. Otherwise upper respiratory tract specimens (nasopharyngeal or nose and throat swabs) must be PCR negative.

³A small proportion of people may have an illness that has completely resolved but their respiratory specimens remain persistently PCR positive. A decision on release from isolation for these people should be made on a case-by-case basis after consultation between the person’s treating medical practitioner, the testing laboratory and public health. Results of viral culture, if available, may be included in this consideration.

Follow up should include the person being reviewed seven days after release from isolation for:

- clinical review to ensure full symptom resolution
- collection of a serum specimen for storage and possible later serologic testing (the person should be informed that this is for future test development and does not inform their clinical care).

Routine PCR testing at seven days after release is not recommended unless the person has clinical features consistent with COVID-19.

For cases who remain persistently PCR positive in faecal samples after all the release from isolation criteria (above) are met, further or extended precautions and exclusions should be implemented on a case-by-case basis:

- All cases with diarrhoea should be advised not to prepare food for others until 48 hours after symptoms have resolved.
- Cases who have employment that may pose an increased risk of onward transmission (e.g. healthcare workers, restaurant workers and food handlers), should be excluded from work until 48 hours after any symptoms of diarrhoea have resolved.
- Cases with ongoing diarrhoea or faecal incontinence who may have limited capacity to maintain standards of personal hygiene should continue to be isolated until 48 hours after the resolution of these symptoms.

It is recommended that people who are persistently PCR positive in their faeces use soap and water for hand hygiene. If this is unavailable, alcohol hand gel should be used. Education emphasising the importance of proper hand hygiene should be provided to **all** cases upon release from isolation.

Aerosol-generating procedures

Appropriate care should be taken during aerosol-generating procedures. Aerosol-generating procedures include: tracheal intubation, non-invasive ventilation, tracheostomy, cardiopulmonary resuscitation, manual ventilation before intubation, bronchoscopy, and high flow nasal oxygen. Collection of upper respiratory specimens is not generally regarded as aerosol generating, but airborne precautions should be used for collection of specimens from severely symptomatic patients (see [Laboratory testing section](#)).

P2/N95 respirators should be used only when required. Unless used correctly, i.e. with fit-checking, they are unlikely to protect against airborne pathogen spread.

Airborne precautions should be used routinely for aerosol-generating procedures, such as bronchoscopy, intubation, suctioning etc. in hospital settings. Nebuliser use should be discouraged and alternative administration devices (e.g. spacers) should be used.

The [Laboratory testing section](#) provides detailed information on sample collection for SARS-CoV-2.

Active case finding

Contacts (see [Contact management section](#)) should be identified and advised to immediately seek medical advice should they develop symptoms. Contacts or caregivers should be asked to also inform the public health agency if they develop symptoms.

4. Environmental evaluation

Where local transmission of COVID-19 is thought possible, a thorough review of contributing environmental factors should be done. This should include a review of infection control procedures, and opportunities for exposure to respiratory or faecal contamination.

If a case has had occupational exposure to animals it may be appropriate to consult with animal health authorities.

6. Infectious period

Infectious period of COVID-19 remains unknown, however there is some evidence to support the occurrence of pre-symptomatic or asymptomatic transmission (1). As a precautionary approach cases are considered to be infectious 24-hours prior to onset of symptoms. Cases are considered to pose a risk of onward transmission and require isolation until criteria listed in the [release from isolation section](#) have been met.

7. Contact management

As there remain gaps in the understanding of infectivity of COVID-19 cases and transmission modes, the definition of contacts and their public health management is based on available information on COVID-19 together with observations from similar serious coronaviruses – SARS-CoV and MERS-CoV. Distinction is made between close contacts and casual contacts.

Identification of contacts

All persons categorised as a contact (see definitions of “close contacts” and “casual contacts” following) of confirmed cases should be followed-up, and monitored for the development of symptoms for 14 days after the last exposure to the case (i.e. the maximum incubation period).

Contacts of suspected cases should also be considered for contact management if there is likely to be a delay in confirming or excluding COVID-19 in the suspected case, such as delayed testing

Close contact definition

A close contact is defined as requiring:

- greater than 15 minutes face-to-face contact in any setting with a confirmed case in the period extending from 24 hours before onset of symptoms in the confirmed case, or
- sharing of a closed space with a confirmed case for a prolonged period (e.g. more than 2 hours) in the period extending from 24 hours before onset of symptoms in the confirmed case.

For the purposes of surveillance, a close contact includes a person meeting any of the following criteria:

- Living in the same household or household-like setting (e.g. in a boarding school or hostel).
- Direct contact with the body fluids or laboratory specimens of a case without recommended PPE or failure of PPE.
- A person who spent 2 hours or longer in the same room (such as a GP or ED waiting room).
- A person in the same hospital room when an aerosol generating procedure is undertaken on the case, without recommended PPE.
- Aircraft passengers who were seated in the same row as the case, or in the two rows in front or two rows behind a confirmed COVID-19 case. Contact tracing of people who may have had close contact on long bus or train trips should also be attempted where possible, using similar seating/proximity criteria.
- All crew-members on an aircraft who worked in the same cabin area as a confirmed case of COVID-19. If a crew member is the COVID-19 case, contact tracing efforts should

concentrate on passengers seated in the area where the crew member was working during the flight and all of the other members of the crew.

- Close contacts on cruise ships can be difficult to identify, and a case-by-case risk assessment should be conducted to identify which passengers and crew should be managed as close contacts. See [Special situations](#) for further information.

Contact needs to have occurred within the period extending 24 hours before onset of symptoms in the case until the case is classified as no longer infectious by the treating team (usually 24 hours after the resolution of symptoms).

Casual contact definition

Casual contact is defined as any person having less than 15 minutes face-to-face contact with a symptomatic confirmed case in any setting, or sharing a closed space with a symptomatic confirmed case for less than 2 hours. This will include healthcare workers, other patients, or visitors who were in the same closed healthcare space as a case, but for shorter periods than those required for a close contact. Other closed settings might include schools or offices.

Note that healthcare workers and other contacts who have taken recommended infection control precautions, including the use of full PPE, while caring for a symptomatic confirmed COVID-19 case are not considered to be close contacts. However, these people should be advised to self-monitor and if they develop symptoms consistent with COVID-19 they should isolate themselves and notify their public health unit or staff health unit so they can be tested and managed as a suspected COVID-19 case (see recommendations below under Management of symptomatic contacts).

Other casual contacts may include:

- Extended family groups, e.g. in an Aboriginal community.
- Aircraft passengers who were not seated nearby a symptomatic confirmed case or a crew-member who did not work in the same cabin area as a symptomatic confirmed case (see close contact definition).
- Passengers and crew onboard the same cruise ship as a symptomatic confirmed case (or cases), who are not considered to be close contacts. See [Special situations](#) for further information.

Where resources permit, more active contact tracing may be extended to other persons who have had casual contact (as defined above), particularly in school, office or other closed settings. In these circumstances, the size of the room/space and degree of separation of the case from others should be considered in identifying contacts.

Returned Traveller definition

Returned travellers who, in the last 14 days, have left or transited through a [listed country](#) that is considered to pose an increased risk of transmission.

Within any risk category, different recommendations may apply in management. See detail below.

Contact assessment

All persons identified as having had contact with a confirmed case should be assessed to see if they should be classified as a close contact and have demographic and epidemiological data collected. Information on close contacts should be managed according to jurisdictional requirements.

Identification and assessment of the contacts of suspected cases may be deferred pending the results of initial laboratory testing.

Close contact testing

Routine laboratory screening for COVID-19 is not recommended for asymptomatic close contacts.

Prophylaxis

No specific chemoprophylaxis is available for contacts.

Education

Close contacts should be counselled about their risk and the symptoms of COVID-19 and provided with a COVID-19 factsheet. They should be advised to self-quarantine.

Quarantine and restriction

Close contacts

Asymptomatic close contacts should be advised to self-quarantine at home for 14 days following the last contact with the case, and to monitor their health for 14 days after the last possible contact with a confirmed COVID-19 case.

Public health units should conduct active daily monitoring of close contacts for symptoms for 14 days after the last possible contact with a confirmed COVID-19 case.

Self-quarantined close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Less frequent active follow-up together with passive surveillance may be necessary if there are large numbers of close contacts to monitor.

For the purpose of contact management, swabs are **not** indicated during quarantine in well people. A medical clearance from a health care provider is not required for release from quarantine or for other purposes such as returning to work, school or university.

Casual contacts

Casual contacts should monitor their health for 14 days and report any symptoms immediately to the local public health unit. There are no restrictions on movements; however, casual contacts should be advised to isolate themselves and contact the public health unit if they develop symptoms.

Returned travellers

Returned travellers who have travelled in or transited through **mainland China, Iran or South Korea** should self-quarantine at home for 14 days after leaving the higher risk country. Self-quarantined returned travellers should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

All returned travellers who, in the last 14 days, have travelled in or transited through **the remaining countries considered to pose a risk of transmission** should self-monitor for symptoms, practise social distancing when outside the workplace and [immediately isolate themselves if they become unwell](#).

Social distancing is an effective measure, but it is recognised that it cannot be practised in all situations and the aim is to generally reduce the potential for transmission. Whilst practising social distancing, people can travel to work (including by public transport) and carry out normal duties. Social distancing outside the workplace is aimed at nonessential activities and includes:

- Avoiding crowds and mass gatherings
- Avoiding small gatherings in enclosed spaces, for example family celebrations.
- Attempting to keep a distance of 1.5 metres between themselves and other people where possible, for example when out and about in public spaces.

Returned travellers who, in the last 14 days, have travelled in or transited through **any of the [countries considered to pose a risk of transmission](#)** who are unwell with fever, or with respiratory symptoms (with or without fever) or other symptoms consistent with COVID-19 should be isolated and managed as per the current recommendations for suspected cases. Table 1 below summarises the recommendations for travellers returning from each at risk country by risk category.

Special risk settings

Healthcare workers (including in residential and aged care facilities)

Healthcare workers and other staff with close patient contact who work in hospitals or residential/aged care facilities should take additional precautions given they come into contact with a high case load of potentially vulnerable patients.

All healthcare workers should observe usual infection prevention and control practises in the workplace.

All healthcare workers and staff who have close patient contact in hospitals and/or residential/aged care facilities **who have returned from any higher risk country** should be advised not to undertake work in a health care or residential/aged care facility for 14 days since leaving the higher risk country. They should otherwise follow advice provided to other well returned travellers as above. Table 1 below summarises the recommendations for healthcare workers returning from each at risk country by risk category.

Table 1: Actions for travellers and healthcare workers returning from [countries considered to pose a risk of transmission](#).

Risk	Country	General actions	Action for Hospital and/or Residential/Aged Care facilities*
Higher risk	Mainland China Iran South Korea	Self-quarantine for 14 days	No work for 14 days
Higher risk	Italy	Self-monitor for 14 days Practise social distancing Isolate if unwell	No work for 14 days

Risk	Country	General actions	Action for Hospital and/or Residential/Aged Care facilities*
Moderate risk	Cambodia	Self-monitor for 14 days	Can return to work if well
	Hong Kong	Practise social distancing	
	Indonesia	Isolate if unwell	
	Japan		
	Singapore		
	Thailand		

*People working in hospitals or aged/residential care facilities who have patient contact.

Healthcare workers who are close contacts (i.e. persons exposed while unprotected, as described in the [Contact definition section](#)) should be advised not to undertake work in a healthcare or residential/aged care facility for 14 days following the last possible contact with the case. They should also be advised to self-quarantine at home for 14 days following the last contact with the case.

Self-quarantined healthcare worker close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Public health units may assist infection control units of health facilities to identify and monitor healthcare worker close contacts.

It is recognised that clinical work restrictions on healthcare worker close contacts may place strain on individuals and on health services. This underlines the importance of ensuring healthcare workers implement appropriate infection control precautions when assessing and managing suspected, confirmed COVID-19 cases.

Aboriginal and Torres Strait Islander Communities

CDNA will continue to monitor the emerging evidence around COVID-19 transmission risks in healthcare settings and Aboriginal and Torres Strait Islander communities and revise these recommendations as needed. For further information, see section [7. Special situations – Aboriginal and Torres Strait Islander Communities](#).

Medical care for quarantined individuals

If individuals under self-quarantine need to see a doctor for any reason (e.g. fever and respiratory symptoms or other illness/injury), they should **telephone their GP or hospital Emergency Department before presenting. Patients with severe symptoms should call 000 and make it clear they are in self-quarantine or isolation because of COVID-19.** If the patient has **symptoms consistent with the COVID-19 [case definition](#)**, the local public health unit should be consulted about the most suitable venue for clinical assessment and specimen collection.

Management of symptomatic contacts

If fever or respiratory symptoms, with or without fever, or other symptoms consistent with COVID-19 develop within the first 14 days following the last contact, PHU staff should arrange for the

individual to be immediately isolated and managed as per the current recommendations for suspected COVID-19 cases, with urgent testing for COVID-19 undertaken in an environment which minimises the exposure of others.

Ill contacts who are being evaluated for COVID-19 can be appropriately isolated and managed at home, unless their condition is severe enough to require hospitalisation.

Symptomatic contacts who test negative for SARS-CoV-2 by PCR will still need to be monitored for 14 days after their last contact with a confirmed COVID-19 case and may require re-testing.

8. Special situations

Cruise ships

Risk assessment and identification of contacts

Classification of contacts on cruise ships with one or more confirmed cases of COVID-19 should be made on a case-by-case basis.

Hospital transfer of suspect or confirmed cases

If suspect or confirmed cases on board require transfer to a hospital, the Commonwealth Biosecurity Officer will notify the port authority to provide access for medical transport. The jurisdictional Human Biosecurity Officer will then coordinate transfer of the person to an appropriate medical facility for further management, via the most appropriate means that adheres to necessary precautions.

Quarantine for passengers and crew after arrival at a port

Self-quarantine at home should be recommended for close contacts where this is feasible (e.g. persons with a residence nearby) ensuring appropriate PPE precautions are employed during travel. For close contacts for whom this is not possible, matters of self-quarantine should be addressed jurisdictionally.

Disembarking and embarking

After all suspect and confirmed cases have been managed appropriately and the Human Biosecurity Officer has determined that no other passengers or crew have symptoms consistent with COVID-19, remaining passengers and crew will be allowed to disembark. The vessel may be permitted to commence embarking once it is certain there is no risk of ongoing transmission.

Aboriginal and Torres Strait Islander communities

Key drivers of increased risk of transmission and severity

- **Mobility:** Aboriginal and Torres Strait Islander peoples are highly mobile, with frequent travel often linked to family and cultural connections and community events involving long distances between cities, towns, and communities. In addition, remote communities have a high flow of visitors (e.g. tourists, fly-in fly-out clinicians and other workers). This increases the risk of transmission even in generally isolated communities.

- **Remoteness:** A fifth of the Aboriginal and Torres Strait Islander population lives in remote and very remote areas. There is often reduced access health services, these are usually at capacity in normal circumstances and are often reliant on temporary staff. Limited transport options may further inhibit presentations and delay laboratory testing.
- **Barriers to access:** Unwell people may present late in disease progression for many reasons including lack of availability of services, institutional racism, and mistrust of mainstream health services.
- **Overcrowding:** Many Aboriginal and Torres Strait Islander communities have insufficient housing infrastructure, which results in people living in overcrowded conditions. This facilitates disease transmission and makes it difficult for cases and contacts to maintain social distance measures and self-quarantine.
- **Burden of disease:** Aboriginal and Torres Strait Islander people experience a burden of disease 2.3 times the rate of other Australians. This may increase the risk of severe disease from SARS-CoV-2.

Key response strategies

- **Shared decision-making and governance:** Throughout all phases, COVID-19 response work should be collaborative to ensure local community leaders are central to the response. Further risk reduction strategies and public health responses should be co-developed, and co-designed, enabling Aboriginal and Torres Strait Islander people to contribute and fully participate in shared decision-making.
- **Social and cultural determinants of health:** Public health strategies should be considered within the context of a holistic approach that prioritises the safety and well-being of individuals, families and communities while acknowledging the centrality of culture, and the addressing racism, intergenerational trauma and other social determinants of health.
- **Community control:** The Aboriginal Community Controlled Health Services (ACCHS) sector provides a comprehensive model of culturally safe care with structured support and governance systems. The network of ACCHS and peak bodies should be included in the response as a fundamental mechanism of engagement and communication.
- **Appropriate communication:** Messages should be strengths-based and encompass Aboriginal ways of living, including family-centred approaches during both prevention and control phases. They should address factors that may contribute to risk such as social determinants of health, including living arrangements and accessibility to services.
- **Flexible and responsive models of care:** Consider flexible health service delivery and healthcare models (e.g. pandemic assessment centres, flexible ACCHSs clinic hours/location with additional staffing, and home visits). Consider employing the use of point of care influenza tests, where available, to help determine whether influenza is implicated in presentations in the community.
- **Isolation and quarantine:** Families should feel empowered and be part of decision-making around quarantine. This can be achieved through exploring with families what quarantine looks like, working through how it might impact on the family and their way of living, and identifying ways around it. Family members will want to visit unwell people in hospital. It should be made clear that there are other ways to be with sick family members in hospital, maintain communication with families and communities in lieu of gatherings (e.g. staying socially connected through the internet and video calling).

9. References

1. Chang D, Xu H, Rebaza A, Sharma L, Dela Cruz CS. Protecting health-care workers from subclinical coronavirus infection. *Lancet Respir Med*. 2020.

10. Appendices

Appendix A: SARS-CoV-2 Laboratory testing information

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

Appendix A: SARS-CoV-2 Laboratory testing information

Laboratory testing for SARS-CoV-2 continues to evolve rapidly with the accumulation of clinical data, and as reagents and protocols are refined.

The aim of testing, if clinically appropriate, is to exclude common respiratory viruses using local hospital and community nucleic acid testing capacity, and to simultaneously refer onward to a laboratory with capacity to test for SARS-CoV-2. As co-infection is possible, initial testing protocols should include testing for SARS-CoV-2 in patients with epidemiological risk, even where another infection is shown to be present.

Samples for testing

- (i) upper respiratory tract samples
- (ii) lower respiratory tract sample if the lower tract is involved
- (iii) Serum (to be stored pending serology availability)

Upper respiratory tract samples

1. Nasopharyngeal swab and/ oropharyngeal swab, Dacron or Rayon, flocked preferred

- nasopharyngeal: insert a flexible nasopharyngeal swab into one nostril and gently insert it along the floor of the nasal cavity parallel to the palate until resistance is encountered, rotate gently for 10-15 seconds, then withdraw and repeat the process in the other nostril with the same swab to absorb secretions
- oropharyngeal (throat): swab the tonsillar beds and the back of the throat, avoiding the tongue
- place swabs back into the accompanying transport media

As a minimum standard recommendation across all jurisdictions, a nasopharyngeal and an oropharyngeal swab should both be collected, and placed in transport medium, which may be viral transport medium (VTM) or Liquid Amies.

Details of practise above this minimum may vary between jurisdictions, e.g. pooling both swabs in a single container of transport medium; use of a single swab for collection of both nasopharyngeal and oropharyngeal samples; collection of two nasopharyngeal swabs and one oropharyngeal sample. Liaison with the jurisdiction's PHLN-member laboratory is recommended to obtain clarity on local variations.

If SARS-CoV-2 testing is to be undertaken in a different laboratory to testing for other respiratory viruses, then both nasopharyngeal and oropharyngeal samples should be forwarded for SARS-CoV-2 testing. Use of one swab for respiratory virus testing, and the other for SARS-CoV-2 testing is not recommended.

2. Nasal wash/aspirates

- collect 2-3 mL into a sterile, leak-proof, screw-top dry sterile container

A nasal wash or aspirate if available, may be substituted for the nasopharyngeal swab sample described above.

Lower respiratory tract samples (to be collected in hospital and/or using airborne precautions)**1. Sputum**

- patient should rinse his/her mouth with water before collection
- expectorate deep cough sputum directly into a sterile, leak-proof, screw-top dry sterile container

2. Bronchoalveolar lavage, tracheal aspirate, pleural fluid

- collect 2-3 mL into a sterile, leak-proof, screw-top sputum collection cup or dry sterile container

As lower respiratory tract specimens contain the highest viral loads in SARS-CoV and MERS-CoV, it is advised that lower respiratory tract specimens should be collected for SARS-CoV-2 testing where possible. Initial experience in testing for SARS-CoV-2 seems to be consistent with this prior experience. Repeat testing (especially of lower respiratory tract specimens) in clinically compatible cases should be performed if initial results are negative and there remains a high index of suspicion of infection.

Serology

Serum should be collected during the acute phase of the illness (preferably within the first 7 days of symptom onset), stored, and when serology testing becomes available tested in parallel with convalescent sera collected 3 or more weeks after acute infection. If no acute sample was collected, sera collected 14 or more days after symptom onset may be tested.

Specimen handling in the laboratory***Microbiology Laboratory***

Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment. Specimens should be transported in accordance with current regulatory requirements as diagnostic samples for testing.

Clinical Pathology

Standard precautions should be used for non-microbial pathology testing (such as routine biochemistry and haematology). Where possible auto-analysers should be used according to standard practises and/or local protocols. There is evidence that capping and uncapping of samples is not a high risk aerosol generating procedure.

Respiratory Virus Diagnostic Testing

Nucleic acid testing of the upper respiratory tract sample is performed for influenza and other common respiratory viruses using standard protocols and methods of the hospital or community laboratory.

Standard protocols of the testing laboratory for respiratory sample processing should be used. This is expected to consist of PC2 laboratory practises, and use of a Class II Biosafety cabinet for aerosol generating procedures (such as centrifuging without sealed carriers, vortexing, sonicating). Viral culture can only be undertaken in an accredited laboratory that has a PC3 facility.

The residue (original swab and remaining eluate) of the upper tract sample is forwarded together with the lower tract sample and the serum to the reference laboratory with SARS-CoV-2 testing capacity requesting SARS-CoV-2 testing.

Clinical liaison with jurisdictional public health officers is essential to coordinate referral & testing.

Standard protocols should be used for sample packaging and transport as diagnostic samples for testing (i.e. Category B).

SARS-CoV-2 specific testing

Nucleic acid testing (NAT) using real time polymerase chain reaction (RT-PCR) is the method of choice for detection of SARS-CoV-2. Specific diagnostic test approaches for SARS-CoV-2 will be described here only in broad terms. There is significant variation in PCR assays employed by different PHLN member laboratories, and test algorithms are likely to be further refined over time.

Specific Real Time PCR primer sets to detect SARS-CoV-2 are available. Some PHLN member laboratories have designed their own, and some have implemented primer sets recommended to the World Health Organization (WHO) by leading international coronavirus reference laboratories (available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance>). The majority of PHLN testing capacity now employs relatively swift RT-PCR assays for screening, with a turnaround time of several hours. Confirmation of positives is being done either with RT-PCR assays detecting a different target gene, or broadly reactive PCR tests with sequencing of amplicons (see below).

Well pedigreed PCR primer sets, probes and protocols are available from the WHO/ European Viral Archive (EVAg) (available at: https://www.who.int/docs/default-source/coronaviruse/protocol-v2-1.pdf?sfvrsn=a9ef618c_2).

Many PCR assays, including those available through WHO will also detect other zoonotic coronaviruses such as SARS-CoV, sometimes with a recognisable shift in the cycle threshold value (Ct) compared to the SARS-CoV-2 target, but not commonly circulating coronaviruses usually detected by commercial assays (eg NL63, 229E strains).

Several Australian PHLN reference laboratories began diagnostic testing for the current outbreak using PCR assays capable of detecting a wide range of coronaviruses, including zoonotic and novel pathogens. A number of these were mapped against the promulgated Chinese nucleic acid sequence of SARS-CoV-2 early in the course of the outbreak. Nucleic acid sequencing of amplicons from positive tests is used to identify the coronavirus in this approach. These assays have relatively long turnaround times and have largely been replaced by RT-PCR other than in a confirmatory role in some laboratories.

Complementary DNA (cDNA) synthesized from the VIDRL SARS-CoV-2 has now been made available to all PHLN member laboratories as a test positive control. Synthetic positive control material in the form of nucleic acid templates is also available through WHO/ European Viral Archive (EVAg).

Testing algorithms are likely to be revised pending further information about the virus, and the number of specimens received in the laboratory for testing.

Viral culture should not be performed for routine diagnosis, and should only be attempted in reference laboratories with appropriate experience and containment facilities. Currently where attempted this is being done at Physical Containment Level 3 (PC3), consistent with current recommendations for SARS-CoV, pending specific SARS-CoV-2 international recommendations.

No Quality Assurance Program (QAP) is currently available internationally specific for SARS-CoV-2, although QAPs are available in Australia for respiratory viruses including coronaviruses other than 2019-nCoV. The RCPAQAP with Commonwealth support will introduce a SARS-CoV-2 specific QAP to supplement previously available SARS-CoV, MERS-CoV and other coronaviruses, during the first half of 2020.

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

These recommendations are intended for hospital personnel who enter a clinical space with COVID-19 patients, including wardspersons, food deliverers, cleaners, and clinical personnel.

Background:

Although Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) which causes COVID-19 has spread rapidly and widely in mainland China, there has been limited transmission elsewhere, i.e. containment precautions have been mostly successful to date. At the time of writing, the crude mortality (~2%) in China is based on laboratory confirmed cases; many milder cases are almost certainly not being tested and the mortality is likely to be lower. Most cases in Australia have been relatively mild but a small number of deaths has been reported outside of mainland China. While a number of healthcare-associated infections have been reported with COVID-19 (in healthcare workers and patients) – as occurred with SARS and MERS - the risk for COVID-19 is likely to be very low, when infection control precautions are adhered to correctly.

General principles:

- **Standard precautions, including hand hygiene (5 Moments)** for all patients with respiratory infections. Patients and staff should observe cough etiquette and respiratory hygiene,
- **Transmission-based precautions** for patients with suspected or confirmed COVID-19:
 - **Contact and droplet precautions** for **routine care** of patients.
 - **Contact and airborne precautions** for **aerosol generating procedures (AGPs)**.

Contact and droplet precautions:

Contact and droplet precautions can be safely used for routine patient care of inpatients with suspected or confirmed COVID-19 (see Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units for case definition)

- On presentation or admission to hospital the patient should be:
 - given a surgical mask to put on, and
 - placed in a single room (ensuring air does not circulate to other areas)
 - placed in a negative pressure room (in the event of AGPs being performed).
- If transfer outside the room is essential, the patient should wear a surgical mask during transfer and follow respiratory hygiene and cough etiquette.
- For most inpatient contacts between healthcare staff and patients the following PPE is safe and appropriate and should be put on before entering the patient's room:
 - long-sleeved gown
 - surgical mask
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- For hospitalised patients requiring frequent attendance by medical and nursing staff, a P2/N95 respirator should be considered for prolonged or very close contact.

Contact and airborne precautions for aerosol-generating procedures (AGPs) and care of clinically ill patients requiring high level/high volume hands-on contact outside of ICU:

- **Contact and airborne precautions should be used routinely for AGPs**, which include:
 - tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy (and bronchoalveolar lavage), high flow nasal oxygen
 - The use of nebulisers should be avoided and alternative medication administration devices (e.g. spacers) used.
- PPE for contact and airborne procedures should be put on before entering patients room:
 - long-sleeved gown
 - P2/N95 respirator (mask) – should be fit-checked with each use
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- P2/N95 respirators (mask) should be used only when required.
- Unless used correctly, i.e. with fit-checking, a P2/N95 respirator (mask) is unlikely to protect against airborne pathogen spread.
 - An air-tight seal may be difficult to achieve for people with facial hair. Fit checking with a range of P2/N95 respirators must occur to assess the most suitable one to achieve a protective seal. If a tight seal cannot be achieved, facial hair should be removed.

Care of critically ill patients in ICU

- Patients who require admission to ICU with severe COVID-19 are likely to have a high viral load, particularly in the lower respiratory tract
- **Contact and airborne precautions** (as above) are required for patient care and are adequate for most AGPs.
 - The risk of aerosol transmission is reduced once the patient is intubated with a closed ventilator circuit but there is a potential, but unknown, risk of transmission from other body fluids such as diarrhoeal stool or vomitus or inadvertent circuit disconnection
- If a health care professional is required to remain in the patient's room continuously for a long period (e.g. more than one hour), because of the need to perform multiple procedures, the use of a powered air purifying respirator (PAPR) may be considered for additional comfort and visibility. A number of different types of relatively lightweight, comfortable PAPRs are now available and should be used according to manufacturer's instructions. Only **PPE marked as reusable** should be reused, following **reprocessing** according to manufacturer's instructions, All other PPE must be disposed of after use.

ICU staff caring for patients with COVID-19 (or any other potentially serious infectious disease) should be trained in the correct use of PPE, including by an infection control professional. This also applies particularly to the use of PAPRs, if required. Particular care should be taken on removal of PAPR, which is associated with a risk of contamination.

Additional precautions:**Staff**

- A staff log for each room entry should be maintained, to allow monitoring of potential breaches of infection control and follow-up contacts, if necessary.

Disposal of PPE and other waste

- Waste should be disposed in the normal way for clinical waste
- All non-clinical waste is disposed of into general waste

Handling of linen

- Routine procedures for handling of infectious linen should be followed
- Visibly soiled linen should be placed in a (soluble) plastic bag inside a linen skip

Environmental cleaning of patient care areas

- Cleaners should observe contact and droplet precautions (as above).
- Frequently touched surfaces (such as doorknobs, bedrails, tabletops, light switches, patient handsets) in the patient's room should be cleaned daily.
- Terminal cleaning of all surfaces in the room (as above plus floor, ceiling, walls, blinds) should be performed after the patient is discharged.
- A combined cleaning and disinfection procedure should be used, either 2-step - detergent clean, followed by disinfectant; or 2-in-1 step - using a product that has both cleaning and disinfectant properties. Any hospital-grade, TGA-listed disinfectant that is commonly against norovirus is suitable, if used according to manufacturer's instructions.

Coronavirus Disease 2019 (COVID-19)

CDNA National Guidelines for Public Health Units

Revision history			
Version	Date	Revised by	Changes
1.18	10 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Case management, Contact management. Inclusion of Air crew and Schools advice in Special situations section.
1.17	05 March 2020	Communicable Diseases Network Australia	Inclusion of self-quarantine advice for returned travellers from South Korea, revised Case management, inclusion of table of contents.
1.16	04 March 2020	Communicable Diseases Network Australia	Inclusion of Aboriginal and Torres Strait Islander community advice in Special situations section.
1.15	03 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management.
1.14	02 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Risk stratification of countries, Contact management.
1.13	28 February 2020	Communicable Diseases Network Australia	Revised: Laboratory testing, isolation and restriction and Appendix A: laboratory testing information.
1.12	27 February 2020	Communicable Diseases Network Australia	Inclusion of Cambodia in the list of countries in the Person under investigation section.
1.11	26 February 2020	Communicable Diseases Network Australia	Inclusion of Italy in the list of countries in the Person Under Investigation section.
1.10	23 February 2020	Communicable Diseases Network Australia	Inclusion of South Korea and Iran in the list of countries in the Person Under Investigation section.
1.9	21 February 2020	Communicable Diseases Network Australia	Revised: case definition, infectious period, contact management, special situation (cruise ship). Specific changes are highlighted.
1.8	17 February 2020	Communicable Diseases Network Australia	Inclusion of statement reflecting that passengers of the Diamond Princess cruise meet the criteria for close contact.

1.7	15 February 2020	Communicable Diseases Network Australia	Revised case definition.
1.6	14 February 2020	Communicable Diseases Network Australia	Addition of Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19). Updated nomenclature.
1.5	7 February 2020	Communicable Diseases Network Australia	Inclusion of advice on release from isolation.
1.4	6 February 2020	Communicable Diseases Network Australia	Revised case definition and added rationale. Updated infection control advice throughout.
1.3	4 February 2020	Communicable Diseases Network Australia	Revised the case definition and use of the terms 'quarantine' and 'isolation'.
1.2	2 February 2020	Communicable Diseases Network Australia	Revised the case definition, close and casual contact definitions and added self-isolation guidance.
1.1	27 January 2020	Communicable Diseases Network Australia	Removed references to Wuhan and revised the case definition
1.0	23 January 2020	Communicable Diseases Network Australia	Developed by the 2019-nCoV Working Group

This document summarises interim recommendations for surveillance, infection control, laboratory testing and contact management for coronavirus disease 2019 (COVID-19). It is the first national guidance issued for COVID-19 and will be further developed into the Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units (COVID-19 SoNG).

It has been adapted from CDNA National Guidelines for Public Health Units MERS-CoV, utilising current CDC and WHO guidance, and is based on the current knowledge of the situation in mainland China and other countries, and experiences with SARS-CoV and MERS-CoV.

CDNA will review and update these recommendations as required as new information becomes available on the situation.

These interim Guidelines are to be used in the first instance whilst a Series of National Guidelines is being developed by the Communicable Diseases Network Australia (CDNA).

These interim guidelines capture the knowledge of experienced professionals, and provide guidance on best practise based upon the best available evidence at the time of completion.

Readers should not rely solely on the information contained within these Guidelines. Guideline information is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a health professional. Clinical judgement and discretion may be required in the interpretation and application of these guidelines.

The membership of the CDNA and the AHPPC, and the Commonwealth of Australia as represented by the Department of Health ('the Commonwealth'), do not warrant or represent that the information contained in these Guidelines is accurate, current or complete. The CDNA, the AHPPC and the Commonwealth do not accept any legal liability or responsibility for any loss, damages, costs or expenses incurred by the use of, or reliance on, or interpretation of, the information contained in these Guidelines.

Abbreviations and definitions

COVID-19:	coronavirus disease 2019. The name of the disease caused by the virus SARS-CoV-2, as agreed by the World Health Organization, the World Organization for Animal Health and the Food and Agriculture Organization of the United Nations. For more information, see the World Health Organization Director-General's remarks: https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020
SARS-CoV-2:	severe acute respiratory syndrome coronavirus 2. The formal name of the coronavirus that causes COVID-19, as determined by the International Committee on Taxonomy of Viruses. Previously, this coronavirus was commonly known as 'novel coronavirus 2019 (2019-nCoV)'. For more information see the International Committee on Taxonomy of Viruses manuscript: https://www.biorxiv.org/content/10.1101/2020.02.07.937862v1.full.pdf

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1. Case definition

Confirmed case

A person who tests positive to a validated specific SARS-CoV-2 nucleic acid test or has the virus identified by electron microscopy or viral culture.

Suspect case

- A. If the patient satisfies epidemiological and clinical criteria, they are classified as a suspect case.

Epidemiological criteria

- International travel in the 14 days before illness onset.

OR

- Close or casual contact (see [Contact definition](#) below) in 14 days before illness onset with a confirmed case of COVID-19.

Clinical criteria

- Fever.

OR

- Acute respiratory infection (e.g. shortness of breath, cough, sore throat) with or without fever.

- B. If the patient has bilateral severe community-acquired pneumonia (critically ill*) and no other cause is identified, with or without recent international travel, they are classified as a suspect case.

*requiring care in ICU/HDU, or for patients in which ICU care is not appropriate, respiratory or multiorgan failure. Clinical judgement should be exercised considering the likelihood of COVID-19.

- C. If the patient has moderate or severe community-acquired pneumonia (hospitalised) and is a healthcare worker, with or without international travel, they are classified as a suspect case.

Rationale for current case definitions

The case definitions are based on what is currently known about the clinical and epidemiological profile of cases of COVID-19 presenting to date both in Australia and internationally. Health authorities are constantly monitoring the spectrum of clinical symptoms as cases arise, and, if there are any significant shifts, they will be reflected in the above definitions in future versions of this document.

The 14 day period is based upon what is currently known to be the upper time limit of the incubation period. As more precise information about the incubation period emerges, this will be reviewed.

2. Laboratory testing

Patients meeting the suspect case definition ([above](#)) should be tested for SARS-CoV-2. Where applicable, consult with your state/territory communicable diseases agency to seek advice on which laboratories can provide SARS-CoV-2 testing; appropriate specimen type, collection and transport; and also to facilitate contact management if indicated.

When collecting respiratory specimens, transmission-based precautions should be observed whether or not respiratory symptoms are present.

For most patients with mild illness in the community, collection of upper respiratory specimens (i.e. nasopharyngeal or oropharyngeal swabs) is a low risk procedure and can be performed using **contact and droplet precautions**:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield), and surgical mask.
- To collect throat or nasopharyngeal swab stand slightly to the side of the patient to avoid exposure to respiratory secretions, should the patient cough or sneeze.
- At completion of consultation, remove personal protective equipment (PPE) and perform hand hygiene, wipe any contacted/contaminated surfaces with detergent /disinfectant.
- Note that, for droplet precautions, the room does not need to be left empty after sample collection.

If the patient has severe symptoms suggestive of pneumonia, e.g. fever and breathing difficulty, or frequent, severe or productive coughing episodes then **contact and airborne precautions** should be observed.

Patients with these symptoms should be managed in hospital, and sample collection conducted in a negative pressure room, if available. If referral to hospital for specimen collection is not possible, specimens should be collected in a room from which air does not circulate to other areas. The door should be closed during specimens collection and the room left vacant for at least 30 minutes afterwards (cleaning can be performed during this time by a person wearing PPE).

The following precautions should be observed:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield) and a **P2/N95 respirator – which should be fit checked**.
- At completion of consultation, remove gown and gloves, perform hand hygiene, remove eye protection and P2/N95 respirator. Do not touch the front of any item of PPE during removal; perform hand hygiene.
- The room surfaces should be wiped clean with disinfectant wipes by a person wearing gloves, gown and surgical mask.

For further information on circumstances requiring airborne precautions, see [aerosol generating procedures](#).

Routine tests for acute pneumonia/pneumonitis should be performed where indicated, including bacterial cultures, acute and convalescent serology, urinary antigen testing and nucleic acid tests for respiratory viruses, according to local protocols.

Serology for SARS-CoV-2 is not yet available. Collection of serum for storage by the SARS-CoV-2 testing laboratory is recommended to facilitate retrospective testing, if this is relevant, once serology tests become available.

See [Appendix A](#) for additional SARS-CoV-2 laboratory testing information.

3. Case management

Response times

On the same day as notification of a suspected or confirmed case, begin follow up investigation and, where applicable, notify your central state or territory communicable diseases agency.

PHU staff should be available to contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners.

Response procedure

Case investigation

The response to a notification will normally be carried out in collaboration with the clinicians managing the case, and be guided by the COVID-19 public health unit checklist and the COVID-19 investigation form (currently pending).

Regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend that tests be done.
- Seek the treating doctor's permission to contact the case or relevant care-giver.
- Determine if the diagnosis has been discussed with the case or relevant care-giver before beginning the interview.
- Review case and contact management.
- Ensure appropriate infection control guidelines are followed in caring for the case.
- Identify the likely source of infection.

Note: If interviews with suspected cases are conducted face-to-face, the person conducting the interview must have a thorough understanding of infection control practises and be competent in using appropriate PPE.

Case treatment

In the absence of pathogen-specific interventions, patient management largely depends on supportive treatment, and vigilance for and treatment of complications.

Further advice on clinical management is available from WHO: (https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2)

Education

Provide a COVID-19 factsheet to cases and their close contacts.

Ensure that they are aware of the signs and symptoms of COVID-19, the requirements of quarantine and isolation, contact details of the PHU and the infection control practises that can prevent the transmission of COVID-19.

Isolation and restriction

Cases will generally be managed in hospital. If clinically indicated, cases may be managed at home only if it can be ensured that the case and household contacts are counselled about risk and that appropriate infection control measures are in place.

Healthcare workers and others who come into contact with suspected and confirmed cases must be protected according to recommended infection control guidelines. Visitors should be restricted to close family members.

A risk assessment should be undertaken for suspected cases who initially test negative for SARS-CoV-2. If there is no alternative diagnosis and a high index of suspicion remains that such cases may have COVID-19, consideration should be given to continued isolation and use of the recommended infection control precautions, pending further testing (see [Laboratory testing section](#) and [Appendix A](#)) and re-assessment.

While recommendations on isolation and PPE for management of suspected and confirmed cases initially took a deliberately cautious approach, emerging evidence and expert advice now supports requirements commensurate with the risk in particular clinical circumstances.

In addition to standard precautions, interim recommendations for the use of PPE during clinical care of people with possible COVID-19 are:

- **Contact and droplet precautions** are recommended for **routine care** of patients in quarantine or with suspected or confirmed COVID-19.
- **Contact and airborne precautions** are recommended when performing **aerosol-generating procedures**, including intubation and bronchoscopy, and for care of **critically ill patients** (see [Appendix B](#) for further information).

Other recommended infection control measures include:

- When a patient who meets the suspect case definition presents to a healthcare setting (GP, hospital ED, or pathology collection centre) and whether or not respiratory symptoms are present, the patient should immediately be:
 - given a surgical mask to put on, and
 - directed to a single room. If the patient has severe symptoms suggestive of pneumonia, they should be directed to a negative pressure room, if available, or a room from which the air does not circulate to other areas.
- If a patient with confirmed COVID-19 needs to be transferred out of their isolation room, the patient should wear a “surgical” face mask and follow respiratory hygiene and cough etiquette.

Release from isolation

A confirmed case can be released from isolation if they meet all of the following criteria:

- the person has been afebrile for the previous 48 hours;
- resolution of the acute illness for the previous 24 hours¹;
- be at least 7 days after the onset of the acute illness;
- PCR negative on at least two consecutive respiratory specimens collected 24 hours apart after the acute illness has resolved^{2,3}.

¹Some people may have pre-existing illnesses with chronic respiratory signs or symptoms, such as chronic cough. For these people, the treating medical practitioner should make an assessment as to whether the signs and symptoms of COVID-19 have resolved.

²If the patient has a productive cough due to a pre-existing respiratory illness or other ongoing lower respiratory tract disease, then the sputum or other lower respiratory tract specimens must be PCR negative for SARS-CoV-2. Otherwise upper respiratory tract specimens (nasopharyngeal or nose and throat swabs) must be PCR negative.

³A small proportion of people may have an illness that has completely resolved but their respiratory specimens remain persistently PCR positive. A decision on release from isolation for these people should be made on a case-by-case basis after consultation between the person's treating medical practitioner, the testing laboratory and public health. Results of viral culture, if available, may be included in this consideration.

Follow up should include the person being reviewed seven days after release from isolation for:

- clinical review to ensure full symptom resolution
- collection of a serum specimen for storage and possible later serologic testing (the person should be informed that this is for future test development and does not inform their clinical care).

Routine PCR testing at seven days after release is not recommended unless the person has clinical features consistent with COVID-19.

Faecal sampling is not recommended as a standard test, however, it may be done for patients with gastrointestinal symptoms. For cases who do have faecal samples tested, and remain persistently PCR positive in these samples after all the release from isolation criteria (above) are met, further or extended precautions and exclusions should be implemented on a case-by-case basis:

- All cases with diarrhoea should be advised not to prepare food for others until 48 hours after symptoms have resolved.
- Cases who have employment that may pose an increased risk of onward transmission (e.g. healthcare workers, restaurant workers and food handlers), should be excluded from work until 48 hours after any symptoms of diarrhoea have resolved.
- Cases with ongoing diarrhoea or faecal incontinence who may have limited capacity to maintain standards of personal hygiene should continue to be isolated until 48 hours after the resolution of these symptoms.

Patients do not require repeat testing until they are PCR negative in faecal samples. It is recommended that people who remained persistently PCR positive in faecal samples use soap and water for hand hygiene. If this is unavailable, alcohol hand gel should be used. Education emphasising the importance of proper hand hygiene should be provided to all cases upon release from isolation.

Aerosol-generating procedures

Appropriate care should be taken during aerosol-generating procedures. Aerosol-generating procedures include: tracheal intubation, non-invasive ventilation, tracheostomy, cardiopulmonary resuscitation, manual ventilation before intubation, bronchoscopy, and high flow nasal oxygen. Collection of upper respiratory specimens is not generally regarded as aerosol generating, but airborne precautions should be used for collection of specimens from severely symptomatic patients (see [Laboratory testing section](#)).

P2/N95 respirators should be used only when required. Unless used correctly, i.e. with fit-checking, they are unlikely to protect against airborne pathogen spread.

Airborne precautions should be used routinely for aerosol-generating procedures, such as bronchoscopy, intubation, suctioning etc. in hospital settings. Nebuliser use should be discouraged and alternative administration devices (e.g. spacers) should be used.

The [Laboratory testing section](#) provides detailed information on sample collection for SARS-CoV-2.

Active case finding

Contacts (see [Contact management section](#)) should be identified and advised to immediately seek medical advice should they develop symptoms. Contacts or caregivers should be asked to also inform the public health agency if they develop symptoms.

4. Environmental evaluation

Where local transmission of COVID-19 is thought possible, a thorough review of contributing environmental factors should be done. This should include a review of infection control procedures, and opportunities for exposure to respiratory or faecal contamination.

If a case has had occupational exposure to animals it may be appropriate to consult with animal health authorities.

5. Infectious period

Infectious period of COVID-19 remains unknown, however there is some evidence to support the occurrence of pre-symptomatic or asymptomatic transmission (1). As a precautionary approach, cases are considered to be infectious 24-hours prior to onset of symptoms. Cases are considered to pose a risk of onward transmission and require isolation until criteria listed in the [release from isolation section](#) have been met.

6. Contact management

As there remain gaps in the understanding of infectivity of COVID-19 cases and transmission modes, the definition of contacts and their public health management is based on available information on COVID-19 together with observations from similar serious coronaviruses – SARS-CoV and MERS-CoV. Distinction is made between close contacts and casual contacts.

Identification of contacts

All persons categorised as a contact (see definitions of “close contacts” and “casual contacts” following) of confirmed cases should be followed-up, and monitored for the development of symptoms for 14 days after the last exposure to the case (i.e. the maximum incubation period).

Contacts of suspected cases should also be considered for contact management if there is likely to be a delay in confirming or excluding COVID-19 in the suspected case, such as delayed testing

Close contact definition

A close contact is defined as requiring:

- greater than 15 minutes face-to-face contact in any setting with a confirmed case in the period extending from 24 hours before onset of symptoms in the confirmed case, or
- sharing of a closed space with a confirmed case for a prolonged period (e.g. more than 2 hours) in the period extending from 24 hours before onset of symptoms in the confirmed case.

For the purposes of surveillance, a close contact includes a person meeting any of the following criteria:

- Living in the same household or household-like setting (e.g. in a boarding school or hostel).
- Direct contact with the body fluids or laboratory specimens of a case without recommended PPE or failure of PPE.
- A person who spent 2 hours or longer in the same room (such as a GP or ED waiting room; a school classroom; communal room in an aged care facility). See [Special situations for further information specific to aged care facilities and schools](#).
- A person in the same hospital room when an aerosol generating procedure is undertaken on the case, without recommended PPE.
- Aircraft passengers who were seated in the same row as the case, or in the two rows in front or two rows behind a confirmed COVID-19 case. Contact tracing of people who may have had close contact on long bus or train trips should also be attempted where possible, using similar seating/proximity criteria.
- For aircraft crew exposed to a confirmed case, a case-by-case risk assessment should be conducted by the airline to identify which crew member(s) should be managed as close contacts. See [Special situations](#) for further information.
- If an aircraft crew member is the COVID-19 case, contact tracing efforts should concentrate on passengers seated in the area where the crew member was working during the flight and all of the other members of the crew.
- Close contacts on cruise ships can be difficult to identify, and a case-by-case risk assessment should be conducted to identify which passengers and crew should be managed as close contacts. See [Special situations](#) for further information.

Contact needs to have occurred within the period extending 24 hours before onset of symptoms in the case until the case is classified as no longer infectious by the treating team (usually 24 hours after the resolution of symptoms).

Note that healthcare workers and other contacts who have taken recommended infection control precautions, including the use of full PPE, while caring for a symptomatic confirmed COVID-19 case are not considered to be close contacts.

Casual contact definition

Casual contact is defined as any person having less than 15 minutes face-to-face contact with a symptomatic confirmed case in any setting, or sharing a closed space with a symptomatic confirmed case for less than 2 hours.

Healthcare workers who have used appropriate PPE effectively are not considered to be at risk of exposure. However, in case of unknown PPE breach, they should be advised to self-monitor and if they develop symptoms consistent with COVID-19 they should isolate themselves and notify their public health unit or staff health unit so they can be tested and managed as a suspected COVID-19 case (see recommendations below under Management of symptomatic contacts).

Other casual contacts may include:

- Extended family groups, e.g. in an Aboriginal community.
- Aircraft passengers who were not seated nearby a symptomatic confirmed case or a crew-member who did not work in the same cabin area as a symptomatic confirmed case (see close contact definition). See [Special situations](#) for further information.
- Passengers and crew onboard the same cruise ship as a symptomatic confirmed case (or cases), who are not considered to be close contacts. See [Special situations](#) for further information.

Where resources permit, more active contact tracing may be extended to other persons who have had casual contact (as defined above), particularly in school, office or other closed settings. In these circumstances, the size of the room/space and degree of separation of the case from others should be considered in identifying contacts.

Returned Traveller definition

Returned travellers are defined as those who have undertaken international travel to any country outside Australia in the last 14 days.

Different recommendations apply in management based on the risk assessment for different countries (see detail below and [Table 1](#) for a summary).

Country transmission risk assessment

Higher risk:

Mainland China
Iran
Italy
South Korea

Moderate risk:

All other locations outside Australia

Contact assessment

All persons identified as having had contact with a confirmed case should be assessed to see if they should be classified as a close contact and have demographic and epidemiological data collected. Information on close contacts should be managed according to jurisdictional requirements.

Identification and assessment of the contacts of suspected cases may be deferred pending the results of initial laboratory testing.

Close contact testing

Routine laboratory screening for COVID-19 is not recommended for asymptomatic close contacts.

Prophylaxis

No specific chemoprophylaxis is available for contacts.

Education

Close contacts should be counselled about their risk and the symptoms of COVID-19 and provided with a COVID-19 factsheet. They should be advised to self-quarantine.

Quarantine and restriction

Close contacts

Asymptomatic close contacts should be advised to self-quarantine at home for 14 days following the last contact with the case, and to monitor their health for 14 days after the last possible contact with a confirmed COVID-19 case.

Public health units should conduct active daily monitoring of close contacts for symptoms for 14 days after the last possible contact with a confirmed COVID-19 case.

Self-quarantined close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Less frequent active follow-up together with passive surveillance may be necessary if there are large numbers of close contacts to monitor.

For the purpose of contact management, swabs are **not** indicated during quarantine in well people. A medical clearance from a health care provider is not required for release from quarantine or for other purposes such as returning to work, school or university.

Casual contacts

Casual contacts should monitor their health for 14 days and report any symptoms immediately to the local public health unit. There are no restrictions on movements; however, casual contacts should be advised to isolate themselves and contact the public health unit if they develop symptoms.

Returned travellers

Returned travellers who have travelled in or transited through **mainland China, Iran or South Korea** should self-quarantine at home for 14 days after leaving the higher risk country. Self-quarantined returned travellers should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

All returned travellers who **have undertaken international travel** in the last 14 days should self-monitor for symptoms, practise social distancing when outside the workplace and [immediately isolate themselves if they become unwell](#).

Social distancing is an effective measure, but it is recognised that it cannot be practised in all situations and the aim is to generally reduce the potential for transmission. Whilst practising social distancing, people can travel to work (including by public transport) and carry out normal duties. Social distancing outside the workplace is aimed at nonessential activities and includes:

- Avoiding crowds and mass gatherings.
- Avoiding small gatherings in enclosed spaces, for example family celebrations.
- Attempting to keep a distance of 1.5 metres between themselves and other people where possible, for example when out and about in public spaces.

All returned travellers who have undertaken international travel in the last 14 days who are unwell with fever, or with respiratory symptoms (with or without fever) or other symptoms consistent with COVID-19 should be isolated and managed as per the current recommendations for suspected cases. [Table 1](#) below summarises the recommendations for travellers returning from **overseas**.

Special risk settings

Healthcare workers

All healthcare workers should observe usual infection prevention and control practises in the workplace. **This includes healthcare workers and other staff in any setting with direct patient contact.**

Self-quarantined healthcare worker close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Public health units may assist infection control units of health facilities to identify and monitor healthcare worker close contacts.

It is recognised that clinical work restrictions on healthcare worker close contacts may place strain on individuals and on health services. This underlines the importance of ensuring healthcare workers implement appropriate infection control precautions when assessing and managing suspected, confirmed COVID-19 cases.

Staff (including Healthcare workers) who have patient contact in a hospital or residential/aged care facility.

Healthcare workers and other staff with close patient contact who work in hospitals or residential/aged care facilities should take additional precautions given they come into contact with a high case load of potentially vulnerable patients.

All healthcare workers and staff who have close patient contact in hospitals and/or residential/aged care facilities **who have returned from any higher risk country** should be advised not to undertake work in a health care or residential/aged care facility for 14 days since leaving the higher risk country. They should otherwise follow advice provided to other well returned travellers as above. [Table 1](#) below summarises the recommendations for healthcare workers returning from overseas.

Table 1: Actions for travellers and healthcare workers returning from overseas.

Risk	Country	General actions	Action for Hospital and/or Residential/Aged Care facilities*
Higher risk**	Mainland China Iran South Korea	Self-quarantine for 14 days	No work for 14 days
Higher risk**	Italy	Self-monitor for 14 days Practise social distancing Isolate if unwell	No work for 14 days
Moderate risk	All other countries	Self-monitor for 14 days Practise social distancing Isolate if unwell	Can return to work if well

*People working in hospitals or aged/residential care facilities who have patient contact.

** Travelled or transited through.

Aboriginal and Torres Strait Islander Communities

CDNA will continue to monitor the emerging evidence around COVID-19 transmission risks in healthcare settings and Aboriginal and Torres Strait Islander communities and revise these recommendations as needed. For further information, see section [7. Special situations – Aboriginal and Torres Strait Islander Communities](#).

Medical care for quarantined individuals

If individuals under self-quarantine need to see a doctor for any reason (e.g. fever and respiratory symptoms or other illness/injury), they should **telephone their GP or hospital Emergency Department before presenting**. Patients with severe symptoms should call 000 and make it clear they are in self-quarantine or isolation because of COVID-19. If the patient has symptoms consistent with the [COVID-19 case definition](#), the local public health unit should be consulted about the most suitable venue for clinical assessment and specimen collection.

Management of symptomatic contacts

If fever or respiratory symptoms, with or without fever, or other symptoms consistent with COVID-19 develop within the first 14 days following the last contact, PHU staff should arrange for the individual to be immediately isolated and managed as per the current recommendations for suspected COVID-19 cases, with urgent testing for COVID-19 undertaken in an environment which minimises the exposure of others.

Ill contacts who are being evaluated for COVID-19 can be appropriately isolated and managed at home, unless their condition is severe enough to require hospitalisation.

Symptomatic contacts who test negative for SARS-CoV-2 by PCR will still need to be monitored for 14 days after their last contact with a confirmed COVID-19 case and may require re-testing.

7. Special situations

Cruise ships

Risk assessment and identification of contacts

Classification of contacts on cruise ships with one or more confirmed cases of COVID-19 should be made on a case-by-case basis.

Hospital transfer of suspect or confirmed cases

If suspect or confirmed cases on board require transfer to a hospital, the Commonwealth Biosecurity Officer will notify the port authority to provide access for medical transport. The jurisdictional Human Biosecurity Officer will then coordinate transfer of the person to an appropriate medical facility for further management, via the most appropriate means that adheres to necessary precautions.

Quarantine for passengers and crew after arrival at a port

Self-quarantine at home should be recommended for close contacts where this is feasible (e.g. persons with a residence nearby) ensuring appropriate PPE precautions are employed during travel. For close contacts for whom this is not possible, matters of self-quarantine should be addressed jurisdictionally.

Disembarking and embarking

After all suspect and confirmed cases have been managed appropriately and the Human Biosecurity Officer has determined that no other passengers or crew have symptoms consistent with COVID-19, remaining passengers and crew will be allowed to disembark. The vessel may be permitted to commence embarking once it is certain there is no risk of ongoing transmission.

Air crew

Risk assessment and identification of contacts

Decisions regarding the contact classification of cabin crews can be difficult to determine. On an aircraft with one or more confirmed cases of COVID-19, most aircraft crew can be considered casual contacts; however, a case-by-case risk assessment should be conducted by the airline to identify which crew should be managed as close contacts.

Considerations for conducting a risk assessment should include:

- Proximity of crew to confirmed case
- Duration of exposure to confirmed case
- Size of the compartment in which the crew member and confirmed case interacted
- Precautions taken, including PPE worn, when in close proximity to the confirmed case

Where it has been determined that a crew member is a close contact, the airline is responsible for notifying the local public health unit to facilitate management of the close contact.

Aboriginal and Torres Strait Islander communities

Key drivers of increased risk of transmission and severity

- **Mobility:** Aboriginal and Torres Strait Islander peoples are highly mobile, with frequent travel often linked to family and cultural connections and community events involving long distances between cities, towns, and communities. In addition, remote communities have a high flow of visitors (e.g. tourists, fly-in fly-out clinicians and other workers). This increases the risk of transmission even in generally isolated communities.
- **Remoteness:** A fifth of the Aboriginal and Torres Strait Islander population lives in remote and very remote areas. There is often reduced access health services, these are usually at capacity in normal circumstances and are often reliant on temporary staff. Limited transport options may further inhibit presentations and delay laboratory testing.
- **Barriers to access:** Unwell people may present late in disease progression for many reasons including lack of availability of services, institutional racism, and mistrust of mainstream health services.
- **Overcrowding:** Many Aboriginal and Torres Strait Islander communities have insufficient housing infrastructure, which results in people living in overcrowded conditions. This facilitates disease transmission and makes it difficult for cases and contacts to maintain social distance measures and self-quarantine.
- **Burden of disease:** Aboriginal and Torres Strait Islander people experience a burden of disease 2.3 times the rate of other Australians. This may increase the risk of severe disease from SARS-CoV-2.

Key response strategies

- **Shared decision-making and governance:** Throughout all phases, COVID-19 response work should be collaborative to ensure local community leaders are central to the response. Further risk reduction strategies and public health responses should be co-developed, and co-designed, enabling Aboriginal and Torres Strait Islander people to contribute and fully participate in shared decision-making.
- **Social and cultural determinants of health:** Public health strategies should be considered within the context of a holistic approach that prioritises the safety and well-being of individuals, families and communities while acknowledging the centrality of culture, and the addressing racism, intergenerational trauma and other social determinants of health.
- **Community control:** The Aboriginal Community Controlled Health Services (ACCHS) sector provides a comprehensive model of culturally safe care with structured support and governance systems. The network of ACCHS and peak bodies should be included in the response as a fundamental mechanism of engagement and communication.
- **Appropriate communication:** Messages should be strengths-based and encompass Aboriginal ways of living, including family-centred approaches during both prevention and control phases. They should address factors that may contribute to risk such as social determinants of health, including living arrangements and accessibility to services.
- **Flexible and responsive models of care:** Consider flexible health service delivery and healthcare models (e.g. pandemic assessment centres, flexible ACCHSs clinic hours/location with additional staffing, and home visits). Consider employing the use of point of care influenza tests, where available, to help determine whether influenza is implicated in presentations in the community.
- **Isolation and quarantine:** Families should feel empowered and be part of decision-making around quarantine. This can be achieved through exploring with families what quarantine looks like, working through how it might impact on the family and their way of living, and identifying ways around it. Family members will want to visit unwell people in hospital. It should be made clear that there are other ways to be with sick family members in hospital, maintain communication with families and communities in lieu of gatherings (e.g. staying socially connected through the internet and video calling).

Aged care facilities

Aged care facilities are high-risk settings for infectious disease outbreaks. This is due to the fact that there is often high density living with extensive close physical contact between staff and residents during the provision of care. Residents are at increased risk of severe illness and death due to their age and presence of co-morbid conditions. There are often many visitors, volunteers and staff moving between the community and facilities, which can promote the spread of infectious diseases.

Preventative measures

In addition to usual preventative protocols, aged care facilities should ensure that high rates of influenza vaccination are maintained amongst all occupants and staff. Messaging to discourage unwell visitors from visiting facilities and occupants should be reinforced, and care should be taken to ensure unwell staff and volunteers know not to present to work while symptomatic with any infectious condition. Visitors, residents and staff should be encouraged to increase their frequency of hand hygiene (with soap and water or using alcohol hand rub), surface cleaning, and to use correct cough/sneeze etiquette.

Outbreaks

The vast majority of aged care facilities should be primed and already have frameworks and protocols for testing and isolation in the event of respiratory disease outbreaks. The [Guidelines for the Prevention, Control and Public Health Management of Influenza Outbreaks in Residential Care Facilities in Australia](#) details useful principles on prevention, control, and management of respiratory disease outbreaks which could be applied to outbreaks of COVID-19 in these facilities (available at: <https://www1.health.gov.au/internet/main/publishing.nsf/Content/cdna-flu-guidelines.htm>). Specific guidelines for COVID-19 outbreaks in residential care facilities are currently pending, and this advice will be updated accordingly upon their finalisation.

Schools

Schools are prone to rapid transmission of viruses. The best way to prevent transmission of COVID-19 in schools is through the promotion of correct hand hygiene habits and cough/sneeze etiquette. Children or staff with upper respiratory tract illness should not attend school while symptomatic. If a child or staff member becomes ill with upper respiratory tract symptoms, they should be isolated from other students and sent home as soon as possible. Children or staff with confirmed COVID-19 must not return to school until they meet the release from isolation criteria.

Note: Full or partial school closures are not generally recommended as a reactive measure on public health grounds.

8. References

1. Chang D, Xu H, Rebaza A, Sharma L, Dela Cruz CS. Protecting health-care workers from subclinical coronavirus infection. *Lancet Respir Med*. 2020.

9. Appendices

Appendix A: SARS-CoV-2 Laboratory testing information

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

Appendix A: SARS-CoV-2 Laboratory testing information

Laboratory testing for SARS-CoV-2 continues to evolve rapidly with the accumulation of clinical data, and as reagents and protocols are refined.

The aim of testing, if clinically appropriate, is to exclude common respiratory viruses using local hospital and community nucleic acid testing capacity, and to simultaneously refer onward to a laboratory with capacity to test for SARS-CoV-2. As co-infection is possible, initial testing protocols should include testing for SARS-CoV-2 in patients with epidemiological risk, even where another infection is shown to be present.

Samples for testing

- (i) upper respiratory tract samples
- (ii) lower respiratory tract sample if the lower tract is involved
- (iii) Serum (to be stored pending serology availability)

Upper respiratory tract samples

1. Nasopharyngeal swab and/ oropharyngeal swab, Dacron or Rayon, flocked preferred

- nasopharyngeal: insert a flexible nasopharyngeal swab into one nostril and gently insert it along the floor of the nasal cavity parallel to the palate until resistance is encountered, rotate gently for 10-15 seconds, then withdraw and repeat the process in the other nostril with the same swab to absorb secretions
- oropharyngeal (throat): swab the tonsillar beds and the back of the throat, avoiding the tongue
- place swabs back into the accompanying transport media

As a minimum standard recommendation across all jurisdictions, a nasopharyngeal and an oropharyngeal swab should both be collected, and placed in transport medium, which may be viral transport medium (VTM) or Liquid Amies.

Details of practise above this minimum may vary between jurisdictions, e.g. pooling both swabs in a single container of transport medium; use of a single swab for collection of both nasopharyngeal and oropharyngeal samples; collection of two nasopharyngeal swabs and one oropharyngeal sample. Liaison with the jurisdiction's PHLN-member laboratory is recommended to obtain clarity on local variations.

If SARS-CoV-2 testing is to be undertaken in a different laboratory to testing for other respiratory viruses, then both nasopharyngeal and oropharyngeal samples should be forwarded for SARS-CoV-2 testing. Use of one swab for respiratory virus testing, and the other for SARS-CoV-2 testing is not recommended.

2. Nasal wash/aspirates

- collect 2-3 mL into a sterile, leak-proof, screw-top dry sterile container

A nasal wash or aspirate if available, may be substituted for the nasopharyngeal swab sample described above.

Lower respiratory tract samples (to be collected in hospital and/or using airborne precautions)**1. Sputum**

- patient should rinse his/her mouth with water before collection
- expectorate deep cough sputum directly into a sterile, leak-proof, screw-top dry sterile container

2. Bronchoalveolar lavage, tracheal aspirate, pleural fluid

- collect 2-3 mL into a sterile, leak-proof, screw-top sputum collection cup or dry sterile container

As lower respiratory tract specimens contain the highest viral loads in SARS-CoV and MERS-CoV, it is advised that lower respiratory tract specimens should be collected for SARS-CoV-2 testing where possible. Initial experience in testing for SARS-CoV-2 seems to be consistent with this prior experience. Repeat testing (especially of lower respiratory tract specimens) in clinically compatible cases should be performed if initial results are negative and there remains a high index of suspicion of infection.

Serology

Serum should be collected during the acute phase of the illness (preferably within the first 7 days of symptom onset), stored, and when serology testing becomes available tested in parallel with convalescent sera collected 3 or more weeks after acute infection. If no acute sample was collected, sera collected 14 or more days after symptom onset may be tested.

Specimen handling in the laboratory***Microbiology Laboratory***

Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment. Specimens should be transported in accordance with current regulatory requirements as diagnostic samples for testing.

Clinical Pathology

Standard precautions should be used for non-microbial pathology testing (such as routine biochemistry and haematology). Where possible auto-analysers should be used according to standard practises and/or local protocols. There is evidence that capping and uncapping of samples is not a high risk aerosol generating procedure.

Respiratory Virus Diagnostic Testing

Nucleic acid testing of the upper respiratory tract sample is performed for influenza and other common respiratory viruses using standard protocols and methods of the hospital or community laboratory.

Standard protocols of the testing laboratory for respiratory sample processing should be used. This is expected to consist of PC2 laboratory practises, and use of a Class II Biosafety cabinet for aerosol generating procedures (such as centrifuging without sealed carriers, vortexing, sonicating). Viral culture can only be undertaken in an accredited laboratory that has a PC3 facility.

The residue (original swab and remaining eluate) of the upper tract sample is forwarded together with the lower tract sample and the serum to the reference laboratory with SARS-CoV-2 testing capacity requesting SARS-CoV-2 testing.

Clinical liaison with jurisdictional public health officers is essential to coordinate referral & testing.

Standard protocols should be used for sample packaging and transport as diagnostic samples for testing (i.e. Category B).

SARS-CoV-2 specific testing

Nucleic acid testing (NAT) using real time polymerase chain reaction (RT-PCR) is the method of choice for detection of SARS-CoV-2. Specific diagnostic test approaches for SARS-CoV-2 will be described here only in broad terms. There is significant variation in PCR assays employed by different PHLN member laboratories, and test algorithms are likely to be further refined over time.

Specific Real Time PCR primer sets to detect SARS-CoV-2 are available. Some PHLN member laboratories have designed their own, and some have implemented primer sets recommended to the World Health Organization (WHO) by leading international coronavirus reference laboratories (available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance>). The majority of PHLN testing capacity now employs relatively swift RT-PCR assays for screening, with a turnaround time of several hours. Confirmation of positives is being done either with RT-PCR assays detecting a different target gene, or broadly reactive PCR tests with sequencing of amplicons (see below).

Well pedigreed PCR primer sets, probes and protocols are available from the WHO/ European Viral Archive (EVAg) (available at: https://www.who.int/docs/default-source/coronaviruse/protocol-v2-1.pdf?sfvrsn=a9ef618c_2).

Many PCR assays, including those available through WHO will also detect other zoonotic coronaviruses such as SARS-CoV, sometimes with a recognisable shift in the cycle threshold value (Ct) compared to the SARS-CoV-2 target, but not commonly circulating coronaviruses usually detected by commercial assays (e.g. NL63, 229E strains).

Several Australian PHLN reference laboratories began diagnostic testing for the current outbreak using PCR assays capable of detecting a wide range of coronaviruses, including zoonotic and novel pathogens. A number of these were mapped against the promulgated Chinese nucleic acid sequence of SARS-CoV-2 early in the course of the outbreak. Nucleic acid sequencing of amplicons from positive tests is used to identify the coronavirus in this approach. These assays have relatively long turnaround times and have largely been replaced by RT-PCR other than in a confirmatory role in some laboratories.

Complementary DNA (cDNA) synthesized from the VIDRL SARS-CoV-2 has now been made available to all PHLN member laboratories as a test positive control. Synthetic positive control material in the form of nucleic acid templates is also available through WHO/ European Viral Archive (EVAg).

Testing algorithms are likely to be revised pending further information about the virus, and the number of specimens received in the laboratory for testing.

Viral culture should not be performed for routine diagnosis, and should only be attempted in reference laboratories with appropriate experience and containment facilities. Currently where attempted this is being done at Physical Containment Level 3 (PC3), consistent with current recommendations for SARS-CoV, pending specific SARS-CoV-2 international recommendations.

No Quality Assurance Program (QAP) is currently available internationally specific for SARS-CoV-2, although QAPs are available in Australia for respiratory viruses including coronaviruses other than 2019-nCoV. The RCPAQAP with Commonwealth support will introduce a SARS-CoV-2 specific QAP to supplement previously available SARS-CoV, MERS-CoV and other coronaviruses, during the first half of 2020.

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

These recommendations are intended for hospital personnel who enter a clinical space with COVID-19 patients, including wardspersons, food deliverers, cleaners, and clinical personnel.

Background:

Although Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) which causes COVID-19 has spread rapidly and widely in mainland China, there has been limited transmission elsewhere, i.e. containment precautions have been mostly successful to date. At the time of writing, the crude mortality (~2%) in China is based on laboratory confirmed cases; many milder cases are almost certainly not being tested and the mortality is likely to be lower. Most cases in Australia have been relatively mild but a small number of deaths has been reported outside of mainland China. While a number of healthcare-associated infections have been reported with COVID-19 (in healthcare workers and patients)—as occurred with SARS and MERS—the risk for COVID-19 is likely to be very low, when infection control precautions are adhered to correctly.

General principles:

- **Standard precautions, including hand hygiene (5 Moments)** for all patients with respiratory infections. Patients and staff should observe cough etiquette and respiratory hygiene,
- **Transmission-based precautions** for patients with suspected or confirmed COVID-19:
 - **Contact and droplet precautions** for **routine care** of patients.
 - **Contact and airborne precautions** for **aerosol generating procedures (AGPs)**.

Contact and droplet precautions:

Contact and droplet precautions can be safely used for routine patient care of inpatients with suspected or confirmed COVID-19 (see Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units for case definition)

- On presentation or admission to hospital the patient should be:
 - given a surgical mask to put on, and
 - placed in a single room (ensuring air does not circulate to other areas)
 - placed in a negative pressure room (in the event of AGPs being performed).
- If transfer outside the room is essential, the patient should wear a surgical mask during transfer and follow respiratory hygiene and cough etiquette.
- For most inpatient contacts between healthcare staff and patients the following PPE is safe and appropriate and should be put on before entering the patient's room:
 - long-sleeved gown
 - surgical mask
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- For hospitalised patients requiring frequent attendance by medical and nursing staff, a P2/N95 respirator should be considered for prolonged or very close contact.

Contact and airborne precautions for aerosol-generating procedures (AGPs) and care of clinically ill patients requiring high level/high volume hands-on contact outside of ICU:

- **Contact and airborne precautions should be used routinely for AGPs**, which include:
 - tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy (and bronchoalveolar lavage), high flow nasal oxygen
 - The use of nebulisers should be avoided and alternative medication administration devices (e.g. spacers) used.
- PPE for contact and airborne procedures should be put on before entering patients room:
 - long-sleeved gown
 - P2/N95 respirator (mask) – should be fit-checked with each use
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- P2/N95 respirators (mask) should be used only when required.
- Unless used correctly, i.e. with fit-checking, a P2/N95 respirator (mask) is unlikely to protect against airborne pathogen spread.
 - An air-tight seal may be difficult to achieve for people with facial hair. Fit checking with a range of P2/N95 respirators must occur to assess the most suitable one to achieve a protective seal. If a tight seal cannot be achieved, facial hair should be removed.

Care of critically ill patients in ICU

- Patients who require admission to ICU with severe COVID-19 are likely to have a high viral load, particularly in the lower respiratory tract
- **Contact and airborne precautions** (as above) are required for patient care and are adequate for most AGPs.
 - The risk of aerosol transmission is reduced once the patient is intubated with a closed ventilator circuit but there is a potential, but unknown, risk of transmission from other body fluids such as diarrhoeal stool or vomitus or inadvertent circuit disconnection
- If a health care professional is required to remain in the patient's room continuously for a long period (e.g. more than one hour), because of the need to perform multiple procedures, the use of a powered air purifying respirator (PAPR) may be considered for additional comfort and visibility. A number of different types of relatively lightweight, comfortable PAPRs are now available and should be used according to manufacturer's instructions. Only **PPE marked as reusable** should be reused, following **reprocessing** according to manufacturer's instructions, All other PPE must be disposed of after use.

ICU staff caring for patients with COVID-19 (or any other potentially serious infectious disease) should be trained in the correct use of PPE, including by an infection control professional. This also applies particularly to the use of PAPRs, if required. Particular care should be taken on removal of PAPR, which is associated with a risk of contamination.

Additional precautions:**Staff**

- A staff log for each room entry should be maintained, to allow monitoring of potential breaches of infection control and follow-up contacts, if necessary.

Disposal of PPE and other waste

- Waste should be disposed in the normal way for clinical waste
- All non-clinical waste is disposed of into general waste

Handling of linen

- Routine procedures for handling of infectious linen should be followed
- Visibly soiled linen should be placed in a (soluble) plastic bag inside a linen skip

Environmental cleaning of patient care areas

- Cleaners should observe contact and droplet precautions (as above).
- Frequently touched surfaces (such as doorknobs, bedrails, tabletops, light switches, patient handsets) in the patient's room should be cleaned daily.
- Terminal cleaning of all surfaces in the room (as above plus floor, ceiling, walls, blinds) should be performed after the patient is discharged.
- A combined cleaning and disinfection procedure should be used, either 2-step— detergent clean, followed by disinfectant; or 2-in-1 step— using a product that has both cleaning and disinfectant properties. Any hospital-grade, TGA-listed disinfectant that is commonly against norovirus is suitable, if used according to manufacturer's instructions.

Coronavirus Disease 2019 (COVID-19)

CDNA National Guidelines for Public Health Units

Revision history			
Version	Date	Revised by	Changes
2.0	13 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management, Laboratory testing, Appendix A
1.18	10 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Case management, Contact management. Inclusion of Air crew and Schools advice in Special situations section.
1.17	05 March 2020	Communicable Diseases Network Australia	Inclusion of self-quarantine advice for returned travellers from South Korea, revised Case management, inclusion of table of contents.
1.16	04 March 2020	Communicable Diseases Network Australia	Inclusion of Aboriginal and Torres Strait Islander community advice in Special situations section.
1.15	03 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management.
1.14	02 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Risk stratification of countries, Contact management.
1.13	28 February 2020	Communicable Diseases Network Australia	Revised: Laboratory testing, isolation and restriction and Appendix A: laboratory testing information.
1.12	27 February 2020	Communicable Diseases Network Australia	Inclusion of Cambodia in the list of countries in the Person under investigation section.
1.11	26 February 2020	Communicable Diseases Network Australia	Inclusion of Italy in the list of countries in the Person Under Investigation section.
1.10	23 February 2020	Communicable Diseases Network Australia	Inclusion of South Korea and Iran in the list of countries in the Person Under Investigation section.
1.9	21 February 2020	Communicable Diseases Network Australia	Revised: case definition, infectious period, contact management, special situation (cruise ship). Specific changes are highlighted.

1.8	17 February 2020	Communicable Diseases Network Australia	Inclusion of statement reflecting that passengers of the Diamond Princess cruise meet the criteria for close contact.
1.7	15 February 2020	Communicable Diseases Network Australia	Revised case definition.
1.6	14 February 2020	Communicable Diseases Network Australia	Addition of Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19). Updated nomenclature.
1.5	7 February 2020	Communicable Diseases Network Australia	Inclusion of advice on release from isolation.
1.4	6 February 2020	Communicable Diseases Network Australia	Revised case definition and added rationale. Updated infection control advice throughout.
1.3	4 February 2020	Communicable Diseases Network Australia	Revised the case definition and use of the terms 'quarantine' and 'isolation'.
1.2	2 February 2020	Communicable Diseases Network Australia	Revised the case definition, close and casual contact definitions and added self-isolation guidance.
1.1	27 January 2020	Communicable Diseases Network Australia	Removed references to Wuhan and revised the case definition
1.0	23 January 2020	Communicable Diseases Network Australia	Developed by the 2019-nCoV Working Group

This document summarises interim recommendations for surveillance, infection control, laboratory testing and contact management for coronavirus disease 2019 (COVID-19). It is the first national guidance issued for COVID-19 and will be further developed into the Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units (COVID-19 SoNG).

It has been adapted from CDNA National Guidelines for Public Health Units MERS-CoV, utilising current CDC and WHO guidance, and is based on the current knowledge of the situation in mainland China and other countries, and experiences with SARS-CoV and MERS-CoV.

CDNA will review and update these recommendations as required as new information becomes available on the situation.

These interim Guidelines are to be used in the first instance whilst a Series of National Guidelines is being developed by the Communicable Diseases Network Australia (CDNA).

These interim guidelines capture the knowledge of experienced professionals, and provide guidance on best practise based upon the best available evidence at the time of completion.

Readers should not rely solely on the information contained within these Guidelines. Guideline information is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a health professional. Clinical judgement and discretion may be required in the interpretation and application of these guidelines.

The membership of the CDNA and the AHPPC, and the Commonwealth of Australia as represented by the Department of Health ('the Commonwealth'), do not warrant or represent that the information contained in these Guidelines is accurate, current or complete. The CDNA, the AHPPC and the Commonwealth do not accept any legal liability or responsibility for any loss, damages, costs or expenses incurred by the use of, or reliance on, or interpretation of, the information contained in these Guidelines.

Abbreviations and definitions

COVID-19:	coronavirus disease 2019. The name of the disease caused by the virus SARS-CoV-2, as agreed by the World Health Organization, the World Organization for Animal Health and the Food and Agriculture Organization of the United Nations. For more information, see the World Health Organization Director-General's remarks: https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020
SARS-CoV-2:	severe acute respiratory syndrome coronavirus 2. The formal name of the coronavirus that causes COVID-19, as determined by the International Committee on Taxonomy of Viruses. Previously, this coronavirus was commonly known as 'novel coronavirus 2019 (2019-nCoV)'. For more information see the International Committee on Taxonomy of Viruses manuscript: https://www.biorxiv.org/content/10.1101/2020.02.07.937862v1.full.pdf

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1. Case definition

Confirmed case

A person who tests positive to a validated specific SARS-CoV-2 nucleic acid test or has the virus identified by electron microscopy or viral culture.

Suspect case

- A.** If the patient satisfies epidemiological and clinical criteria, they are classified as a suspect case.

Epidemiological criteria

- International travel in the 14 days before illness onset.

OR

- **Close contact** (see [Contact definition](#) below) in 14 days before illness onset with a confirmed case of COVID-19.

Clinical criteria

- Fever.

OR

- Acute respiratory infection (e.g. shortness of breath, cough, sore throat) with or without fever.

- B.** If the patient has severe bilateral community-acquired pneumonia (critically ill*) and no other cause is identified, with or without recent international travel, they are classified as a suspect case.

*requiring care in ICU/HDU, or for patients in which ICU care is not appropriate, respiratory or multiorgan failure. Clinical judgement should be exercised considering the likelihood of COVID-19.

- C.** If any healthcare worker with direct patient contact has a fever (≥ 37.5) AND an acute respiratory infection (e.g. shortness of breath, cough, sore throat), they are classified as a suspect case (see [Healthcare workers](#) for further information).

Rationale for current case definitions

The case definitions are based on what is currently known about the clinical and epidemiological profile of cases of COVID-19 presenting to date both in Australia and internationally. Health authorities are constantly monitoring the spectrum of clinical symptoms as cases arise, and, if there are any significant shifts, they will be reflected in the above definitions in future versions of this document.

The 14 day period is based upon what is currently known to be the upper time limit of the incubation period. As more precise information about the incubation period emerges, this will be reviewed.

2. Laboratory testing

Patients meeting the suspect case definition ([above](#)) should be tested for SARS-CoV-2. Where applicable, consult with your state/territory communicable diseases agency to seek advice on which laboratories can provide SARS-CoV-2 testing; appropriate specimen type, collection and transport; and also to facilitate contact management if indicated.

When collecting respiratory specimens, transmission-based precautions should be observed whether or not respiratory symptoms are present.

For most patients with mild illness in the community, collection of upper respiratory specimens (i.e. nasopharyngeal or oropharyngeal swabs) is a low risk procedure and can be performed using **contact and droplet precautions**:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield), and surgical mask.
- To collect **combined nasopharyngeal/nasal and oropharyngeal swabs**, stand slightly to the side of the patient to avoid exposure to respiratory secretions, should the patient cough or sneeze.
- At completion of consultation, remove personal protective equipment (PPE) and perform hand hygiene, wipe any contacted/contaminated surfaces with detergent /disinfectant.
- Note that, for droplet precautions, the room does not need to be left empty after sample collection.

If the patient has severe symptoms suggestive of pneumonia, e.g. fever and breathing difficulty, or frequent, severe or productive coughing episodes then **contact and airborne precautions** should be observed.

Patients with these symptoms should be managed in hospital, and sample collection conducted in a negative pressure room, if available. If referral to hospital for specimen collection is not possible, specimens should be collected in a room from which air does not circulate to other areas. The door should be closed during specimens collection and the room left vacant for at least 30 minutes afterwards (cleaning can be performed during this time by a person wearing PPE).

The following precautions should be observed:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield) and a **P2/N95 respirator – which should be fit checked**.
- At completion of consultation, remove gown and gloves, perform hand hygiene, remove eye protection and P2/N95 respirator. Do not touch the front of any item of PPE during removal; perform hand hygiene.
- The room surfaces should be wiped clean with disinfectant wipes by a person wearing gloves, gown and surgical mask.

For further information on circumstances requiring airborne precautions, see [aerosol generating procedures](#).

Routine tests for acute pneumonia/pneumonitis should be performed where indicated, including bacterial cultures, acute and convalescent serology, urinary antigen testing and nucleic acid tests for respiratory pathogens, according to local protocols.

Serology for SARS-CoV-2 is not yet available. Collection of serum for storage by the SARS-CoV-2 testing laboratory is recommended to facilitate retrospective testing, if this is relevant, once serology tests become available.

See [Appendix A](#) for additional SARS-CoV-2 laboratory testing information.

3. Case management

Response times

On the same day as notification of a suspected or confirmed case, begin follow up investigation and, where applicable, notify your central state or territory communicable diseases agency.

PHU staff should be available to contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners.

Response procedure

Case investigation

The response to a notification will normally be carried out in collaboration with the clinicians managing the case, and be guided by the COVID-19 public health unit checklist and the COVID-19 investigation form (currently pending).

Regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend that tests be done.
- Seek the treating doctor's permission to contact the case or relevant care-giver.
- Determine if the diagnosis has been discussed with the case or relevant care-giver before beginning the interview.
- Review case and contact management.
- Ensure appropriate infection control guidelines are followed in caring for the case.
- Identify the likely source of infection.

Note: If interviews with suspected cases are conducted face-to-face, the person conducting the interview must have a thorough understanding of infection control practices and be competent in using appropriate PPE.

Case treatment

In the absence of pathogen-specific interventions, patient management largely depends on supportive treatment, and vigilance for and treatment of complications.

Further advice on clinical management is available from WHO: (https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2)

Education

Provide a COVID-19 factsheet to cases and their close contacts.

Ensure that they are aware of the signs and symptoms of COVID-19, the requirements of quarantine and isolation, contact details of the PHU and the infection control practices that can prevent the transmission of COVID-19.

Isolation and restriction

Cases will generally be managed in hospital. If clinically indicated, cases may be managed at home only if it can be ensured that the case and household contacts are counselled about risk and that appropriate infection control measures are in place.

Healthcare workers and others who come into contact with suspected and confirmed cases must be protected according to recommended infection control guidelines. Visitors should be restricted to close family members.

A risk assessment should be undertaken for suspected cases who initially test negative for SARS-CoV-2. If there is no alternative diagnosis and a high index of suspicion remains that such cases may have COVID-19, consideration should be given to continued isolation and use of the recommended infection control precautions, pending further testing (see [Laboratory testing section](#) and [Appendix A](#)) and re-assessment.

While recommendations on isolation and PPE for management of suspected and confirmed cases initially took a deliberately cautious approach, emerging evidence and expert advice now supports requirements commensurate with the risk in particular clinical circumstances.

In addition to standard precautions, interim recommendations for the use of PPE during clinical care of people with possible COVID-19 are:

- **Contact and droplet precautions** are recommended for **routine care** of patients in quarantine or with suspected or confirmed COVID-19.
- **Contact and airborne precautions** are recommended when performing **aerosol-generating procedures**, including intubation and bronchoscopy, and for care of **critically ill patients** (see [Appendix B](#) for further information).

Other recommended infection control measures include:

- When a patient who meets the suspect case definition presents to a healthcare setting (GP, hospital ED, or pathology collection centre) and whether or not respiratory symptoms are present, the patient should immediately be:
 - given a surgical mask to put on, and
 - directed to a single room. If the patient has severe symptoms suggestive of pneumonia, they should be directed to a negative pressure room, if available, or a room from which the air does not circulate to other areas.
- If a patient with confirmed COVID-19 needs to be transferred out of their isolation room, the patient should wear a “surgical” face mask and follow respiratory hygiene and cough etiquette.

Release from isolation

A confirmed case can be released from isolation if they meet all of the following criteria:

- the person has been afebrile for the previous 48 hours;
- resolution of the acute illness for the previous 24 hours¹;
- be at least 7 days after the onset of the acute illness;
- PCR negative on at least two consecutive respiratory specimens collected 24 hours apart after the acute illness has resolved^{2,3}.

¹Some people may have pre-existing illnesses with chronic respiratory signs or symptoms, such as chronic cough. For these people, the treating medical practitioner should make an assessment as to whether the signs and symptoms of COVID-19 have resolved.

²If the patient has a productive cough due to a pre-existing respiratory illness or other ongoing lower respiratory tract disease, then the sputum or other lower respiratory tract specimens must be PCR negative for SARS-CoV-2. Otherwise upper respiratory tract specimens (nasopharyngeal or nose and throat swabs) must be PCR negative.

³A small proportion of people may have an illness that has completely resolved but their respiratory specimens remain persistently PCR positive. A decision on release from isolation for these people should be made on a case-by-case basis after consultation between the person's treating medical practitioner, the testing laboratory and public health. Results of viral culture, if available, may be included in this consideration.

Follow up should include the person being reviewed seven days after release from isolation for:

- clinical review to ensure full symptom resolution
- collection of a serum specimen for storage and possible later serologic testing (the person should be informed that this is for future test development and does not inform their clinical care).

Routine PCR testing at seven days after release is not recommended unless the person has clinical features consistent with COVID-19.

Faecal sampling is not recommended as a standard test, however, it may be done for patients with gastrointestinal symptoms. For cases who do have faecal samples tested, and remain persistently PCR positive in these samples after all the release from isolation criteria (above) are met, further or extended precautions and exclusions should be implemented on a case-by-case basis:

- All cases with diarrhoea should be advised not to prepare food for others until 48 hours after symptoms have resolved.
- Cases who have employment that may pose an increased risk of onward transmission (e.g. healthcare workers, restaurant workers and food handlers), should be excluded from work until 48 hours after any symptoms of diarrhoea have resolved.
- Cases with ongoing diarrhoea or faecal incontinence who may have limited capacity to maintain standards of personal hygiene should continue to be isolated until 48 hours after the resolution of these symptoms.

Patients do not require repeat testing until they are PCR negative in faecal samples. It is recommended that people who remained persistently PCR positive in faecal samples use soap and water for hand hygiene. If this is unavailable, alcohol hand gel should be used. Education emphasising the importance of proper hand hygiene should be provided to **all** cases upon release from isolation.

Aerosol-generating procedures

Appropriate care should be taken during aerosol-generating procedures. Aerosol-generating procedures include: tracheal intubation, non-invasive ventilation, tracheostomy, cardiopulmonary resuscitation, manual ventilation before intubation, bronchoscopy, and high flow nasal oxygen. Collection of upper respiratory specimens is not generally regarded as aerosol generating, but airborne precautions should be used for collection of specimens from severely symptomatic patients (see [Laboratory testing section](#)).

P2/N95 respirators should be used only when required. Unless used correctly, i.e. with fit-checking, they are unlikely to protect against airborne pathogen spread.

Airborne precautions should be used routinely for aerosol-generating procedures, such as bronchoscopy, intubation, suctioning etc. in hospital settings. Nebuliser use should be discouraged and alternative administration devices (e.g. spacers) should be used.

The [Laboratory testing section](#) provides detailed information on sample collection for SARS-CoV-2.

Active case finding

Contacts (see [Contact management section](#)) should be identified and advised to immediately seek medical advice should they develop symptoms. Contacts or caregivers should be asked to also inform the public health agency if they develop symptoms.

4. Environmental evaluation

Where local transmission of COVID-19 is thought possible, a thorough review of contributing environmental factors should be done. This should include a review of infection control procedures, and opportunities for exposure to respiratory or faecal contamination.

If a case has had occupational exposure to animals it may be appropriate to consult with animal health authorities.

5. Infectious period

Infectious period of COVID-19 remains unknown, however there is some evidence to support the occurrence of pre-symptomatic or asymptomatic transmission (1). As a precautionary approach, cases are considered to be infectious 24-hours prior to onset of symptoms. Cases are considered to pose a risk of onward transmission and require isolation until criteria listed in the [release from isolation section](#) have been met.

6. Contact management

As there remain gaps in the understanding of infectivity of COVID-19 cases and transmission modes, the definition of contacts and their public health management is based on available information on COVID-19 together with observations from similar serious coronaviruses – SARS-CoV and MERS-CoV.

Identification of contacts

All persons categorised as close contacts (see definition of “close contacts” below) of a confirmed case should be followed-up, and monitored for the development of symptoms for 14 days after the last exposure to the case (i.e. the maximum incubation period).

Contacts of suspected cases should also be considered for contact management if there is likely to be a delay in confirming or excluding COVID-19 in the suspected case, such as delayed testing.

Close contact definition

A close contact is defined as requiring:

- greater than 15 minutes face-to-face contact in any setting with a confirmed case in the period extending from 24 hours before onset of symptoms in the confirmed case, or
- sharing of a closed space with a confirmed case for a prolonged period (e.g. more than 2 hours) in the period extending from 24 hours before onset of symptoms in the confirmed case.

For the purposes of surveillance, a close contact includes a person meeting any of the following criteria:

- Living in the same household or household-like setting (e.g. in a boarding school or hostel).
- Direct contact with the body fluids or laboratory specimens of a case without recommended PPE or failure of PPE.
- A person who spent 2 hours or longer in the same room (such as a GP or ED waiting room; a school classroom; communal room in an aged care facility). See [Special situations](#) for further information specific to aged care facilities and schools.
- A person in the same hospital room when an aerosol generating procedure is undertaken on the case, without recommended PPE.
- Aircraft passengers who were seated in the same row as the case, or in the two rows in front or two rows behind a confirmed COVID-19 case. Contact tracing of people who may have had close contact on long bus or train trips should also be attempted where possible, using similar seating/proximity criteria.
- For aircraft crew exposed to a confirmed case, a case-by-case risk assessment should be conducted by the airline to identify which crew member(s) should be managed as close contacts. See [Special situations](#) for further information.
- If an aircraft crew member is the COVID-19 case, contact tracing efforts should concentrate on passengers seated in the area where the crew member was working during the flight and all of the other members of the crew.
- Close contacts on cruise ships can be difficult to identify, and a case-by-case risk assessment should be conducted to identify which passengers and crew should be managed as close contacts. See [Special situations](#) for further information.

Contact needs to have occurred within the period extending 24 hours before onset of symptoms in the case until the case is classified as no longer infectious by the treating team (usually 24 hours after the resolution of symptoms).

Note that healthcare workers and other contacts who have taken recommended infection control precautions, including the use of full PPE, while caring for a symptomatic confirmed COVID-19 case are not considered to be close contacts.

Returned Traveller definition

Returned travellers are defined as those who have undertaken international travel to any country outside Australia in the last 14 days.

Different recommendations apply in management based on the risk assessment for different countries (see detail below and [Table 1](#) for a summary).

[Country transmission risk assessment](#)

Higher risk:

Mainland China
Iran
Italy
South Korea

Moderate risk:

All other locations outside Australia

Contact assessment

All persons identified as having had contact with a confirmed case should be assessed to see if they should be classified as a close contact and have demographic and epidemiological data collected. Information on close contacts should be managed according to jurisdictional requirements.

Identification and assessment of the contacts of suspected cases may be deferred pending the results of initial laboratory testing.

Close contact testing

Routine laboratory screening for COVID-19 is not recommended for asymptomatic close contacts.

Prophylaxis

No specific chemoprophylaxis is available for contacts.

Education

Close contacts should be counselled about their risk and the symptoms of COVID-19 and provided with a COVID-19 factsheet. They should be advised to self-quarantine.

Quarantine and restriction

Close contacts

Asymptomatic close contacts should be advised to self-quarantine at home for 14 days following the last contact with the case, and to monitor their health for 14 days after the last possible contact with a confirmed COVID-19 case.

Public health units should conduct active daily monitoring of close contacts for symptoms for 14 days after the last possible contact with a confirmed COVID-19 case.

Self-quarantined close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Less frequent active follow-up together with passive surveillance may be necessary if there are large numbers of close contacts to monitor.

For the purpose of contact management, swabs are **not** indicated during quarantine in well people. A medical clearance from a health care provider is not required for release from quarantine or for other purposes such as returning to work, school or university.

Returned travellers

Returned travellers who have travelled in or transited through **mainland China, Iran, Italy or South Korea** should self-quarantine at home for 14 days after leaving the higher risk country. Self-quarantined returned travellers should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

All returned travellers who have undertaken international travel in the last 14 days should self-monitor for symptoms, practise social distancing when outside the workplace and [immediately isolate themselves if they become unwell](#).

Social distancing is an effective measure, but it is recognised that it cannot be practised in all situations and the aim is to generally reduce the potential for transmission. Whilst practising social distancing, people can travel to work (including by public transport) and carry out normal duties. Social distancing outside the workplace is aimed at nonessential activities and includes:

- Avoiding crowds and mass gatherings.
- Avoiding small gatherings in enclosed spaces, for example family celebrations.
- Attempting to keep a distance of 1.5 metres between themselves and other people where possible, for example when out and about in public spaces.

All returned travellers who have undertaken international travel in the last 14 days **who are unwell** with fever, or with respiratory symptoms (with or without fever) or other symptoms consistent with COVID-19 should be isolated and managed as per the current recommendations for suspected cases. [Table 1](#) below summarises the recommendations for travellers returning from overseas.

Special risk settings

Healthcare workers

All healthcare workers should observe usual infection prevention and control practices in the workplace. This includes healthcare workers and other staff in any setting **who have** direct patient contact.

Healthcare workers with influenza like illness should not work while they are symptomatic. They should undergo isolation and additionally be tested for SARS-CoV-2 if they meet the suspect case definition (fever AND acute respiratory illness).

Healthcare workers who are defined as close contacts should be treated as such (see section [6. Contact Management](#)).

In settings where the loss of the healthcare worker will have a significant impact on health services an individual risk assessment should be conducted in collaboration with the PHU.

Self-quarantined healthcare worker close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Public health units may assist infection control units of health facilities to identify and monitor healthcare worker close contacts.

It is recognised that clinical work restrictions on healthcare worker close contacts may place strain on individuals and on health services. This underlines the importance of ensuring healthcare workers implement appropriate infection control precautions when assessing and managing suspected, confirmed COVID-19 cases.

Staff (including Healthcare workers) who have **direct** patient contact in a hospital or residential/aged care facility.

Healthcare workers and other staff with close patient contact who work in hospitals or residential/aged care facilities should take additional precautions given they come into contact with a high case load of potentially vulnerable patients.

All healthcare workers and staff who have close patient contact in hospitals and/or residential/aged care facilities **who have returned from any higher risk country** should be advised not to undertake work in a health care or residential/aged care facility for 14 days since leaving the higher risk country. They should otherwise follow advice provided to other well returned travellers as above. [Table 1](#) below summarises the recommendations for healthcare workers returning from overseas.

Table 1: Actions for travellers and healthcare workers returning from overseas.

Risk	Country	General actions	Action for Hospital and/or Residential/Aged Care facilities*
Higher risk**	Mainland China Iran South Korea Italy	Self-quarantine for 14 days	No work for 14 days
Moderate risk	All other countries	Self-monitor for 14 days Practise social distancing Isolate if unwell	Can return to work if well

*People working in hospitals or aged/residential care facilities who have patient contact.

**Travelled or transited through.

Aboriginal and Torres Strait Islander Communities

CDNA will continue to monitor the emerging evidence around COVID-19 transmission risks in healthcare settings and Aboriginal and Torres Strait Islander communities and revise these recommendations as needed. For further information, see section [7. Special situations – Aboriginal and Torres Strait Islander Communities](#).

Medical care for quarantined individuals

If individuals under self-quarantine need to see a doctor for any reason (e.g. fever and respiratory symptoms or other illness/injury), they should **telephone their GP or hospital Emergency Department before presenting. Patients with severe symptoms should call 000 and make it clear they are in self-quarantine or isolation because of COVID-19.** If the patient has symptoms consistent with the [COVID-19 case definition](#), the local public health unit should be consulted about the most suitable venue for clinical assessment and specimen collection.

Management of symptomatic contacts

If fever or respiratory symptoms, with or without fever, or other symptoms consistent with COVID-19 develop within the first 14 days following the last contact, PHU staff should arrange for the individual to be immediately isolated and managed as per the current recommendations for suspected COVID-19 cases, with urgent testing for COVID-19 undertaken in an environment which minimises the exposure of others.

Ill contacts who are being evaluated for COVID-19 can be appropriately isolated and managed at home, unless their condition is severe enough to require hospitalisation.

Symptomatic contacts who test negative for SARS-CoV-2 by PCR will still need to be monitored for 14 days after their last contact with a confirmed COVID-19 case and may require re-testing.

7. Special situations

Cruise ships

Risk assessment and identification of contacts

Classification of contacts on cruise ships with one or more confirmed cases of COVID-19 should be made on a case-by-case basis.

Hospital transfer of suspect or confirmed cases

If suspect or confirmed cases on board require transfer to a hospital, the Commonwealth Biosecurity Officer will notify the port authority to provide access for medical transport. The jurisdictional Human Biosecurity Officer will then coordinate transfer of the person to an appropriate medical facility for further management, via the most appropriate means that adheres to necessary precautions.

Quarantine for passengers and crew after arrival at a port

Self-quarantine at home should be recommended for close contacts where this is feasible (e.g. persons with a residence nearby) ensuring appropriate PPE precautions are employed during travel. For close contacts for whom this is not possible, matters of self-quarantine should be addressed jurisdictionally.

Disembarking and embarking

After all suspect and confirmed cases have been managed appropriately and the Human Biosecurity Officer has determined that no other passengers or crew have symptoms consistent with COVID-19, remaining passengers and crew will be allowed to disembark. The vessel may be permitted to commence embarking once it is certain there is no risk of ongoing transmission.

Air crew

Risk assessment and identification of contacts

Decisions regarding the contact classification of cabin crews can be difficult to determine. On an aircraft with one or more confirmed cases of COVID-19, a case-by-case risk assessment should be conducted by the airline to identify which crew should be managed as close contacts.

Considerations for conducting a risk assessment should include:

- Proximity of crew to confirmed case
- Duration of exposure to confirmed case
- Size of the compartment in which the crew member and confirmed case interacted
- Precautions taken, including PPE worn, when in close proximity to the confirmed case

Where it has been determined that a crew member is a close contact, the airline is responsible for notifying the **relevant state/territory public health authority** to facilitate management of the close contact.

Aboriginal and Torres Strait Islander communities

Key drivers of increased risk of transmission and severity

- **Mobility:** Aboriginal and Torres Strait Islander peoples are highly mobile, with frequent travel often linked to family and cultural connections and community events involving long distances between cities, towns, and communities. In addition, remote communities have a high flow of visitors (e.g. tourists, fly-in fly-out clinicians and other workers). This increases the risk of transmission even in generally isolated communities.
- **Remoteness:** A fifth of the Aboriginal and Torres Strait Islander population lives in remote and very remote areas. There is often reduced access health services, these are usually at capacity in normal circumstances and are often reliant on temporary staff. Limited transport options may further inhibit presentations and delay laboratory testing.
- **Barriers to access:** Unwell people may present late in disease progression for many reasons including lack of availability of services, institutional racism, and mistrust of mainstream health services.
- **Overcrowding:** Many Aboriginal and Torres Strait Islander communities have insufficient housing infrastructure, which results in people living in overcrowded conditions. This facilitates disease transmission and makes it difficult for cases and contacts to maintain social distance measures and self-quarantine.
- **Burden of disease:** Aboriginal and Torres Strait Islander people experience a burden of disease 2.3 times the rate of other Australians. This may increase the risk of severe disease from SARS-CoV-2.

Key response strategies

- **Shared decision-making and governance:** Throughout all phases, COVID-19 response work should be collaborative to ensure local community leaders are central to the response. Further risk reduction strategies and public health responses should be co-developed, and co-designed, enabling Aboriginal and Torres Strait Islander people to contribute and fully participate in shared decision-making.
- **Social and cultural determinants of health:** Public health strategies should be considered within the context of a holistic approach that prioritises the safety and well-being of individuals, families and communities while acknowledging the centrality of culture, and the addressing racism, intergenerational trauma and other social determinants of health.
- **Community control:** The Aboriginal Community Controlled Health Services (ACCHS) sector provides a comprehensive model of culturally safe care with structured support and governance systems. The network of ACCHS and peak bodies should be included in the response as a fundamental mechanism of engagement and communication.
- **Appropriate communication:** Messages should be strengths-based and encompass Aboriginal ways of living, including family-centred approaches during both prevention and control phases. They should address factors that may contribute to risk such as social determinants of health, including living arrangements and accessibility to services.
- **Flexible and responsive models of care:** Consider flexible health service delivery and healthcare models (e.g. pandemic assessment centres, flexible ACCHSs clinic hours/location with additional staffing, and home visits). Consider employing the use of point of care influenza tests, where available, to help determine whether influenza is implicated in presentations in the community.

- **Isolation and quarantine:** Families should feel empowered and be part of decision-making around quarantine. This can be achieved through exploring with families what quarantine looks like, working through how it might impact on the family and their way of living, and identifying ways around it. Family members will want to visit unwell people in hospital. It should be made clear that there are other ways to be with sick family members in hospital, maintain communication with families and communities in lieu of gatherings (e.g. staying socially connected through the internet and video calling).

Aged care facilities

Aged care facilities are high-risk settings for infectious disease outbreaks. This is due to the fact that there is often high density living with extensive close physical contact between staff and residents during the provision of care. Residents are at increased risk of severe illness and death due to their age and presence of co-morbid conditions. There are often many visitors, volunteers and staff moving between the community and facilities, which can promote the spread of infectious diseases.

Preventative measures

In addition to usual preventative protocols, aged care facilities should ensure that high rates of influenza vaccination are maintained amongst all occupants and staff. Messaging to discourage unwell visitors from visiting facilities and occupants should be reinforced, and care should be taken to ensure unwell staff and volunteers know not to present to work while symptomatic with any infectious condition. Visitors, residents and staff should be encouraged to increase their frequency of hand hygiene (with soap and water or using alcohol hand rub), surface cleaning, and to use correct cough/sneeze etiquette.

Outbreaks

The vast majority of aged care facilities should be primed and already have frameworks and protocols for testing and isolation in the event of respiratory disease outbreaks. The [Guidelines for the Prevention, Control and Public Health Management of Influenza Outbreaks in Residential Care Facilities in Australia](https://www1.health.gov.au/internet/main/publishing.nsf/Content/cdna-flu-guidelines.htm) details useful principles on prevention, control, and management of respiratory disease outbreaks which could be applied to outbreaks of COVID-19 in these facilities (available at: <https://www1.health.gov.au/internet/main/publishing.nsf/Content/cdna-flu-guidelines.htm>). Specific guidelines for COVID-19 outbreaks in residential care facilities are currently pending, and this advice will be updated accordingly upon their finalisation.

Schools

Schools are prone to rapid transmission of viruses. The best way to prevent transmission of COVID-19 in schools is through the promotion of correct hand hygiene habits and cough/sneeze etiquette. Children or staff with upper respiratory tract illness should not attend school while symptomatic. If a child or staff member becomes ill with upper respiratory tract symptoms, they should be isolated from other students and sent home as soon as possible. Children or staff with confirmed COVID-19 must not return to school until they meet the release from isolation criteria.

Note: Full or partial school closures are not generally recommended as a reactive measure on public health grounds.

8. References

1. Chang D, Xu H, Rebaza A, Sharma L, Dela Cruz CS. Protecting health-care workers from subclinical coronavirus infection. *Lancet Respir Med*. 2020.

9. Appendices

Appendix A: SARS-CoV-2 Laboratory testing information

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

Appendix A: SARS-CoV-2 Laboratory testing information

Laboratory testing for SARS-CoV-2 continues to evolve rapidly with the accumulation of clinical data, and as reagents and protocols are refined.

The aim of testing is to, if clinically appropriate, exclude common respiratory viruses using local hospital and community nucleic acid testing capacity, and to simultaneously refer onward to a laboratory with capacity to test for SARS-CoV-2. As co-infection is possible, initial testing protocols should include testing for SARS-CoV-2 in patients with epidemiological risk, even where another infection is shown to be present.

Samples for testing

- (i) upper respiratory tract samples
- (ii) lower respiratory tract sample if the lower tract is involved
- (iii) serum (to be stored pending serology availability)

Upper respiratory tract samples

1. Nasopharyngeal and oropharyngeal swab: may be dacron or rayon, although flocked preferred

- oropharyngeal (throat): swab the tonsillar beds and the back of the throat, avoiding the tongue
- nasopharyngeal: swab the right or left nasopharynx by gently inserting the swab along the floor of the nasal cavity parallel to the palate until resistance is encountered, and rotate gently for 10-15 seconds; then withdraw and repeat the process in the other nostril. **To conserve swabs** the same swab that has been used to sample the oropharynx should be utilised for nasopharynx sampling
- place the swab(s) back into the accompanying transport medium

Sampling both sites, oropharynx and also the nasopharynx, is recommended to optimise the chances of virus detection. The swab(s) should be placed in transport medium, which may be viral transport medium (VTM) or Liquid Amies. Dry swabs are not recommended.

If SARS-CoV-2 testing is to be undertaken in a different laboratory to testing for other respiratory viruses, then the original swab and remaining eluate should be forwarded for SARS-CoV-2 testing.

2. Nasal wash/aspirates

- collect 2-3 mL into a sterile, leak-proof, screw-top dry sterile container

A nasal wash or aspirate if available, may be substituted for the nasopharyngeal swab sample described above.

Lower respiratory tract samples**1. Sputum**

- patient should rinse his/her mouth with water before collection
- expectorate deep cough sputum directly into a sterile, leak-proof, screw-top dry sterile container

2. Bronchoalveolar lavage, tracheal aspirate, pleural fluid

- collect 2-3 mL into a sterile, leak-proof, screw-top sputum collection cup or dry sterile container

As lower respiratory tract specimens contain the highest viral loads in SARS-CoV and MERS-CoV, it is advised that lower respiratory tract specimens should be collected for SARS-CoV-2 testing where possible. Initial experience in testing for SARS-CoV-2 seems to be consistent with this prior experience. Repeat testing (especially of lower respiratory tract specimens) in clinically compatible cases should be performed if initial results are negative and there remains a high index of suspicion of infection.

Serology

Serum should be collected during the acute phase of the illness (preferably within the first 7 days of symptom onset), stored, and when serology testing becomes available tested in parallel with convalescent sera collected 3 or more weeks after acute infection. If no acute sample was collected, sera collected 14 or more days after symptom onset may be tested.

Specimen handling in the laboratory***Microbiology Laboratory***

Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS 2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment. Specimens should be transported in accordance with current regulatory requirements as diagnostic samples for testing.

Clinical Pathology

Non-respiratory specimens (blood, urine, stool) are known to contain virus. Standard precautions should be used for non-microbial pathology testing (such as routine biochemistry and haematology). Where possible auto-analysers should be used according to standard practices and/or local protocols. There is evidence that capping and uncapping of samples is not a high risk aerosol generating procedure.

Respiratory Virus Diagnostic Testing

Nucleic acid testing of the upper **or lower** respiratory tract samples is performed for influenza and other common respiratory viruses using standard protocols and methods of the hospital or community laboratory.

Standard protocols of the testing laboratory for respiratory sample processing should be used. This is expected to consist of PC2 laboratory practices, and use of a Class II Biosafety cabinet for aerosol generating procedures (such as centrifuging without sealed carriers, vortexing). Viral culture can only be undertaken in an accredited laboratory that has a PC3 facility.

The residue (original swab and remaining eluate) of the upper tract sample is forwarded together with the lower tract sample and the serum to the reference laboratory with SARS-CoV-2 testing capacity requesting SARS-CoV-2 testing.

Clinical liaison with jurisdictional public health officers is essential to coordinate referral and testing.

Standard protocols should be used for sample packaging and transport as diagnostic samples for testing (i.e. Category B).

SARS-CoV-2 specific testing

Nucleic acid testing (NAT) using real time polymerase chain reaction (RT-PCR) is the method of choice for detection of SARS-CoV-2. Specific diagnostic test approaches for SARS-CoV-2 will be described here only in broad terms. There is significant variation in PCR assays employed by different PHLN member laboratories, and test algorithms are likely to be further refined over time. **Commercial assays are becoming available from March 2020 and evaluation of these, or reference to another laboratory evaluation, needs to be performed prior to introduction.**

Specific Real Time PCR primer sets to detect SARS-CoV-2 are available. Some PHLN member laboratories have designed their own, and some have implemented primer sets recommended to the World Health Organization (WHO) by leading international coronavirus reference laboratories (available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance>). The majority of PHLN testing capacity now employs relatively swift RT-PCR assays for screening, with a laboratory turnaround time of several hours. Confirmation of positives is being done either with RT-PCR assays detecting a different target gene, or broadly reactive PCR tests with sequencing of amplicons (see below).

Well pedigreed PCR primer sets, probes and protocols are available from the WHO/ European Viral Archive (EVAg) (available at: https://www.who.int/docs/default-source/coronaviruse/protocol-v2-1.pdf?sfvrsn=a9ef618c_2).

Many PCR assays, including those available through WHO will also detect other zoonotic coronaviruses such as SARS-CoV, sometimes with a recognisable shift in the cycle threshold value (Ct) compared to the SARS-CoV-2 target, but not commonly circulating coronaviruses usually detected by commercial assays (e.g. NL63, 229E strains).

Several Australian PHLN reference laboratories began diagnostic testing for the current outbreak using PCR assays capable of detecting a wide range of coronaviruses, including zoonotic and novel pathogens. A number of these were mapped against the promulgated nucleic acid sequence of SARS-CoV-2 **from Wuhan, China (GenBank accession MN908947, December 2019)** early in the course of the outbreak. Nucleic acid sequencing of amplicons from positive tests is used to identify the coronavirus in this approach. These assays have relatively long turnaround times and have largely been replaced by RT-PCR other than as a confirmatory test in some laboratories.

Complementary DNA (cDNA) synthesized from the VIDRL SARS-CoV-2 has now been made available to all PHLN member laboratories as a test positive control. Synthetic positive control material in the form of nucleic acid templates is also available through WHO/ European Viral Archive (EVAg).

There is variable use of one or two viral targets for SARS-CoV-2 testing. Confirmatory testing using an alternative target, at least in the early stages, for positive samples, is recommended if using a single target.

Testing algorithms are likely to be revised pending further information about the virus, and the number of specimens received in the laboratory for testing.

Viral culture should not be performed for routine diagnosis, and should only be attempted in reference laboratories with appropriate experience and containment facilities. Currently where attempted this is being done at Physical Containment Level 3 (PC3), consistent with current recommendations for SARS-CoV, pending specific SARS-CoV-2 international recommendations.

The Royal College of Pathologists of Australasia Quality Assurance Program (RCPAQAP) with Australian Government support, performed the first SARS-CoV-2 specific QAP, which closed on 11th March 2020, and involved 16 public and private laboratories in all Australian states and in New Zealand. This proficiency testing program (PTP) supplemented previous SARS-CoV, MERS-CoV and other coronaviruses PTP. A second, more detailed PTP is planned to be performed by the RCPA QAP in mid 2020. The second PTP is planned for distribution to a wider range of laboratories, once testing has been extended to more laboratories.

Randox Laboratories and Quality Control for Molecular Diagnostics (QCMD) have announced a pilot EQA scheme for coronaviruses which will include inactivated SARS-CoV-2.

Further Information

The Department of Health has produced a series of resources on COVID-19 for health professionals, including pathology providers and healthcare managers, these may be accessed [here](#).

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

These recommendations are intended for hospital personnel who enter a clinical space with COVID-19 patients, including wardspersons, food deliverers, cleaners, and clinical personnel.

Background:

Although Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) which causes COVID-19 has spread rapidly and widely in mainland China, there has been limited transmission elsewhere, i.e. containment precautions have been mostly successful to date. At the time of writing, the crude mortality (~2%) in China is based on laboratory confirmed cases; many milder cases are almost certainly not being tested and the mortality is likely to be lower. Most cases in Australia have been relatively mild but a small number of deaths has been reported outside of mainland China. While a number of healthcare-associated infections have been reported with COVID-19 (in healthcare workers and patients)—as occurred with SARS and MERS—the risk for COVID-19 is likely to be very low, when infection control precautions are adhered to correctly.

General principles:

- **Standard precautions, including hand hygiene (5 Moments)** for all patients with respiratory infections. Patients and staff should observe cough etiquette and respiratory hygiene,
- **Transmission-based precautions** for patients with suspected or confirmed COVID-19:
 - **Contact and droplet precautions** for **routine care** of patients.
 - **Contact and airborne precautions** for **aerosol generating procedures (AGPs)**.

Contact and droplet precautions:

Contact and droplet precautions can be safely used for routine patient care of inpatients with suspected or confirmed COVID-19 (see Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units for case definition)

- On presentation or admission to hospital the patient should be:
 - given a surgical mask to put on, and
 - placed in a single room (ensuring air does not circulate to other areas)
 - placed in a negative pressure room (in the event of AGPs being performed).
- If transfer outside the room is essential, the patient should wear a surgical mask during transfer and follow respiratory hygiene and cough etiquette.
- For most inpatient contacts between healthcare staff and patients the following PPE is safe and appropriate and should be put on before entering the patient's room:
 - long-sleeved gown
 - surgical mask
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- For hospitalised patients requiring frequent attendance by medical and nursing staff, a P2/N95 respirator should be considered for prolonged or very close contact.

Contact and airborne precautions for aerosol-generating procedures (AGPs) and care of clinically ill patients requiring high level/high volume hands-on contact outside of ICU:

- **Contact and airborne precautions should be used routinely for AGPs**, which include:
 - tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy (and bronchoalveolar lavage), high flow nasal oxygen
 - The use of nebulisers should be avoided and alternative medication administration devices (e.g. spacers) used.
- PPE for contact and airborne procedures should be put on before entering patients room:
 - long-sleeved gown
 - P2/N95 respirator (mask) – should be fit-checked with each use
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- P2/N95 respirators (mask) should be used only when required.
- Unless used correctly, i.e. with fit-checking, a P2/N95 respirator (mask) is unlikely to protect against airborne pathogen spread.
 - An air-tight seal may be difficult to achieve for people with facial hair. Fit checking with a range of P2/N95 respirators must occur to assess the most suitable one to achieve a protective seal. If a tight seal cannot be achieved, facial hair should be removed.

Care of critically ill patients in ICU

- Patients who require admission to ICU with severe COVID-19 are likely to have a high viral load, particularly in the lower respiratory tract
- **Contact and airborne precautions** (as above) are required for patient care and are adequate for most AGPs.
 - The risk of aerosol transmission is reduced once the patient is intubated with a closed ventilator circuit but there is a potential, but unknown, risk of transmission from other body fluids such as diarrhoeal stool or vomitus or inadvertent circuit disconnection
- If a health care professional is required to remain in the patient's room continuously for a long period (e.g. more than one hour), because of the need to perform multiple procedures, the use of a powered air purifying respirator (PAPR) may be considered for additional comfort and visibility. A number of different types of relatively lightweight, comfortable PAPRs are now available and should be used according to manufacturer's instructions. Only **PPE marked as reusable** should be reused, following **reprocessing** according to manufacturer's instructions, All other PPE must be disposed of after use.

ICU staff caring for patients with COVID-19 (or any other potentially serious infectious disease) should be trained in the correct use of PPE, including by an infection control professional. This also applies particularly to the use of PAPRs, if required. Particular care should be taken on removal of PAPR, which is associated with a risk of contamination.

Additional precautions:**Staff**

- A staff log for each room entry should be maintained, to allow monitoring of potential breaches of infection control and follow-up contacts, if necessary.

Disposal of PPE and other waste

- Waste should be disposed in the normal way for clinical waste
- All non-clinical waste is disposed of into general waste

Handling of linen

- Routine procedures for handling of infectious linen should be followed
- Visibly soiled linen should be placed in a (soluble) plastic bag inside a linen skip

Environmental cleaning of patient care areas

- Cleaners should observe contact and droplet precautions (as above).
- Frequently touched surfaces (such as doorknobs, bedrails, tabletops, light switches, patient handsets) in the patient's room should be cleaned daily.
- Terminal cleaning of all surfaces in the room (as above plus floor, ceiling, walls, blinds) should be performed after the patient is discharged.
- A combined cleaning and disinfection procedure should be used, either 2-step— detergent clean, followed by disinfectant; or 2-in-1 step— using a product that has both cleaning and disinfectant properties. Any hospital-grade, TGA-listed disinfectant that is commonly against norovirus is suitable, if used according to manufacturer's instructions.

Coronavirus Disease 2019 (COVID-19)

CDNA National Guidelines for Public Health Units

Revision history			
Version	Date	Revised by	Changes
2.1	20 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management, Special situations
2.0	13 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management, Laboratory testing, Appendix A
1.18	10 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Case management, Contact management. Inclusion of Air crew and Schools advice in Special situations section.
1.17	05 March 2020	Communicable Diseases Network Australia	Inclusion of self-quarantine advice for returned travellers from South Korea, revised Case management, inclusion of table of contents.
1.16	04 March 2020	Communicable Diseases Network Australia	Inclusion of Aboriginal and Torres Strait Islander community advice in Special situations section.
1.15	03 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management.
1.14	02 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Risk stratification of countries, Contact management.
1.13	28 February 2020	Communicable Diseases Network Australia	Revised: Laboratory testing, isolation and restriction and Appendix A: laboratory testing information.
1.12	27 February 2020	Communicable Diseases Network Australia	Inclusion of Cambodia in the list of countries in the Person under investigation section.
1.11	26 February 2020	Communicable Diseases Network Australia	Inclusion of Italy in the list of countries in the Person Under Investigation section.
1.10	23 February 2020	Communicable Diseases Network Australia	Inclusion of South Korea and Iran in the list of countries in the Person Under Investigation section.
1.9	21 February 2020	Communicable Diseases Network Australia	Revised: case definition, infectious period, contact management, special situation (cruise ship).

			Specific changes are highlighted.
1.8	17 February 2020	Communicable Diseases Network Australia	Inclusion of statement reflecting that passengers of the Diamond Princess cruise meet the criteria for close contact.
1.7	15 February 2020	Communicable Diseases Network Australia	Revised case definition.
1.6	14 February 2020	Communicable Diseases Network Australia	Addition of Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19). Updated nomenclature.
1.5	7 February 2020	Communicable Diseases Network Australia	Inclusion of advice on release from isolation.
1.4	6 February 2020	Communicable Diseases Network Australia	Revised case definition and added rationale. Updated infection control advice throughout.
1.3	4 February 2020	Communicable Diseases Network Australia	Revised the case definition and use of the terms 'quarantine' and 'isolation'.
1.2	2 February 2020	Communicable Diseases Network Australia	Revised the case definition, close and casual contact definitions and added self-isolation guidance.
1.1	27 January 2020	Communicable Diseases Network Australia	Removed references to Wuhan and revised the case definition
1.0	23 January 2020	Communicable Diseases Network Australia	Developed by the 2019-nCoV Working Group

This document summarises interim recommendations for surveillance, infection control, laboratory testing and contact management for coronavirus disease 2019 (COVID-19). It is the first national guidance issued for COVID-19 and will be further developed into the Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units (COVID-19 SoNG).

It has been adapted from CDNA National Guidelines for Public Health Units MERS-CoV, utilising current CDC and WHO guidance, and is based on the current knowledge of the situation in mainland China and other countries, and experiences with SARS-CoV and MERS-CoV.

CDNA will review and update these recommendations as required as new information becomes available on the situation.

These interim Guidelines are to be used in the first instance whilst a Series of National Guidelines is being developed by the Communicable Diseases Network Australia (CDNA).

These interim guidelines capture the knowledge of experienced professionals, and provide guidance on best practise based upon the best available evidence at the time of completion.

Readers should not rely solely on the information contained within these Guidelines. Guideline information is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a health professional. Clinical judgement and discretion may be required in the interpretation and application of these guidelines.

The membership of the CDNA and the AHPPC, and the Commonwealth of Australia as represented by the Department of Health ('the Commonwealth'), do not warrant or represent that the information contained in these Guidelines is accurate, current or complete. The CDNA, the AHPPC and the Commonwealth do not accept any legal liability or responsibility for any loss, damages, costs or expenses incurred by the use of, or reliance on, or interpretation of, the information contained in these Guidelines.

Abbreviations and definitions

COVID-19:	coronavirus disease 2019. The name of the disease caused by the virus SARS-CoV-2, as agreed by the World Health Organization, the World Organization for Animal Health and the Food and Agriculture Organization of the United Nations. For more information, see the World Health Organization Director-General's remarks: https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020
SARS-CoV-2:	severe acute respiratory syndrome coronavirus 2. The formal name of the coronavirus that causes COVID-19, as determined by the International Committee on Taxonomy of Viruses. Previously, this coronavirus was commonly known as 'novel coronavirus 2019 (2019-nCoV)'. For more information see the International Committee on Taxonomy of Viruses manuscript: https://www.biorxiv.org/content/10.1101/2020.02.07.937862v1.full.pdf

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1. Case definition

Confirmed case

A person who tests positive to a validated specific SARS-CoV-2 nucleic acid test or has the virus identified by electron microscopy or viral culture.

Suspect case

- A. If the patient satisfies epidemiological and clinical criteria, they are classified as a suspect case.

Epidemiological criteria

- International travel in the 14 days before illness onset.

OR

- Close contact (see [Contact definition](#) below) in 14 days before illness onset with a confirmed case of COVID-19.

Clinical criteria

- Fever ($\geq 38^{\circ}\text{C}$)¹ or history of fever (e.g. night sweats, chills).

OR

- Acute respiratory infection (e.g. shortness of breath, cough, sore throat) with or without fever.

- B. If the patient has bilateral community-acquired pneumonia (critically ill²) and no other cause is identified, with or without recent international travel, they are classified as a suspect case.

- C. If any healthcare worker with direct patient contact has a fever ($\geq 38^{\circ}\text{C}$)¹ or history of fever (e.g. night sweats, chills) AND an acute respiratory infection (e.g. shortness of breath, cough, sore throat), they are classified as a suspect case (see [Healthcare workers](#) for further information).

¹ It is recommended that temperature is measured using a tympanic, oral or other thermometer proven to consistently and accurately represent core body temperature.

² Requiring care in ICU/HDU, or for patients in which ICU care is not appropriate, respiratory or multiorgan failure. Clinical judgement should be exercised considering the likelihood of COVID-19.

Rationale for current case definitions

The case definitions are based on what is currently known about the clinical and epidemiological profile of cases of COVID-19 presenting to date both in Australia and internationally. Health authorities are constantly monitoring the spectrum of clinical symptoms as cases arise, and, if there are any significant shifts, they will be reflected in the above definitions in future versions of this document.

The 14 day period is based upon what is currently known to be the upper time limit of the incubation period. As more precise information about the incubation period emerges, this will be reviewed.

2. Laboratory testing

Patients meeting the suspect case definition ([above](#)) should be tested for SARS-CoV-2. Where applicable, consult with your state/territory communicable diseases agency to seek advice on which laboratories can provide SARS-CoV-2 testing; appropriate specimen type, collection and transport; and also to facilitate contact management if indicated.

When collecting respiratory specimens, transmission-based precautions should be observed whether or not respiratory symptoms are present.

For most patients with mild illness in the community, collection of upper respiratory specimens (i.e. nasopharyngeal or oropharyngeal swabs) is a low risk procedure and can be performed using **contact and droplet precautions**:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield), and surgical mask.
- To collect combined nasopharyngeal/nasal and oropharyngeal swabs, stand slightly to the side of the patient to avoid exposure to respiratory secretions, should the patient cough or sneeze.
- At completion of consultation, remove personal protective equipment (PPE) and perform hand hygiene, wipe any contacted/contaminated surfaces with detergent /disinfectant.
- Note that, for droplet precautions, the room does not need to be left empty after sample collection.

If the patient has severe symptoms suggestive of pneumonia, e.g. fever and breathing difficulty, or frequent, severe or productive coughing episodes then **contact and airborne precautions** should be observed.

Patients with these symptoms should be managed in hospital, and sample collection conducted in a negative pressure room, if available. If referral to hospital for specimen collection is not possible, specimens should be collected in a room from which air does not circulate to other areas. The door should be closed during specimens collection and the room left vacant for at least 30 minutes afterwards (cleaning can be performed during this time by a person wearing PPE).

The following precautions should be observed:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield) and a **P2/N95 respirator – which should be fit checked**.
- At completion of consultation, remove gown and gloves, perform hand hygiene, remove eye protection and P2/N95 respirator. Do not touch the front of any item of PPE during removal; perform hand hygiene.
- The room surfaces should be wiped clean with disinfectant wipes by a person wearing gloves, gown and surgical mask.

For further information on circumstances requiring airborne precautions, see [aerosol generating procedures](#).

Routine tests for acute pneumonia/pneumonitis should be performed where indicated, including bacterial cultures, acute and convalescent serology, urinary antigen testing and nucleic acid tests for respiratory pathogens, according to local protocols.

Serology for SARS-CoV-2 is not yet available. Collection of serum for storage by the SARS-CoV-2 testing laboratory is recommended to facilitate retrospective testing, if this is relevant, once serology tests become available.

See [Appendix A](#) for additional SARS-CoV-2 laboratory testing information.

3. Case management

Response times

On the same day as notification of a suspected or confirmed case, begin follow up investigation and, where applicable, notify your central state or territory communicable diseases agency.

PHU staff should be available to contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners.

Response procedure

Case investigation

The response to a notification will normally be carried out in collaboration with the clinicians managing the case, and be guided by the COVID-19 public health unit checklist and the COVID-19 investigation form (currently pending).

Regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend that tests be done.
- Seek the treating doctor's permission to contact the case or relevant care-giver.
- Determine if the diagnosis has been discussed with the case or relevant care-giver before beginning the interview.
- Review case and contact management.
- Ensure appropriate infection control guidelines are followed in caring for the case.
- Identify the likely source of infection.

Note: If interviews with suspected cases are conducted face-to-face, the person conducting the interview must have a thorough understanding of infection control practices and be competent in using appropriate PPE.

Case treatment

In the absence of pathogen-specific interventions, patient management largely depends on supportive treatment, and vigilance for and treatment of complications.

[Further advice on clinical management is available from WHO:](https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2) (https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2)

Education

Provide a COVID-19 factsheet to cases and their close contacts.

Ensure that they are aware of the signs and symptoms of COVID-19, the requirements of quarantine and isolation, contact details of the PHU and the infection control practices that can prevent the transmission of COVID-19.

Isolation and restriction

Cases will generally be managed in hospital. If clinically indicated, cases may be managed at home only if it can be ensured that the case and household contacts are counselled about risk and that appropriate infection control measures are in place.

Healthcare workers and others who come into contact with suspected and confirmed cases must be protected according to recommended infection control guidelines. Visitors should be restricted to close family members.

A risk assessment should be undertaken for suspected cases who initially test negative for SARS-CoV-2. If there is no alternative diagnosis and a high index of suspicion remains that such cases may have COVID-19, consideration should be given to continued isolation and use of the recommended infection control precautions, pending further testing (see [Laboratory testing section](#) and [Appendix A](#)) and re-assessment.

While recommendations on isolation and PPE for management of suspected and confirmed cases initially took a deliberately cautious approach, emerging evidence and expert advice now supports requirements commensurate with the risk in particular clinical circumstances.

In addition to standard precautions, interim recommendations for the use of PPE during clinical care of people with possible COVID-19 are:

- **Contact and droplet precautions** are recommended for **routine care** of patients in quarantine or with suspected or confirmed COVID-19.
- **Contact and airborne precautions** are recommended when performing **aerosol-generating procedures**, including intubation and bronchoscopy, and for care of **critically ill patients** (see [Appendix B](#) for further information).

Other recommended infection control measures include:

- When a patient who meets the suspect case definition presents to a healthcare setting (GP, hospital ED, or pathology collection centre) and whether or not respiratory symptoms are present, the patient should immediately be:
 - given a surgical mask to put on, and
 - directed to a single room. If the patient has severe symptoms suggestive of pneumonia, they should be directed to a negative pressure room, if available, or a room from which the air does not circulate to other areas.
- If a patient with confirmed COVID-19 needs to be transferred out of their isolation room, the patient should wear a “surgical” face mask and follow respiratory hygiene and cough etiquette.

Release from isolation

A confirmed case can be released from isolation if they meet all of the following criteria:

- the person has been afebrile for the previous 48 hours;
- resolution of the acute illness for the previous 24 hours¹;
- be at least 7 days after the onset of the acute illness;
- PCR negative on at least two consecutive respiratory specimens collected 24 hours apart after the acute illness has resolved^{2,3}.

¹Some people may have pre-existing illnesses with chronic respiratory signs or symptoms, such as chronic cough. For these people, the treating medical practitioner should make an assessment as to whether the signs and symptoms of COVID-19 have resolved.

²If the patient has a productive cough due to a pre-existing respiratory illness or other ongoing lower respiratory tract disease, then the sputum or other lower respiratory tract specimens must be PCR negative for SARS-CoV-2. Otherwise upper respiratory tract specimens (nasopharyngeal or nose and throat swabs) must be PCR negative.

³A small proportion of people may have an illness that has completely resolved but their respiratory specimens remain persistently PCR positive. A decision on release from isolation for these people should be made on a case-by-case basis after consultation between the person's treating medical practitioner, the testing laboratory and public health. Results of viral culture, if available, may be included in this consideration.

Follow up should include the person being reviewed seven days after release from isolation for:

- clinical review to ensure full symptom resolution
- collection of a serum specimen for storage and possible later serologic testing (the person should be informed that this is for future test development and does not inform their clinical care).

Routine PCR testing at seven days after release is not recommended unless the person has clinical features consistent with COVID-19.

Faecal sampling is not recommended as a standard test, however, it may be done for patients with gastrointestinal symptoms. For cases who do have faecal samples tested, and remain persistently PCR positive in these samples after all the release from isolation criteria (above) are met, further or extended precautions and exclusions should be implemented on a case-by-case basis:

- All cases with diarrhoea should be advised not to prepare food for others until 48 hours after symptoms have resolved.
- Cases who have employment that may pose an increased risk of onward transmission (e.g. healthcare workers, restaurant workers and food handlers), should be excluded from work until 48 hours after any symptoms of diarrhoea have resolved.
- Cases with ongoing diarrhoea or faecal incontinence who may have limited capacity to maintain standards of personal hygiene should continue to be isolated until 48 hours after the resolution of these symptoms.

Patients do not require repeat testing until they are PCR negative in faecal samples. It is recommended that people who remained persistently PCR positive in faecal samples use soap and water for hand hygiene. If this is unavailable, alcohol hand gel should be used. Education emphasising the importance of proper hand hygiene should be provided to **all** cases upon release from isolation.

Aerosol-generating procedures

Appropriate care should be taken during aerosol-generating procedures. Aerosol-generating procedures include: tracheal intubation, non-invasive ventilation, tracheostomy, cardiopulmonary resuscitation, manual ventilation before intubation, bronchoscopy, and high flow nasal oxygen. Collection of upper respiratory specimens is not generally regarded as aerosol generating, but airborne precautions should be used for collection of specimens from severely symptomatic patients (see [Laboratory testing section](#)).

P2/N95 respirators should be used only when required. Unless used correctly, i.e. with fit-checking, they are unlikely to protect against airborne pathogen spread.

Airborne precautions should be used routinely for aerosol-generating procedures, such as bronchoscopy, intubation, suctioning etc. in hospital settings. Nebuliser use should be discouraged and alternative administration devices (e.g. spacers) should be used.

The [Laboratory testing section](#) provides detailed information on sample collection for SARS-CoV-2.

Active case finding

Contacts (see [Contact management section](#)) should be identified and advised to immediately seek medical advice should they develop symptoms. Contacts or caregivers should be asked to also inform the public health agency if they develop symptoms.

4. Environmental evaluation

Where local transmission of COVID-19 is thought possible, a thorough review of contributing environmental factors should be done. This should include a review of infection control procedures, and opportunities for exposure to respiratory or faecal contamination.

If a case has had occupational exposure to animals it may be appropriate to consult with animal health authorities.

5. Infectious period

Infectious period of COVID-19 remains unknown, however there is some evidence to support the occurrence of pre-symptomatic or asymptomatic transmission (1). As a precautionary approach, cases are considered to be infectious 24-hours prior to onset of symptoms. Cases are considered to pose a risk of onward transmission and require isolation until criteria listed in the [release from isolation section](#) have been met.

6. Contact management

As there remain gaps in the understanding of infectivity of COVID-19 cases and transmission modes, the definition of contacts and their public health management is based on available information on COVID-19 together with observations from similar serious coronaviruses – SARS-CoV and MERS-CoV.

Identification of contacts

Persons categorised as close contacts (see definition of “close contacts” below) of a confirmed case should be followed-up **and provided with information; close contacts should be** monitored for the development of symptoms for 14 days after the last exposure to the case (i.e. the maximum incubation period) **where feasible to do so.**

Contacts of suspect cases should also be considered for contact management if there is likely to be a delay in confirming or excluding COVID-19 in the suspected case, such as delayed testing.

Less frequent active follow-up together with passive surveillance may be necessary if there are large numbers of close contacts to monitor.

Close contact definition

A close contact is defined as requiring:

- greater than 15 minutes face-to-face contact in any setting with a confirmed case in the period extending from 24 hours before onset of symptoms in the confirmed case, or
- sharing of a closed space with a confirmed case for a prolonged period (e.g. more than 2 hours) in the period extending from 24 hours before onset of symptoms in the confirmed case.

For the purposes of surveillance, a close contact includes a person meeting any of the following criteria:

- Living in the same household or household-like setting (e.g. in a boarding school or hostel).
- Direct contact with the body fluids or laboratory specimens of a case without recommended PPE or failure of PPE.
- A person who spent 2 hours or longer in the same room (such as a GP or ED waiting room; a school classroom; communal room in an aged care facility). See [Special situations](#) for further information specific to aged care facilities and schools.
- A person in the same hospital room when an aerosol generating procedure is undertaken on the case, without recommended PPE.
- Aircraft passengers who were seated in the same row as the case, or in the two rows in front or two rows behind a confirmed COVID-19 case. Contact tracing of people who may have had close contact on long bus or train trips should also be attempted where possible, using similar seating/proximity criteria.
- For aircraft crew exposed to a confirmed case, a case-by-case risk assessment should be conducted by the airline to identify which crew member(s) should be managed as close contacts. See [Special situations](#) for further information.
- If an aircraft crew member is the COVID-19 case, contact tracing efforts should concentrate on passengers seated in the area where the crew member was working during the flight and all of the other members of the crew.

- Close contacts on cruise ships can be difficult to identify, and a case-by-case risk assessment should be conducted to identify which passengers and crew should be managed as close contacts. See [Special situations](#) for further information.

Contact needs to have occurred within the period extending 24 hours before onset of symptoms in the case until the case is classified as no longer infectious by the treating team (usually 24 hours after the resolution of symptoms).

Note that:

- Healthcare workers and other contacts who have taken recommended infection control precautions, including the use of full PPE, while caring for a symptomatic confirmed COVID-19 case are not considered to be close contacts.
- Contact tracing is not required for close contacts arriving on international flights on or after 16 March 2020.

Returned Traveller definition

Returned travellers are defined as those who have undertaken international travel to any country outside Australia in the last 14 days.

Contact assessment

All persons identified as having had contact with a confirmed case should be assessed to see if they should be classified as a close contact and have demographic and epidemiological data collected. Information on close contacts should be managed according to jurisdictional requirements.

Identification and assessment of the contacts of suspected cases may be deferred pending the results of initial laboratory testing.

Close contact testing

Routine laboratory screening for COVID-19 is not recommended for asymptomatic close contacts.

Prophylaxis

No specific chemoprophylaxis is available for contacts.

Education

Close contacts should be counselled about their risk and the symptoms of COVID-19 and provided with a COVID-19 factsheet. They should be advised to self-quarantine.

Quarantine and restriction

Close contacts

Asymptomatic close contacts should be advised to self-quarantine at home for 14 days following the last contact with the case, and to monitor their health for 14 days after the last possible contact with a confirmed COVID-19 case.

Where feasible to do so, public health units should conduct active daily monitoring of close contacts for symptoms for 14 days after the last possible contact with a confirmed COVID-19 case.

Self-quarantined close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

For the purpose of contact management, swabs are **not** indicated during quarantine in well people. A medical clearance from a health care provider is not required for release from quarantine or for other purposes such as returning to work, school or university.

Returned travellers

All returned travellers who have undertaken international travel and returned on or after **16 March 2020** should self-quarantine at home for 14 days after arrival in Australia.

Returned travellers who have travelled in or transited through **mainland China or Iran** should self-quarantine at home for 14 days after leaving the higher risk country.

Returned travellers who have travelled in or transited through **Italy** on or after 11 March 2020 should self-quarantine at home for 14 days after leaving the higher risk country.

Returned travellers who have travelled in or transited through **South Korea** on or after 5 March 2020 should self-quarantine at home for 14 days after leaving the higher risk country.

Self-quarantined returned travellers should be advised on the processes for seeking medical care. See Medical care for quarantined individuals.

All returned travellers who have undertaken international travel **prior to 16 March 2020, and are not required to self-quarantine as per the advice above**, should self-monitor for symptoms, practise social distancing when outside the workplace and [immediately isolate themselves if they become unwell](#). **This advice should be followed for 14 days after returning to Australia.**

Social distancing is an effective measure, but it is recognised that it cannot be practised in all situations and the aim is to generally reduce the potential for transmission. Whilst practising social distancing, people can travel to work (including by public transport) and carry out normal duties. Social distancing outside the workplace is aimed at nonessential activities and includes:

- Avoiding crowds and mass gatherings.
- Avoiding small gatherings in enclosed spaces, for example family celebrations.
- Attempting to keep a distance of 1.5 metres between themselves and other people where possible, for example when out and about in public spaces.

All returned travellers who have undertaken international travel in the last 14 days **who are unwell** with fever, or with respiratory symptoms (with or without fever) or other symptoms consistent with COVID-19 should be isolated and managed as per the current recommendations for suspected cases.

Special risk settings

Healthcare workers

All healthcare workers should observe usual infection prevention and control practices in the workplace. This includes healthcare workers and other staff in any setting who have direct patient contact.

Healthcare workers with influenza like illness should not work while they are symptomatic. They should undergo isolation and additionally be tested for SARS-CoV-2 if they meet the suspect case definition (fever AND acute respiratory illness).

Healthcare workers who are defined as close contacts should be treated as such (see section [6. Contact Management](#)).

In settings where the loss of the healthcare worker will have a significant impact on health services an individual risk assessment should be conducted in collaboration with the PHU.

Self-quarantined healthcare worker close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Public health units may assist infection control units of health facilities to identify and monitor healthcare worker close contacts.

It is recognised that clinical work restrictions on healthcare worker close contacts may place strain on individuals and on health services. This underlines the importance of ensuring healthcare workers implement appropriate infection control precautions when assessing and managing suspected, confirmed COVID-19 cases.

Staff (including Healthcare workers) who have direct patient contact in a hospital or residential/aged care facility.

Healthcare workers and other staff with close patient contact who work in hospitals or residential/aged care facilities should take additional precautions given they come into contact with a high case load of potentially vulnerable patients.

All healthcare workers and staff who have close patient contact in hospitals and/or residential/aged care facilities **who have returned from any higher risk country** should be advised not to undertake work in a health care or residential/aged care facility for 14 days since leaving the higher risk country. They should otherwise follow advice provided to other well returned travellers as above.

Aboriginal and Torres Strait Islander Communities

CDNA will continue to monitor the emerging evidence around COVID-19 transmission risks in healthcare settings and Aboriginal and Torres Strait Islander communities and revise these recommendations as needed. For further information, see section [7. Special situations – Aboriginal and Torres Strait Islander Communities](#).

Medical care for quarantined individuals

If individuals under self-quarantine need to see a doctor for any reason (e.g. fever and respiratory symptoms or other illness/injury), they should **telephone their GP or hospital Emergency Department before presenting. Patients with severe symptoms should call 000 and make it clear they are in self-quarantine or isolation because of COVID-19.** If the patient has **symptoms consistent with the COVID-19 case definition**, the local public health unit should be consulted about the most suitable venue for clinical assessment and specimen collection.

Management of symptomatic contacts

If fever or respiratory symptoms, with or without fever, or other symptoms consistent with COVID-19 develop within the first 14 days following the last contact, PHU staff should arrange for the individual to be immediately isolated and managed as per the current recommendations for suspected COVID-19 cases, with urgent testing for COVID-19 undertaken in an environment which minimises the exposure of others.

Ill contacts who are being evaluated for COVID-19 can be appropriately isolated and managed at home, unless their condition is severe enough to require hospitalisation.

Symptomatic contacts who test negative for SARS-CoV-2 by PCR will still need to be monitored for 14 days after their last contact with a confirmed COVID-19 case and may require re-testing.

7. Special situations

Cruise ships

Risk assessment and identification of contacts

Classification of contacts on cruise ships with one or more confirmed cases of COVID-19 should be made on a case-by-case basis.

Hospital transfer of suspect or confirmed cases

If suspect or confirmed cases on board require transfer to a hospital, the Commonwealth Biosecurity Officer will notify the port authority to provide access for medical transport. The jurisdictional Human Biosecurity Officer will then coordinate transfer of the person to an appropriate medical facility for further management, via the most appropriate means that adheres to necessary precautions.

Quarantine for passengers and crew after arrival at a port

Close contacts arriving prior to 16 March 2020, and any returned travellers arriving on or after 16 March 2020, should self-quarantine. Where feasible, self-quarantine at home should be recommended, (e.g. persons with a residence nearby) ensuring appropriate PPE precautions are employed during travel. For those for whom this is not possible, matters of self-quarantine should be addressed jurisdictionally.

Disembarking and embarking

After all suspect and confirmed cases have been managed appropriately and the Human Biosecurity Officer has determined that no other passengers or crew have symptoms consistent with COVID-19, remaining passengers and crew will be allowed to disembark. The vessel may be permitted to commence embarking once it is certain there is no risk of ongoing transmission.

Air crew

Risk assessment and identification of contacts

Decisions regarding the contact classification of cabin crews can be difficult to determine. On an aircraft with one or more confirmed cases of COVID-19, a case-by-case risk assessment should be conducted by the airline to identify which crew should be managed as close contacts.

Considerations for conducting a risk assessment should include:

- Proximity of crew to confirmed case
- Duration of exposure to confirmed case
- Size of the compartment in which the crew member and confirmed case interacted

- Precautions taken, including PPE worn, when in close proximity to the confirmed case

Where it has been determined that a crew member is a close contact, the airline is responsible for notifying the relevant state/territory public health authority to facilitate management of the close contact.

Aboriginal and Torres Strait Islander communities

Key drivers of increased risk of transmission and severity

- **Mobility:** Aboriginal and Torres Strait Islander peoples are highly mobile, with frequent travel often linked to family and cultural connections and community events involving long distances between cities, towns, and communities. In addition, remote communities have a high flow of visitors (e.g. tourists, fly-in fly-out clinicians and other workers). This increases the risk of transmission even in generally isolated communities.
- **Remoteness:** A fifth of the Aboriginal and Torres Strait Islander population lives in remote and very remote areas. There is often reduced access health services, these are usually at capacity in normal circumstances and are often reliant on temporary staff. Limited transport options may further inhibit presentations and delay laboratory testing.
- **Barriers to access:** Unwell people may present late in disease progression for many reasons including lack of availability of services, institutional racism, and mistrust of mainstream health services.
- **Overcrowding:** Many Aboriginal and Torres Strait Islander communities have insufficient housing infrastructure, which results in people living in overcrowded conditions. This facilitates disease transmission and makes it difficult for cases and contacts to maintain social distance measures and self-quarantine.
- **Burden of disease:** Aboriginal and Torres Strait Islander people experience a burden of disease 2.3 times the rate of other Australians. This may increase the risk of severe disease from SARS-CoV-2.

Key response strategies

- **Shared decision-making and governance:** Throughout all phases, COVID-19 response work should be collaborative to ensure local community leaders are central to the response. Further risk reduction strategies and public health responses should be co-developed, and co-designed, enabling Aboriginal and Torres Strait Islander people to contribute and fully participate in shared decision-making.
- **Social and cultural determinants of health:** Public health strategies should be considered within the context of a holistic approach that prioritises the safety and well-being of individuals, families and communities while acknowledging the centrality of culture, and the addressing racism, intergenerational trauma and other social determinants of health.
- **Community control:** The Aboriginal Community Controlled Health Services (ACCHS) sector provides a comprehensive model of culturally safe care with structured support and governance systems. The network of ACCHS and peak bodies should be included in the response as a fundamental mechanism of engagement and communication.
- **Appropriate communication:** Messages should be strengths-based and encompass Aboriginal ways of living, including family-centred approaches during both prevention and control phases. They should address factors that may contribute to risk such as social determinants of health, including living arrangements and accessibility to services.

- **Flexible and responsive models of care:** Consider flexible health service delivery and healthcare models (e.g. pandemic assessment centres, flexible ACCHSs clinic hours/location with additional staffing, and home visits). Consider employing the use of point of care influenza tests, where available, to help determine whether influenza is implicated in presentations in the community.
- **Isolation and quarantine:** Families should feel empowered and be part of decision-making around quarantine. This can be achieved through exploring with families what quarantine looks like, working through how it might impact on the family and their way of living, and identifying ways around it. Family members will want to visit unwell people in hospital. It should be made clear that there are other ways to be with sick family members in hospital, maintain communication with families and communities in lieu of gatherings (e.g. staying socially connected through the internet and video calling).

Aged care facilities

Aged care facilities are high-risk settings for infectious disease outbreaks. This is due to the fact that there is often high density living with extensive close physical contact between staff and residents during the provision of care. Residents are at increased risk of severe illness and death due to their age and presence of co-morbid conditions. There are often many visitors, volunteers and staff moving between the community and facilities, which can promote the spread of infectious diseases.

Preventative measures

In addition to usual preventative protocols, aged care facilities should ensure that high rates of influenza vaccination are maintained amongst all occupants and staff. Messaging to discourage unwell visitors from visiting facilities and occupants should be reinforced, and care should be taken to ensure unwell staff and volunteers know not to present to work while symptomatic with any infectious condition. Visitors, residents and staff should be encouraged to increase their frequency of hand hygiene (with soap and water or using alcohol hand rub), surface cleaning, and to use correct cough/sneeze etiquette.

Outbreaks

The vast majority of aged care facilities should be primed and already have frameworks and protocols for testing and isolation in the event of respiratory disease outbreaks.

Outbreaks of COVID-19 in residential care facilities should be managed with close reference to the [Coronavirus \(COVID-19\) guidelines for outbreaks in residential care facilities](https://www.health.gov.au/resources/publications/coronavirus-covid-19-guidelines-for-outbreaks-in-residential-care-facilities) (available at: <https://www.health.gov.au/resources/publications/coronavirus-covid-19-guidelines-for-outbreaks-in-residential-care-facilities>). The guidelines provide specific advice on the prevention, control and public health management of COVID-19 outbreaks in residential care facilities in Australia.

Schools

The best way to prevent transmission of COVID-19 in schools is through the promotion of correct hand hygiene habits and cough/sneeze etiquette. Children or staff with upper respiratory tract illness should not attend school while symptomatic. If a child or staff member becomes ill with upper respiratory tract symptoms, they should be isolated from other students and sent home as soon as possible.

Contact tracing or management of school outbreaks may require temporary full or partial school closures; however, closures are not generally recommended as a reactive measure on public health grounds.

8. References

1. Chang D, Xu H, Rebaza A, Sharma L, Dela Cruz CS. Protecting health-care workers from subclinical coronavirus infection. *Lancet Respir Med*. 2020.

9. Appendices

Appendix A: SARS-CoV-2 Laboratory testing information

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

Appendix A: SARS-CoV-2 Laboratory testing information

Laboratory testing for SARS-CoV-2 continues to evolve rapidly with the accumulation of clinical data, and as reagents and protocols are refined.

The aim of testing is to, if clinically appropriate, exclude common respiratory viruses using local hospital and community nucleic acid testing capacity, and to simultaneously refer onward to a laboratory with capacity to test for SARS-CoV-2. As co-infection is possible, initial testing protocols should include testing for SARS-CoV-2 in patients with epidemiological risk, even where another infection is shown to be present.

Samples for testing

- (i) upper respiratory tract samples
- (ii) lower respiratory tract sample if the lower tract is involved
- (iii) serum (to be stored pending serology availability)

Upper respiratory tract samples

1. Nasopharyngeal and oropharyngeal swab: may be dacron or rayon, although flocked preferred
 - oropharyngeal (throat): swab the tonsillar beds and the back of the throat, avoiding the tongue
 - nasopharyngeal: swab the right or left nasopharynx by gently inserting the swab along the floor of the nasal cavity parallel to the palate until resistance is encountered, and rotate gently for 10-15 seconds; then withdraw and repeat the process in the other nostril. **To conserve swabs** the same swab that has been used to sample the oropharynx should be utilised for nasopharynx sampling
 - place the swab(s) back into the accompanying transport medium

Sampling both sites, oropharynx and also the nasopharynx, is recommended to optimise the chances of virus detection. The swab(s) should be placed in transport medium, which may be viral transport medium (VTM) or Liquid Amies. Dry swabs are not recommended.

If SARS-CoV-2 testing is to be undertaken in a different laboratory to testing for other respiratory viruses, then the original swab and remaining eluate should be forwarded for SARS-CoV-2 testing.

2. Nasal wash/aspirates

- collect 2-3 mL into a sterile, leak-proof, screw-top dry sterile container

A nasal wash or aspirate if available, may be substituted for the nasopharyngeal swab sample described above.

Lower respiratory tract samples**1. Sputum**

- patient should rinse his/her mouth with water before collection
- expectorate deep cough sputum directly into a sterile, leak-proof, screw-top dry sterile container

2. Bronchoalveolar lavage, tracheal aspirate, pleural fluid

- collect 2-3 mL into a sterile, leak-proof, screw-top sputum collection cup or dry sterile container

As lower respiratory tract specimens contain the highest viral loads in SARS-CoV and MERS-CoV, it is advised that lower respiratory tract specimens should be collected for SARS-CoV-2 testing where possible. Initial experience in testing for SARS-CoV-2 seems to be consistent with this prior experience. Repeat testing (especially of lower respiratory tract specimens) in clinically compatible cases should be performed if initial results are negative and there remains a high index of suspicion of infection.

Serology

Serum should be collected during the acute phase of the illness (preferably within the first 7 days of symptom onset), stored, and when serology testing becomes available tested in parallel with convalescent sera collected 3 or more weeks after acute infection. If no acute sample was collected, sera collected 14 or more days after symptom onset may be tested.

Specimen handling in the laboratory***Microbiology Laboratory***

Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS 2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment. Specimens should be transported in accordance with current regulatory requirements as diagnostic samples for testing.

Clinical Pathology

Non-respiratory specimens (blood, urine, stool) are known to contain virus. Standard precautions should be used for non-microbial pathology testing (such as routine biochemistry and haematology). Where possible auto-analysers should be used according to standard practices and/or local protocols. There is evidence that capping and uncapping of samples is not a high risk aerosol generating procedure.

Respiratory Virus Diagnostic Testing

Nucleic acid testing of the upper or lower respiratory tract samples is performed for influenza and other common respiratory viruses using standard protocols and methods of the hospital or community laboratory.

Standard protocols of the testing laboratory for respiratory sample processing should be used. This is expected to consist of PC2 laboratory practices, and use of a Class II Biosafety cabinet for aerosol generating procedures (such as centrifuging without sealed carriers, vortexing). Viral culture can only be undertaken in an accredited laboratory that has a PC3 facility.

The residue (original swab and remaining eluate) of the upper tract sample is forwarded together with the lower tract sample and the serum to the reference laboratory with SARS-CoV-2 testing capacity requesting SARS-CoV-2 testing.

Clinical liaison with jurisdictional public health officers is essential to coordinate referral and testing.

Standard protocols should be used for sample packaging and transport as diagnostic samples for testing (i.e. Category B).

SARS-CoV-2 specific testing

Nucleic acid testing (NAT) using real time polymerase chain reaction (RT-PCR) is the method of choice for detection of SARS-CoV-2. Specific diagnostic test approaches for SARS-CoV-2 will be described here only in broad terms. There is significant variation in PCR assays employed by different PHLN member laboratories, and test algorithms are likely to be further refined over time. Commercial assays are becoming available from March 2020 and evaluation of these, or reference to another laboratory evaluation, needs to be performed prior to introduction.

[Specific Real Time PCR primer sets to detect SARS-CoV-2 are available](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance). Some PHLN member laboratories have designed their own, and some have implemented primer sets recommended to the World Health Organization (WHO) by leading international coronavirus reference laboratories (available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance>). The majority of PHLN testing capacity now employs relatively swift RT-PCR assays for screening, with a laboratory turnaround time of several hours. Confirmation of positives is being done either with RT-PCR assays detecting a different target gene, or broadly reactive PCR tests with sequencing of amplicons (see below).

Well pedigreed PCR primer sets, probes and protocols are available from the WHO/ European Viral Archive (EVAg) (available at: https://www.who.int/docs/default-source/coronaviruse/protocol-v2-1.pdf?sfvrsn=a9ef618c_2).

Many PCR assays, including those available through WHO will also detect other zoonotic coronaviruses such as SARS-CoV, sometimes with a recognisable shift in the cycle threshold value (Ct) compared to the SARS-CoV-2 target, but not commonly circulating coronaviruses usually detected by commercial assays (e.g. NL63, 229E strains).

Several Australian PHLN reference laboratories began diagnostic testing for the current outbreak using PCR assays capable of detecting a wide range of coronaviruses, including zoonotic and novel pathogens. A number of these were mapped against the promulgated nucleic acid sequence of SARS-CoV-2 from Wuhan, China (GenBank accession MN908947, December 2019) early in the course of the outbreak. Nucleic acid sequencing of amplicons from positive tests is used to identify the coronavirus in this approach. These assays have relatively long turnaround times and have largely been replaced by RT-PCR other than as a confirmatory test in some laboratories.

Complementary DNA (cDNA) synthesized from the VIDRL SARS-CoV-2 has now been made available to all PHLN member laboratories as a test positive control. Synthetic positive control material in the form of nucleic acid templates is also available through WHO/ European Viral Archive (EVAg).

There is variable use of one or two viral targets for SARS-CoV-2 testing. Confirmatory testing using an alternative target, at least in the early stages, for positive samples, is recommended if using a single target.

Testing algorithms are likely to be revised pending further information about the virus, and the number of specimens received in the laboratory for testing.

Viral culture should not be performed for routine diagnosis, and should only be attempted in reference laboratories with appropriate experience and containment facilities. Currently where attempted this is being done at Physical Containment Level 3 (PC3), consistent with current recommendations for SARS-CoV, pending specific SARS-CoV-2 international recommendations.

The Royal College of Pathologists of Australasia Quality Assurance Program (RCPAQAP) with Australian Government support, performed the first SARS-CoV-2 specific QAP, which closed on 11th March 2020, and involved 16 public and private laboratories in all Australian states and in New Zealand. This proficiency testing program (PTP) supplemented previous SARS-CoV, MERS-CoV and other coronaviruses PTP. A second, more detailed PTP is planned to be performed by the RCPA QAP in mid 2020. The second PTP is planned for distribution to a wider range of laboratories, once testing has been extended to more laboratories.

Randox Laboratories and Quality Control for Molecular Diagnostics (QCMD) have announced a pilot EQA scheme for coronaviruses which will include inactivated SARS-CoV-2.

Further Information

The [Department of Health has produced a series of resources on COVID-19 for health professionals, including pathology providers and healthcare managers, these may be accessed here](#).

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

These recommendations are intended for hospital personnel who enter a clinical space with COVID-19 patients, including wardspersons, food deliverers, cleaners, and clinical personnel.

Background:

Although Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) which causes COVID-19 has spread rapidly and widely in mainland China, there has been limited transmission elsewhere, i.e. containment precautions have been mostly successful to date. At the time of writing, the crude mortality (~2%) in China is based on laboratory confirmed cases; many milder cases are almost certainly not being tested and the mortality is likely to be lower. Most cases in Australia have been relatively mild but a small number of deaths has been reported outside of mainland China. While a number of healthcare-associated infections have been reported with COVID-19 (in healthcare workers and patients)—as occurred with SARS and MERS—the risk for COVID-19 is likely to be very low, when infection control precautions are adhered to correctly.

General principles:

- **Standard precautions, including hand hygiene (5 Moments)** for all patients with respiratory infections. Patients and staff should observe cough etiquette and respiratory hygiene,
- **Transmission-based precautions** for patients with suspected or confirmed COVID-19:
 - **Contact and droplet precautions** for **routine care** of patients.
 - **Contact and airborne precautions** for **aerosol generating procedures (AGPs)**.

Contact and droplet precautions:

Contact and droplet precautions can be safely used for routine patient care of inpatients with suspected or confirmed COVID-19 (see Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units for case definition)

- On presentation or admission to hospital the patient should be:
 - given a surgical mask to put on, and
 - placed in a single room (ensuring air does not circulate to other areas)
 - placed in a negative pressure room (in the event of AGPs being performed).
- If transfer outside the room is essential, the patient should wear a surgical mask during transfer and follow respiratory hygiene and cough etiquette.
- For most inpatient contacts between healthcare staff and patients the following PPE is safe and appropriate and should be put on before entering the patient's room:
 - long-sleeved gown
 - surgical mask
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- For hospitalised patients requiring frequent attendance by medical and nursing staff, a P2/N95 respirator should be considered for prolonged or very close contact.

Contact and airborne precautions for aerosol-generating procedures (AGPs) and care of clinically ill patients requiring high level/high volume hands-on contact outside of ICU:

- **Contact and airborne precautions should be used routinely for AGPs**, which include:
 - tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy (and bronchoalveolar lavage), high flow nasal oxygen
 - The use of nebulisers should be avoided and alternative medication administration devices (e.g. spacers) used.
- PPE for contact and airborne procedures should be put on before entering patients room:
 - long-sleeved gown
 - P2/N95 respirator (mask) – should be fit-checked with each use
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- P2/N95 respirators (mask) should be used only when required.
- Unless used correctly, i.e. with fit-checking, a P2/N95 respirator (mask) is unlikely to protect against airborne pathogen spread.
 - An air-tight seal may be difficult to achieve for people with facial hair. Fit checking with a range of P2/N95 respirators must occur to assess the most suitable one to achieve a protective seal. If a tight seal cannot be achieved, facial hair should be removed.

Care of critically ill patients in ICU

- Patients who require admission to ICU with severe COVID-19 are likely to have a high viral load, particularly in the lower respiratory tract
- **Contact and airborne precautions** (as above) are required for patient care and are adequate for most AGPs.
 - The risk of aerosol transmission is reduced once the patient is intubated with a closed ventilator circuit but there is a potential, but unknown, risk of transmission from other body fluids such as diarrhoeal stool or vomitus or inadvertent circuit disconnection
- If a health care professional is required to remain in the patient's room continuously for a long period (e.g. more than one hour), because of the need to perform multiple procedures, the use of a powered air purifying respirator (PAPR) may be considered for additional comfort and visibility. A number of different types of relatively lightweight, comfortable PAPRs are now available and should be used according to manufacturer's instructions. Only **PPE marked as reusable** should be reused, following **reprocessing** according to manufacturer's instructions, All other PPE must be disposed of after use.

ICU staff caring for patients with COVID-19 (or any other potentially serious infectious disease) should be trained in the correct use of PPE, including by an infection control professional. This also applies particularly to the use of PAPRs, if required. Particular care should be taken on removal of PAPR, which is associated with a risk of contamination.

Additional precautions:**Staff**

- A staff log for each room entry should be maintained, to allow monitoring of potential breaches of infection control and follow-up contacts, if necessary.

Disposal of PPE and other waste

- Waste should be disposed in the normal way for clinical waste
- All non-clinical waste is disposed of into general waste

Handling of linen

- Routine procedures for handling of infectious linen should be followed
- Visibly soiled linen should be placed in a (soluble) plastic bag inside a linen skip

Environmental cleaning of patient care areas

- Cleaners should observe contact and droplet precautions (as above).
- Frequently touched surfaces (such as doorknobs, bedrails, tabletops, light switches, patient handsets) in the patient's room should be cleaned daily.
- Terminal cleaning of all surfaces in the room (as above plus floor, ceiling, walls, blinds) should be performed after the patient is discharged.
- A combined cleaning and disinfection procedure should be used, either 2-step— detergent clean, followed by disinfectant; or 2-in-1 step— using a product that has both cleaning and disinfectant properties. Any hospital-grade, TGA-listed disinfectant that is commonly against norovirus is suitable, if used according to manufacturer's instructions.

Coronavirus Disease 2019 (COVID-19)

CDNA National Guidelines for Public Health Units

Revision history			
Version	Date	Revised by	Changes
2.2	21 March 2020	Communicable Diseases Network Australia	Revised: Case management – Release from isolation.
2.1	20 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management, Special situations
2.0	13 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management, Laboratory testing, Appendix A
1.18	10 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Case management, Contact management. Inclusion of Air crew and Schools advice in Special situations section.
1.17	05 March 2020	Communicable Diseases Network Australia	Inclusion of self-quarantine advice for returned travellers from South Korea, revised Case management, inclusion of table of contents.
1.16	04 March 2020	Communicable Diseases Network Australia	Inclusion of Aboriginal and Torres Strait Islander community advice in Special situations section.
1.15	03 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management.
1.14	02 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Risk stratification of countries, Contact management.
1.13	28 February 2020	Communicable Diseases Network Australia	Revised: Laboratory testing, isolation and restriction and Appendix A: laboratory testing information.
1.12	27 February 2020	Communicable Diseases Network Australia	Inclusion of Cambodia in the list of countries in the Person under investigation section.
1.11	26 February 2020	Communicable Diseases Network Australia	Inclusion of Italy in the list of countries in the Person Under Investigation section.
1.10	23 February 2020	Communicable Diseases Network Australia	Inclusion of South Korea and Iran in the list of countries in the Person Under Investigation section.

1.9	21 February 2020	Communicable Diseases Network Australia	Revised: case definition, infectious period, contact management, special situation (cruise ship). Specific changes are highlighted.
1.8	17 February 2020	Communicable Diseases Network Australia	Inclusion of statement reflecting that passengers of the Diamond Princess cruise meet the criteria for close contact.
1.7	15 February 2020	Communicable Diseases Network Australia	Revised case definition.
1.6	14 February 2020	Communicable Diseases Network Australia	Addition of Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19). Updated nomenclature.
1.5	7 February 2020	Communicable Diseases Network Australia	Inclusion of advice on release from isolation.
1.4	6 February 2020	Communicable Diseases Network Australia	Revised case definition and added rationale. Updated infection control advice throughout.
1.3	4 February 2020	Communicable Diseases Network Australia	Revised the case definition and use of the terms 'quarantine' and 'isolation'.
1.2	2 February 2020	Communicable Diseases Network Australia	Revised the case definition, close and casual contact definitions and added self-isolation guidance.
1.1	27 January 2020	Communicable Diseases Network Australia	Removed references to Wuhan and revised the case definition
1.0	23 January 2020	Communicable Diseases Network Australia	Developed by the 2019-nCoV Working Group

This document summarises interim recommendations for surveillance, infection control, laboratory testing and contact management for coronavirus disease 2019 (COVID-19). It is the first national guidance issued for COVID-19 and will be further developed into the Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units (COVID-19 SoNG).

It has been adapted from CDNA National Guidelines for Public Health Units MERS-CoV, utilising current CDC and WHO guidance, and is based on the current knowledge of the situation in mainland China and other countries, and experiences with SARS-CoV and MERS-CoV.

CDNA will review and update these recommendations as required as new information becomes available on the situation.

These interim Guidelines are to be used in the first instance whilst a Series of National Guidelines is being developed by the Communicable Diseases Network Australia (CDNA).

These interim guidelines capture the knowledge of experienced professionals, and provide guidance on best practise based upon the best available evidence at the time of completion.

Readers should not rely solely on the information contained within these Guidelines. Guideline information is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a health professional. Clinical judgement and discretion may be required in the interpretation and application of these guidelines.

The membership of the CDNA and the AHPPC, and the Commonwealth of Australia as represented by the Department of Health ('the Commonwealth'), do not warrant or represent that the information contained in these Guidelines is accurate, current or complete. The CDNA, the AHPPC and the Commonwealth do not accept any legal liability or responsibility for any loss, damages, costs or expenses incurred by the use of, or reliance on, or interpretation of, the information contained in these Guidelines.

Abbreviations and definitions

COVID-19:	coronavirus disease 2019. The name of the disease caused by the virus SARS-CoV-2, as agreed by the World Health Organization, the World Organization for Animal Health and the Food and Agriculture Organization of the United Nations. For more information, see the World Health Organization Director-General's remarks: https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020
SARS-CoV-2:	severe acute respiratory syndrome coronavirus 2. The formal name of the coronavirus that causes COVID-19, as determined by the International Committee on Taxonomy of Viruses. Previously, this coronavirus was commonly known as 'novel coronavirus 2019 (2019-nCoV)'. For more information see the International Committee on Taxonomy of Viruses manuscript: https://www.biorxiv.org/content/10.1101/2020.02.07.937862v1.full.pdf

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1. Case definition

Confirmed case

A person who tests positive to a validated specific SARS-CoV-2 nucleic acid test or has the virus identified by electron microscopy or viral culture.

Suspect case

- A.** If the patient satisfies epidemiological and clinical criteria, they are classified as a suspect case.

Epidemiological criteria

- International travel in the 14 days before illness onset.

OR

- Close contact (see [Contact definition](#) below) in 14 days before illness onset with a confirmed case of COVID-19.

Clinical criteria

- Fever ($\geq 38^{\circ}\text{C}$)¹ or history of fever (e.g. night sweats, chills).

OR

- Acute respiratory infection (e.g. shortness of breath, cough, sore throat) with or without fever.

- B.** If the patient has bilateral community-acquired pneumonia (critically ill²) and no other cause is identified, with or without recent international travel, they are classified as a suspect case.

- C.** If any healthcare worker with direct patient contact has a fever ($\geq 38^{\circ}\text{C}$)¹ or history of fever (e.g. night sweats, chills) AND an acute respiratory infection (e.g. shortness of breath, cough, sore throat), they are classified as a suspect case (see [Healthcare workers](#) for further information).

¹ It is recommended that temperature is measured using a tympanic, oral or other thermometer proven to consistently and accurately represent core body temperature.

² Requiring care in ICU/HDU, or for patients in which ICU care is not appropriate, respiratory or multiorgan failure. Clinical judgement should be exercised considering the likelihood of COVID-19.

Rationale for current case definitions

The case definitions are based on what is currently known about the clinical and epidemiological profile of cases of COVID-19 presenting to date both in Australia and internationally. Health authorities are constantly monitoring the spectrum of clinical symptoms as cases arise, and, if there are any significant shifts, they will be reflected in the above definitions in future versions of this document.

The 14 day period is based upon what is currently known to be the upper time limit of the incubation period. As more precise information about the incubation period emerges, this will be reviewed.

2. Laboratory testing

Patients meeting the suspect case definition ([above](#)) should be tested for SARS-CoV-2. Where applicable, consult with your state/territory communicable diseases agency to seek advice on which laboratories can provide SARS-CoV-2 testing; appropriate specimen type, collection and transport; and also to facilitate contact management if indicated.

When collecting respiratory specimens, transmission-based precautions should be observed whether or not respiratory symptoms are present.

For most patients with mild illness in the community, collection of upper respiratory specimens (i.e. nasopharyngeal or oropharyngeal swabs) is a low risk procedure and can be performed using **contact and droplet precautions**:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield), and surgical mask.
- To collect combined nasopharyngeal/nasal and oropharyngeal swabs, stand slightly to the side of the patient to avoid exposure to respiratory secretions, should the patient cough or sneeze.
- At completion of consultation, remove personal protective equipment (PPE) and perform hand hygiene, wipe any contacted/contaminated surfaces with detergent /disinfectant.
- Note that, for droplet precautions, the room does not need to be left empty after sample collection.

If the patient has severe symptoms suggestive of pneumonia, e.g. fever and breathing difficulty, or frequent, severe or productive coughing episodes then **contact and airborne precautions** should be observed.

Patients with these symptoms should be managed in hospital, and sample collection conducted in a negative pressure room, if available. If referral to hospital for specimen collection is not possible, specimens should be collected in a room from which air does not circulate to other areas. The door should be closed during specimens collection and the room left vacant for at least 30 minutes afterwards (cleaning can be performed during this time by a person wearing PPE).

The following precautions should be observed:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield) and a **P2/N95 respirator – which should be fit checked**.
- At completion of consultation, remove gown and gloves, perform hand hygiene, remove eye protection and P2/N95 respirator. Do not touch the front of any item of PPE during removal; perform hand hygiene.
- The room surfaces should be wiped clean with disinfectant wipes by a person wearing gloves, gown and surgical mask.

For further information on circumstances requiring airborne precautions, see [aerosol generating procedures](#).

Routine tests for acute pneumonia/pneumonitis should be performed where indicated, including bacterial cultures, acute and convalescent serology, urinary antigen testing and nucleic acid tests for respiratory pathogens, according to local protocols.

Serology for SARS-CoV-2 is not yet available. Collection of serum for storage by the SARS-CoV-2 testing laboratory is recommended to facilitate retrospective testing, if this is relevant, once serology tests become available.

See [Appendix A](#) for additional SARS-CoV-2 laboratory testing information.

3. Case management

Response times

On the same day as notification of a suspected or confirmed case, begin follow up investigation and, where applicable, notify your central state or territory communicable diseases agency.

PHU staff should be available to contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners.

Response procedure

Case investigation

The response to a notification will normally be carried out in collaboration with the clinicians managing the case, and be guided by the COVID-19 public health unit checklist and the COVID-19 investigation form (currently pending).

Regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend that tests be done.
- Seek the treating doctor's permission to contact the case or relevant care-giver.
- Determine if the diagnosis has been discussed with the case or relevant care-giver before beginning the interview.
- Review case and contact management.
- Ensure appropriate infection control guidelines are followed in caring for the case.
- Identify the likely source of infection.

Note: If interviews with suspected cases are conducted face-to-face, the person conducting the interview must have a thorough understanding of infection control practices and be competent in using appropriate PPE.

Case treatment

In the absence of pathogen-specific interventions, patient management largely depends on supportive treatment, and vigilance for and treatment of complications.

[Further advice on clinical management is available from WHO:](https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2) (https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2)

Education

Provide a COVID-19 factsheet to cases and their close contacts.

Ensure that they are aware of the signs and symptoms of COVID-19, the requirements of quarantine and isolation, contact details of the PHU and the infection control practices that can prevent the transmission of COVID-19.

Isolation and restriction

Cases will generally be managed in hospital. If clinically indicated, cases may be managed at home only if it can be ensured that the case and household contacts are counselled about risk and that appropriate infection control measures are in place.

Healthcare workers and others who come into contact with suspected and confirmed cases must be protected according to recommended infection control guidelines. Visitors should be restricted to close family members.

A risk assessment should be undertaken for suspected cases who initially test negative for SARS-CoV-2. If there is no alternative diagnosis and a high index of suspicion remains that such cases may have COVID-19, consideration should be given to continued isolation and use of the recommended infection control precautions, pending further testing (see [Laboratory testing section](#) and [Appendix A](#)) and re-assessment.

While recommendations on isolation and PPE for management of suspected and confirmed cases initially took a deliberately cautious approach, emerging evidence and expert advice now supports requirements commensurate with the risk in particular clinical circumstances.

In addition to standard precautions, interim recommendations for the use of PPE during clinical care of people with possible COVID-19 are:

- **Contact and droplet precautions** are recommended for **routine care** of patients in quarantine or with suspected or confirmed COVID-19.
- **Contact and airborne precautions** are recommended when performing **aerosol-generating procedures**, including intubation and bronchoscopy, and for care of **critically ill patients** (see [Appendix B](#) for further information).

Other recommended infection control measures include:

- When a patient who meets the suspect case definition presents to a healthcare setting (GP, hospital ED, or pathology collection centre) and whether or not respiratory symptoms are present, the patient should immediately be:
 - given a surgical mask to put on, and
 - directed to a single room. If the patient has severe symptoms suggestive of pneumonia, they should be directed to a negative pressure room, if available, or a room from which the air does not circulate to other areas.
- If a patient with confirmed COVID-19 needs to be transferred out of their isolation room, the patient should wear a “surgical” face mask and follow respiratory hygiene and cough etiquette.

Release from isolation

1. Confirmed cases with mild illness who did not require hospitalization.

The case can be released from isolation if they meet all of the following criteria:

- at least 10 days have passed since the onset of symptoms; and
- there has been resolution of all symptoms of the acute illness for the previous 72 hours¹

The case should be advised to continue to be diligent to hand hygiene and cough etiquette and practise social distancing, as is indicated for the rest of the community, as this will assist in reducing transmission.

2. Confirmed cases with more severe illness who have been discharged from hospital.

If the case is ready clinically for hospital discharge, but has not had two consecutive swabs taken at least 24 hours apart which are negative for SARS-CoV-2 by PCR, then they should be discharged to home isolation.

The case can be released from isolation if they meet all of the following criteria:

- at least 10 days have passed since hospital discharge; and
- there has been resolution of all symptoms of the acute illness for the previous 72 hours¹

The case should be advised to continue to be diligent to hand hygiene and cough etiquette and practise social distancing, as is indicated for the rest of the community, as this will assist in reducing transmission.

3. All cases who have specimens taken at clinical recovery can be released from isolation if they meet the criteria below.

Healthcare workers and workers in aged care facilities must meet the following criteria for release from isolation.

A confirmed case can be released from isolation if they meet all of the following criteria:

- the person has been afebrile for the previous 48 hours;
- resolution of the acute illness for the previous 24 hours¹;
- be at least 7 days after the onset of the acute illness;
- PCR negative on at least two consecutive respiratory specimens collected 24 hours apart after the acute illness has resolved^{2, 3} – this will be reviewed as the pandemic evolves in Australia.

¹Some people may have pre-existing illnesses with chronic respiratory signs or symptoms, such as chronic cough. For these people, the treating medical practitioner should make an assessment as to whether the signs and symptoms of COVID-19 have resolved.

²If the patient has a productive cough due to a pre-existing respiratory illness or other ongoing lower respiratory tract disease, then the sputum or other lower respiratory tract specimens must be PCR negative for SARS-CoV-2. Otherwise upper respiratory tract specimens (nasopharyngeal or nose and throat swabs) must be PCR negative.

³A small proportion of people may have an illness that has completely resolved but their respiratory specimens remain persistently PCR positive. A decision on release from isolation for these people should be made on a case-by-case basis after consultation between the person's treating medical practitioner, the testing laboratory and public health. Results of viral culture, if available, may be included in this consideration.

Follow up should include the person being reviewed seven days after release from isolation for:

- clinical review to ensure full symptom resolution
- collection of a serum specimen for storage and possible later serologic testing (the person should be informed that this is for future test development and does not inform their clinical care).

Routine PCR testing at seven days after release is not recommended unless the person has clinical features consistent with COVID-19.

Faecal sampling is not recommended as a standard test, however, it may be done for patients with gastrointestinal symptoms. For cases who do have faecal samples tested, and remain persistently PCR positive in these samples after all the release from isolation criteria (above) are met, further or extended precautions and exclusions should be implemented on a case-by-case basis:

- All cases with diarrhoea should be advised not to prepare food for others until 48 hours after symptoms have resolved.
- Cases who have employment that may pose an increased risk of onward transmission (e.g. healthcare workers, restaurant workers and food handlers), should be excluded from work until 48 hours after any symptoms of diarrhoea have resolved.
- Cases with ongoing diarrhoea or faecal incontinence who may have limited capacity to maintain standards of personal hygiene should continue to be isolated until 48 hours after the resolution of these symptoms.

Patients do not require repeat testing until they are PCR negative in faecal samples. It is recommended that people who remained persistently PCR positive in faecal samples use soap and water for hand hygiene. If this is unavailable, alcohol hand gel should be used. Education emphasising the importance of proper hand hygiene should be provided to **all** cases upon release from isolation.

Aerosol-generating procedures

Appropriate care should be taken during aerosol-generating procedures. Aerosol-generating procedures include: tracheal intubation, non-invasive ventilation, tracheostomy, cardiopulmonary resuscitation, manual ventilation before intubation, bronchoscopy, and high flow nasal oxygen. Collection of upper respiratory specimens is not generally regarded as aerosol generating, but airborne precautions should be used for collection of specimens from severely symptomatic patients (see [Laboratory testing section](#)).

P2/N95 respirators should be used only when required. Unless used correctly, i.e. with fit-checking, they are unlikely to protect against airborne pathogen spread.

Airborne precautions should be used routinely for aerosol-generating procedures, such as bronchoscopy, intubation, suctioning etc. in hospital settings. Nebuliser use should be discouraged and alternative administration devices (e.g. spacers) should be used.

The [Laboratory testing section](#) provides detailed information on sample collection for SARS-CoV-2.

Active case finding

Contacts (see [Contact management section](#)) should be identified and advised to immediately seek medical advice should they develop symptoms. Contacts or caregivers should be asked to also inform the public health agency if they develop symptoms.

4. Environmental evaluation

Where local transmission of COVID-19 is thought possible, a thorough review of contributing environmental factors should be done. This should include a review of infection control procedures, and opportunities for exposure to respiratory or faecal contamination.

If a case has had occupational exposure to animals it may be appropriate to consult with animal health authorities.

5. Infectious period

Infectious period of COVID-19 remains unknown, however there is some evidence to support the occurrence of pre-symptomatic or asymptomatic transmission (1). As a precautionary approach, cases are considered to be infectious 24-hours prior to onset of symptoms. Cases are considered to pose a risk of onward transmission and require isolation until criteria listed in the [release from isolation section](#) have been met.

6. Contact management

As there remain gaps in the understanding of infectivity of COVID-19 cases and transmission modes, the definition of contacts and their public health management is based on available information on COVID-19 together with observations from similar serious coronaviruses – SARS-CoV and MERS-CoV.

Identification of contacts

Persons categorised as close contacts (see definition of “close contacts” below) of a confirmed case should be followed-up and provided with information; close contacts should be monitored for the development of symptoms for 14 days after the last exposure to the case (i.e. the maximum incubation period) where feasible to do so.

Contacts of suspect cases should also be considered for contact management if there is likely to be a delay in confirming or excluding COVID-19 in the suspected case, such as delayed testing.

Less frequent active follow-up together with passive surveillance may be necessary if there are large numbers of close contacts to monitor.

Close contact definition

A close contact is defined as requiring:

- greater than 15 minutes face-to-face contact in any setting with a confirmed case in the period extending from 24 hours before onset of symptoms in the confirmed case, or
- sharing of a closed space with a confirmed case for a prolonged period (e.g. more than 2 hours) in the period extending from 24 hours before onset of symptoms in the confirmed case.

For the purposes of surveillance, a close contact includes a person meeting any of the following criteria:

- Living in the same household or household-like setting (e.g. in a boarding school or hostel).
- Direct contact with the body fluids or laboratory specimens of a case without recommended PPE or failure of PPE.
- A person who spent 2 hours or longer in the same room (such as a GP or ED waiting room; a school classroom; communal room in an aged care facility). See [Special situations](#) for further information specific to aged care facilities and schools.
- A person in the same hospital room when an aerosol generating procedure is undertaken on the case, without recommended PPE.
- Aircraft passengers who were seated in the same row as the case, or in the two rows in front or two rows behind a confirmed COVID-19 case. Contact tracing of people who may have had close contact on long bus or train trips should also be attempted where possible, using similar seating/proximity criteria.
- For aircraft crew exposed to a confirmed case, a case-by-case risk assessment should be conducted by the airline to identify which crew member(s) should be managed as close contacts. See [Special situations](#) for further information.
- If an aircraft crew member is the COVID-19 case, contact tracing efforts should concentrate on passengers seated in the area where the crew member was working during the flight and all of the other members of the crew.
- Close contacts on cruise ships can be difficult to identify, and a case-by-case risk assessment should be conducted to identify which passengers and crew should be managed as close contacts. See [Special situations](#) for further information.

Contact needs to have occurred within the period extending 24 hours before onset of symptoms in the case until the case is classified as no longer infectious by the treating team (usually 24 hours after the resolution of symptoms).

Note that:

- Healthcare workers and other contacts who have taken recommended infection control precautions, including the use of full PPE, while caring for a symptomatic confirmed COVID-19 case are not considered to be close contacts.
- Contact tracing is not required for close contacts arriving on international flights on or after 16 March 2020.

Returned Traveller definition

Returned travellers are defined as those who have undertaken international travel to any country outside Australia in the last 14 days.

Contact assessment

All persons identified as having had contact with a confirmed case should be assessed to see if they should be classified as a close contact and have demographic and epidemiological data collected. Information on close contacts should be managed according to jurisdictional requirements.

Identification and assessment of the contacts of suspected cases may be deferred pending the results of initial laboratory testing.

Close contact testing

Routine laboratory screening for COVID-19 is not recommended for asymptomatic close contacts.

Prophylaxis

No specific chemoprophylaxis is available for contacts.

Education

Close contacts should be counselled about their risk and the symptoms of COVID-19 and provided with a COVID-19 factsheet. They should be advised to self-quarantine.

Quarantine and restriction

Close contacts

Asymptomatic close contacts should be advised to self-quarantine at home for 14 days following the last contact with the case, and to monitor their health for 14 days after the last possible contact with a confirmed COVID-19 case.

Where feasible to do so, public health units should conduct active daily monitoring of close contacts for symptoms for 14 days after the last possible contact with a confirmed COVID-19 case.

Self-quarantined close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

For the purpose of contact management, swabs are **not** indicated during quarantine in well people. A medical clearance from a health care provider is not required for release from quarantine or for other purposes such as returning to work, school or university.

Returned travellers

All returned travellers who have undertaken international travel and returned on or after **16 March 2020** should self-quarantine at home for 14 days after arrival in Australia.

Returned travellers who have travelled in or transited through **mainland China or Iran** should self-quarantine at home for 14 days after leaving the higher risk country.

Returned travellers who have travelled in or transited through **Italy** on or after 11 March 2020 should self-quarantine at home for 14 days after leaving the higher risk country.

Returned travellers who have travelled in or transited through **South Korea** on or after 5 March 2020 should self-quarantine at home for 14 days after leaving the higher risk country.

Self-quarantined returned travellers should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

All returned travellers who have undertaken international travel prior to 16 March 2020, and are not required to self-quarantine as per the advice above, should self-monitor for symptoms, practise social distancing when outside the workplace and [immediately isolate themselves if they become unwell](#). This advice should be followed for 14 days after returning to Australia.

Social distancing is an effective measure, but it is recognised that it cannot be practised in all situations and the aim is to generally reduce the potential for transmission. Whilst practising social distancing, people can travel to work (including by public transport) and carry out normal duties. Social distancing outside the workplace is aimed at nonessential activities and includes:

- Avoiding crowds and mass gatherings.
- Avoiding small gatherings in enclosed spaces, for example family celebrations.
- Attempting to keep a distance of 1.5 metres between themselves and other people where possible, for example when out and about in public spaces.

All returned travellers who have undertaken international travel in the last 14 days **who are unwell** with fever, or with respiratory symptoms (with or without fever) or other symptoms consistent with COVID-19 should be isolated and managed as per the current recommendations for suspected cases.

Special risk settings

Healthcare workers

All healthcare workers should observe usual infection prevention and control practices in the workplace. This includes healthcare workers and other staff in any setting who have direct patient contact.

Healthcare workers with influenza like illness should not work while they are symptomatic. They should undergo isolation and additionally be tested for SARS-CoV-2 if they meet the suspect case definition (fever AND acute respiratory illness).

Healthcare workers who are defined as close contacts should be treated as such (see section [6. Contact Management](#)).

In settings where the loss of the healthcare worker will have a significant impact on health services an individual risk assessment should be conducted in collaboration with the PHU.

Self-quarantined healthcare worker close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Public health units may assist infection control units of health facilities to identify and monitor healthcare worker close contacts.

It is recognised that clinical work restrictions on healthcare worker close contacts may place strain on individuals and on health services. This underlines the importance of ensuring healthcare workers implement appropriate infection control precautions when assessing and managing suspected, confirmed COVID-19 cases.

Staff (including Healthcare workers) who have direct patient contact in a hospital or residential/aged care facility.

Healthcare workers and other staff with close patient contact who work in hospitals or residential/aged care facilities should take additional precautions given they come into contact with a high case load of potentially vulnerable patients.

All healthcare workers and staff who have close patient contact in hospitals and/or residential/aged care facilities **who have returned from any higher risk country** should be advised not to undertake work in a health care or residential/aged care facility for 14 days since leaving the higher risk country. They should otherwise follow advice provided to other well returned travellers as above.

Aboriginal and Torres Strait Islander Communities

CDNA will continue to monitor the emerging evidence around COVID-19 transmission risks in healthcare settings and Aboriginal and Torres Strait Islander communities and revise these recommendations as needed. For further information, see section [7. Special situations – Aboriginal and Torres Strait Islander Communities](#).

Medical care for quarantined individuals

If individuals under self-quarantine need to see a doctor for any reason (e.g. fever and respiratory symptoms or other illness/injury), they should **telephone their GP or hospital Emergency Department before presenting. Patients with severe symptoms should call 000 and make it clear they are in self-quarantine or isolation because of COVID-19.** If the patient has **symptoms consistent with the COVID-19 [case definition](#)**, the local public health unit should be consulted about the most suitable venue for clinical assessment and specimen collection.

Management of symptomatic contacts

If fever or respiratory symptoms, with or without fever, or other symptoms consistent with COVID-19 develop within the first 14 days following the last contact, PHU staff should arrange for the individual to be immediately isolated and managed as per the current recommendations for suspected COVID-19 cases, with urgent testing for COVID-19 undertaken in an environment which minimises the exposure of others.

Ill contacts who are being evaluated for COVID-19 can be appropriately isolated and managed at home, unless their condition is severe enough to require hospitalisation.

Symptomatic contacts who test negative for SARS-CoV-2 by PCR will still need to be monitored for 14 days after their last contact with a confirmed COVID-19 case and may require re-testing.

7. Special situations

Cruise ships

Risk assessment and identification of contacts

Classification of contacts on cruise ships with one or more confirmed cases of COVID-19 should be made on a case-by-case basis.

Hospital transfer of suspect or confirmed cases

If suspect or confirmed cases on board require transfer to a hospital, the Commonwealth Biosecurity Officer will notify the port authority to provide access for medical transport. The jurisdictional Human Biosecurity Officer will then coordinate transfer of the person to an appropriate medical facility for further management, via the most appropriate means that adheres to necessary precautions.

Quarantine for passengers and crew after arrival at a port

Close contacts arriving prior to 16 March 2020, and any returned travellers arriving on or after 16 March 2020, should self-quarantine. Where feasible, self-quarantine at home should be recommended, (e.g. persons with a residence nearby) ensuring appropriate PPE precautions are employed during travel. For those for whom this is not possible, matters of self-quarantine should be addressed jurisdictionally.

Disembarking and embarking

After all suspect and confirmed cases have been managed appropriately and the Human Biosecurity Officer has determined that no other passengers or crew have symptoms consistent with COVID-19, remaining passengers and crew will be allowed to disembark. The vessel may be permitted to commence embarking once it is certain there is no risk of ongoing transmission.

Air crew

Risk assessment and identification of contacts

Decisions regarding the contact classification of cabin crews can be difficult to determine. On an aircraft with one or more confirmed cases of COVID-19, a case-by-case risk assessment should be conducted by the airline to identify which crew should be managed as close contacts.

Considerations for conducting a risk assessment should include:

- Proximity of crew to confirmed case
- Duration of exposure to confirmed case
- Size of the compartment in which the crew member and confirmed case interacted
- Precautions taken, including PPE worn, when in close proximity to the confirmed case

Where it has been determined that a crew member is a close contact, the airline is responsible for notifying the relevant state/territory public health authority to facilitate management of the close contact.

Aboriginal and Torres Strait Islander communities

Key drivers of increased risk of transmission and severity

- **Mobility:** Aboriginal and Torres Strait Islander peoples are highly mobile, with frequent travel often linked to family and cultural connections and community events involving long distances between cities, towns, and communities. In addition, remote communities have a high flow of visitors (e.g. tourists, fly-in fly-out clinicians and other workers). This increases the risk of transmission even in generally isolated communities.
- **Remoteness:** A fifth of the Aboriginal and Torres Strait Islander population lives in remote and very remote areas. There is often reduced access health services, these are usually at capacity in normal circumstances and are often reliant on temporary staff. Limited transport options may further inhibit presentations and delay laboratory testing.
- **Barriers to access:** Unwell people may present late in disease progression for many reasons including lack of availability of services, institutional racism, and mistrust of mainstream health services.
- **Overcrowding:** Many Aboriginal and Torres Strait Islander communities have insufficient housing infrastructure, which results in people living in overcrowded conditions. This facilitates disease transmission and makes it difficult for cases and contacts to maintain social distance measures and self-quarantine.
- **Burden of disease:** Aboriginal and Torres Strait Islander people experience a burden of disease 2.3 times the rate of other Australians. This may increase the risk of severe disease from SARS-CoV-2.

Key response strategies

- **Shared decision-making and governance:** Throughout all phases, COVID-19 response work should be collaborative to ensure local community leaders are central to the response. Further risk reduction strategies and public health responses should be co-developed, and co-designed, enabling Aboriginal and Torres Strait Islander people to contribute and fully participate in shared decision-making.
- **Social and cultural determinants of health:** Public health strategies should be considered within the context of a holistic approach that prioritises the safety and well-being of individuals, families and communities while acknowledging the centrality of culture, and the addressing racism, intergenerational trauma and other social determinants of health.
- **Community control:** The Aboriginal Community Controlled Health Services (ACCHS) sector provides a comprehensive model of culturally safe care with structured support and governance systems. The network of ACCHS and peak bodies should be included in the response as a fundamental mechanism of engagement and communication.
- **Appropriate communication:** Messages should be strengths-based and encompass Aboriginal ways of living, including family-centred approaches during both prevention and control phases. They should address factors that may contribute to risk such as social determinants of health, including living arrangements and accessibility to services.
- **Flexible and responsive models of care:** Consider flexible health service delivery and healthcare models (e.g. pandemic assessment centres, flexible ACCHSs clinic hours/location with additional staffing, and home visits). Consider employing the use of point of care influenza tests, where available, to help determine whether influenza is implicated in presentations in the community.

- **Isolation and quarantine:** Families should feel empowered and be part of decision-making around quarantine. This can be achieved through exploring with families what quarantine looks like, working through how it might impact on the family and their way of living, and identifying ways around it. Family members will want to visit unwell people in hospital. It should be made clear that there are other ways to be with sick family members in hospital, maintain communication with families and communities in lieu of gatherings (e.g. staying socially connected through the internet and video calling).

Aged care facilities

Aged care facilities are high-risk settings for infectious disease outbreaks. This is due to the fact that there is often high density living with extensive close physical contact between staff and residents during the provision of care. Residents are at increased risk of severe illness and death due to their age and presence of co-morbid conditions. There are often many visitors, volunteers and staff moving between the community and facilities, which can promote the spread of infectious diseases.

Preventative measures

In addition to usual preventative protocols, aged care facilities should ensure that high rates of influenza vaccination are maintained amongst all occupants and staff. Messaging to discourage unwell visitors from visiting facilities and occupants should be reinforced, and care should be taken to ensure unwell staff and volunteers know not to present to work while symptomatic with any infectious condition. Visitors, residents and staff should be encouraged to increase their frequency of hand hygiene (with soap and water or using alcohol hand rub), surface cleaning, and to use correct cough/sneeze etiquette.

Outbreaks

The vast majority of aged care facilities should be primed and already have frameworks and protocols for testing and isolation in the event of respiratory disease outbreaks.

Outbreaks of COVID-19 in residential care facilities should be managed with close reference to the [Coronavirus \(COVID-19\) guidelines for outbreaks in residential care facilities](https://www.health.gov.au/resources/publications/coronavirus-covid-19-guidelines-for-outbreaks-in-residential-care-facilities) (available at: <https://www.health.gov.au/resources/publications/coronavirus-covid-19-guidelines-for-outbreaks-in-residential-care-facilities>). The guidelines provide specific advice on the prevention, control and public health management of COVID-19 outbreaks in residential care facilities in Australia.

Schools

The best way to prevent transmission of COVID-19 in schools is through the promotion of correct hand hygiene habits and cough/sneeze etiquette. Children or staff with upper respiratory tract illness should not attend school while symptomatic. If a child or staff member becomes ill with upper respiratory tract symptoms, they should be isolated from other students and sent home as soon as possible.

Contact tracing or management of school outbreaks may require temporary full or partial school closures; however, closures are not generally recommended as a reactive measure on public health grounds.

8. References

1. Chang D, Xu H, Rebaza A, Sharma L, Dela Cruz CS. Protecting health-care workers from subclinical coronavirus infection. *Lancet Respir Med*. 2020.

9. Appendices

Appendix A: SARS-CoV-2 Laboratory testing information

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

Appendix A: SARS-CoV-2 Laboratory testing information

Laboratory testing for SARS-CoV-2 continues to evolve rapidly with the accumulation of clinical data, and as reagents and protocols are refined.

The aim of testing is to, if clinically appropriate, exclude common respiratory viruses using local hospital and community nucleic acid testing capacity, and to simultaneously refer onward to a laboratory with capacity to test for SARS-CoV-2. As co-infection is possible, initial testing protocols should include testing for SARS-CoV-2 in patients with epidemiological risk, even where another infection is shown to be present.

Samples for testing

- (i) upper respiratory tract samples
- (ii) lower respiratory tract sample if the lower tract is involved
- (iii) serum (to be stored pending serology availability)

Upper respiratory tract samples

1. Nasopharyngeal and oropharyngeal swab: may be dacron or rayon, although flocked preferred
 - oropharyngeal (throat): swab the tonsillar beds and the back of the throat, avoiding the tongue
 - nasopharyngeal: swab the right or left nasopharynx by gently inserting the swab along the floor of the nasal cavity parallel to the palate until resistance is encountered, and rotate gently for 10-15 seconds; then withdraw and repeat the process in the other nostril. **To conserve swabs** the same swab that has been used to sample the oropharynx should be utilised for nasopharynx sampling
 - place the swab(s) back into the accompanying transport medium

Sampling both sites, oropharynx and also the nasopharynx, is recommended to optimise the chances of virus detection. The swab(s) should be placed in transport medium, which may be viral transport medium (VTM) or Liquid Amies. Dry swabs are not recommended.

If SARS-CoV-2 testing is to be undertaken in a different laboratory to testing for other respiratory viruses, then the original swab and remaining eluate should be forwarded for SARS-CoV-2 testing.

2. Nasal wash/aspirates

- collect 2-3 mL into a sterile, leak-proof, screw-top dry sterile container

A nasal wash or aspirate if available, may be substituted for the nasopharyngeal swab sample described above.

Lower respiratory tract samples**1. Sputum**

- patient should rinse his/her mouth with water before collection
- expectorate deep cough sputum directly into a sterile, leak-proof, screw-top dry sterile container

2. Bronchoalveolar lavage, tracheal aspirate, pleural fluid

- collect 2-3 mL into a sterile, leak-proof, screw-top sputum collection cup or dry sterile container

As lower respiratory tract specimens contain the highest viral loads in SARS-CoV and MERS-CoV, it is advised that lower respiratory tract specimens should be collected for SARS-CoV-2 testing where possible. Initial experience in testing for SARS-CoV-2 seems to be consistent with this prior experience. Repeat testing (especially of lower respiratory tract specimens) in clinically compatible cases should be performed if initial results are negative and there remains a high index of suspicion of infection.

Serology

Serum should be collected during the acute phase of the illness (preferably within the first 7 days of symptom onset), stored, and when serology testing becomes available tested in parallel with convalescent sera collected 3 or more weeks after acute infection. If no acute sample was collected, sera collected 14 or more days after symptom onset may be tested.

Specimen handling in the laboratory***Microbiology Laboratory***

Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS 2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment. Specimens should be transported in accordance with current regulatory requirements as diagnostic samples for testing.

Clinical Pathology

Non-respiratory specimens (blood, urine, stool) are known to contain virus. Standard precautions should be used for non-microbial pathology testing (such as routine biochemistry and haematology). Where possible auto-analysers should be used according to standard practices and/or local protocols. There is evidence that capping and uncapping of samples is not a high risk aerosol generating procedure.

Respiratory Virus Diagnostic Testing

Nucleic acid testing of the upper or lower respiratory tract samples is performed for influenza and other common respiratory viruses using standard protocols and methods of the hospital or community laboratory.

Standard protocols of the testing laboratory for respiratory sample processing should be used. This is expected to consist of PC2 laboratory practices, and use of a Class II Biosafety cabinet for aerosol generating procedures (such as centrifuging without sealed carriers, vortexing). Viral culture can only be undertaken in an accredited laboratory that has a PC3 facility.

The residue (original swab and remaining eluate) of the upper tract sample is forwarded together with the lower tract sample and the serum to the reference laboratory with SARS-CoV-2 testing capacity requesting SARS-CoV-2 testing.

Clinical liaison with jurisdictional public health officers is essential to coordinate referral and testing.

Standard protocols should be used for sample packaging and transport as diagnostic samples for testing (i.e. Category B).

SARS-CoV-2 specific testing

Nucleic acid testing (NAT) using real time polymerase chain reaction (RT-PCR) is the method of choice for detection of SARS-CoV-2. Specific diagnostic test approaches for SARS-CoV-2 will be described here only in broad terms. There is significant variation in PCR assays employed by different PHLN member laboratories, and test algorithms are likely to be further refined over time. Commercial assays are becoming available from March 2020 and evaluation of these, or reference to another laboratory evaluation, needs to be performed prior to introduction.

[Specific Real Time PCR primer sets to detect SARS-CoV-2 are available](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance). Some PHLN member laboratories have designed their own, and some have implemented primer sets recommended to the World Health Organization (WHO) by leading international coronavirus reference laboratories (available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance>). The majority of PHLN testing capacity now employs relatively swift RT-PCR assays for screening, with a laboratory turnaround time of several hours. Confirmation of positives is being done either with RT-PCR assays detecting a different target gene, or broadly reactive PCR tests with sequencing of amplicons (see below).

Well pedigreed PCR primer sets, probes and protocols are available from the WHO/ European Viral Archive (EVA) (available at: https://www.who.int/docs/default-source/coronaviruse/protocol-v2-1.pdf?sfvrsn=a9ef618c_2).

Many PCR assays, including those available through WHO will also detect other zoonotic coronaviruses such as SARS-CoV, sometimes with a recognisable shift in the cycle threshold value (Ct) compared to the SARS-CoV-2 target, but not commonly circulating coronaviruses usually detected by commercial assays (e.g. NL63, 229E strains).

Several Australian PHLN reference laboratories began diagnostic testing for the current outbreak using PCR assays capable of detecting a wide range of coronaviruses, including zoonotic and novel pathogens. A number of these were mapped against the promulgated nucleic acid sequence of SARS-CoV-2 from Wuhan, China (GenBank accession MN908947, December 2019) early in the course of the outbreak. Nucleic acid sequencing of amplicons from positive tests is used to identify the coronavirus in this approach. These assays have relatively long turnaround times and have largely been replaced by RT-PCR other than as a confirmatory test in some laboratories.

Complementary DNA (cDNA) synthesized from the VIDRL SARS-CoV-2 has now been made available to all PHLN member laboratories as a test positive control. Synthetic positive control material in the form of nucleic acid templates is also available through WHO/ European Viral Archive (EVAg).

There is variable use of one or two viral targets for SARS-CoV-2 testing. Confirmatory testing using an alternative target, at least in the early stages, for positive samples, is recommended if using a single target.

Testing algorithms are likely to be revised pending further information about the virus, and the number of specimens received in the laboratory for testing.

Viral culture should not be performed for routine diagnosis, and should only be attempted in reference laboratories with appropriate experience and containment facilities. Currently where attempted this is being done at Physical Containment Level 3 (PC3), consistent with current recommendations for SARS-CoV, pending specific SARS-CoV-2 international recommendations.

The Royal College of Pathologists of Australasia Quality Assurance Program (RCPAQAP) with Australian Government support, performed the first SARS-CoV-2 specific QAP, which closed on 11th March 2020, and involved 16 public and private laboratories in all Australian states and in New Zealand. This proficiency testing program (PTP) supplemented previous SARS-CoV, MERS-CoV and other coronaviruses PTP. A second, more detailed PTP is planned to be performed by the RCPA QAP in mid 2020. The second PTP is planned for distribution to a wider range of laboratories, once testing has been extended to more laboratories.

Randox Laboratories and Quality Control for Molecular Diagnostics (QCMD) have announced a pilot EQA scheme for coronaviruses which will include inactivated SARS-CoV-2.

Further Information

The [Department of Health has produced a series of resources on COVID-19 for health professionals, including pathology providers and healthcare managers, these may be accessed here](#).

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

These recommendations are intended for hospital personnel who enter a clinical space with COVID-19 patients, including wardspersons, food deliverers, cleaners, and clinical personnel.

Background:

Although Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) which causes COVID-19 has spread rapidly and widely in mainland China, there has been limited transmission elsewhere, i.e. containment precautions have been mostly successful to date. At the time of writing, the crude mortality (~2%) in China is based on laboratory confirmed cases; many milder cases are almost certainly not being tested and the mortality is likely to be lower. Most cases in Australia have been relatively mild but a small number of deaths has been reported outside of mainland China. While a number of healthcare-associated infections have been reported with COVID-19 (in healthcare workers and patients)—as occurred with SARS and MERS—the risk for COVID-19 is likely to be very low, when infection control precautions are adhered to correctly.

General principles:

- **Standard precautions, including hand hygiene (5 Moments)** for all patients with respiratory infections. Patients and staff should observe cough etiquette and respiratory hygiene,
- **Transmission-based precautions** for patients with suspected or confirmed COVID-19:
 - **Contact and droplet precautions** for **routine care** of patients.
 - **Contact and airborne precautions** for **aerosol generating procedures (AGPs)**.

Contact and droplet precautions:

Contact and droplet precautions can be safely used for routine patient care of inpatients with suspected or confirmed COVID-19 (see Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units for case definition)

- On presentation or admission to hospital the patient should be:
 - given a surgical mask to put on, and
 - placed in a single room (ensuring air does not circulate to other areas)
 - placed in a negative pressure room (in the event of AGPs being performed).
- If transfer outside the room is essential, the patient should wear a surgical mask during transfer and follow respiratory hygiene and cough etiquette.
- For most inpatient contacts between healthcare staff and patients the following PPE is safe and appropriate and should be put on before entering the patient's room:
 - long-sleeved gown
 - surgical mask
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- For hospitalised patients requiring frequent attendance by medical and nursing staff, a P2/N95 respirator should be considered for prolonged or very close contact.

Contact and airborne precautions for aerosol-generating procedures (AGPs) and care of clinically ill patients requiring high level/high volume hands-on contact outside of ICU:

- **Contact and airborne precautions should be used routinely for AGPs**, which include:
 - tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy (and bronchoalveolar lavage), high flow nasal oxygen
 - The use of nebulisers should be avoided and alternative medication administration devices (e.g. spacers) used.
- PPE for contact and airborne procedures should be put on before entering patients room:
 - long-sleeved gown
 - P2/N95 respirator (mask) – should be fit-checked with each use
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- P2/N95 respirators (mask) should be used only when required.
- Unless used correctly, i.e. with fit-checking, a P2/N95 respirator (mask) is unlikely to protect against airborne pathogen spread.
 - An air-tight seal may be difficult to achieve for people with facial hair. Fit checking with a range of P2/N95 respirators must occur to assess the most suitable one to achieve a protective seal. If a tight seal cannot be achieved, facial hair should be removed.

Care of critically ill patients in ICU

- Patients who require admission to ICU with severe COVID-19 are likely to have a high viral load, particularly in the lower respiratory tract
- **Contact and airborne precautions** (as above) are required for patient care and are adequate for most AGPs.
 - The risk of aerosol transmission is reduced once the patient is intubated with a closed ventilator circuit but there is a potential, but unknown, risk of transmission from other body fluids such as diarrhoeal stool or vomitus or inadvertent circuit disconnection
- If a health care professional is required to remain in the patient's room continuously for a long period (e.g. more than one hour), because of the need to perform multiple procedures, the use of a powered air purifying respirator (PAPR) may be considered for additional comfort and visibility. A number of different types of relatively lightweight, comfortable PAPRs are now available and should be used according to manufacturer's instructions. Only **PPE marked as reusable** should be reused, following **reprocessing** according to manufacturer's instructions, All other PPE must be disposed of after use.

ICU staff caring for patients with COVID-19 (or any other potentially serious infectious disease) should be trained in the correct use of PPE, including by an infection control professional. This also applies particularly to the use of PAPRs, if required. Particular care should be taken on removal of PAPR, which is associated with a risk of contamination.

Additional precautions:**Staff**

- A staff log for each room entry should be maintained, to allow monitoring of potential breaches of infection control and follow-up contacts, if necessary.

Disposal of PPE and other waste

- Waste should be disposed in the normal way for clinical waste
- All non-clinical waste is disposed of into general waste

Handling of linen

- Routine procedures for handling of infectious linen should be followed
- Visibly soiled linen should be placed in a (soluble) plastic bag inside a linen skip

Environmental cleaning of patient care areas

- Cleaners should observe contact and droplet precautions (as above).
- Frequently touched surfaces (such as doorknobs, bedrails, tabletops, light switches, patient handsets) in the patient's room should be cleaned daily.
- Terminal cleaning of all surfaces in the room (as above plus floor, ceiling, walls, blinds) should be performed after the patient is discharged.
- A combined cleaning and disinfection procedure should be used, either 2-step— detergent clean, followed by disinfectant; or 2-in-1 step— using a product that has both cleaning and disinfectant properties. Any hospital-grade, TGA-listed disinfectant that is commonly against norovirus is suitable, if used according to manufacturer's instructions.

Coronavirus Disease 2019 (COVID-19)

CDNA National Guidelines for Public Health Units

Revision history			
Version	Date	Revised by	Changes
2.3	24 March 2020	Communicable Diseases Network Australia	Revised: Case definition
2.2	21 March 2020	Communicable Diseases Network Australia	Revised: Case management – Release from isolation.
2.1	20 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management, Special situations
2.0	13 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management, Laboratory testing, Appendix A
1.18	10 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Case management, Contact management. Inclusion of Air crew and Schools advice in Special situations section.
1.17	05 March 2020	Communicable Diseases Network Australia	Inclusion of self-quarantine advice for returned travellers from South Korea, revised Case management, inclusion of table of contents.
1.16	04 March 2020	Communicable Diseases Network Australia	Inclusion of Aboriginal and Torres Strait Islander community advice in Special situations section.
1.15	03 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management.
1.14	02 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Risk stratification of countries, Contact management.
1.13	28 February 2020	Communicable Diseases Network Australia	Revised: Laboratory testing, isolation and restriction and Appendix A: laboratory testing information.
1.12	27 February 2020	Communicable Diseases Network Australia	Inclusion of Cambodia in the list of countries in the Person under investigation section.
1.11	26 February 2020	Communicable Diseases Network Australia	Inclusion of Italy in the list of countries in the Person Under Investigation section.

1.10	23 February 2020	Communicable Diseases Network Australia	Inclusion of South Korea and Iran in the list of countries in the Person Under Investigation section.
1.9	21 February 2020	Communicable Diseases Network Australia	Revised: case definition, infectious period, contact management, special situation (cruise ship). Specific changes are highlighted.
1.8	17 February 2020	Communicable Diseases Network Australia	Inclusion of statement reflecting that passengers of the Diamond Princess cruise meet the criteria for close contact.
1.7	15 February 2020	Communicable Diseases Network Australia	Revised case definition.
1.6	14 February 2020	Communicable Diseases Network Australia	Addition of Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19). Updated nomenclature.
1.5	7 February 2020	Communicable Diseases Network Australia	Inclusion of advice on release from isolation.
1.4	6 February 2020	Communicable Diseases Network Australia	Revised case definition and added rationale. Updated infection control advice throughout.
1.3	4 February 2020	Communicable Diseases Network Australia	Revised the case definition and use of the terms 'quarantine' and 'isolation'.
1.2	2 February 2020	Communicable Diseases Network Australia	Revised the case definition, close and casual contact definitions and added self-isolation guidance.
1.1	27 January 2020	Communicable Diseases Network Australia	Removed references to Wuhan and revised the case definition
1.0	23 January 2020	Communicable Diseases Network Australia	Developed by the 2019-nCoV Working Group

This document summarises interim recommendations for surveillance, infection control, laboratory testing and contact management for coronavirus disease 2019 (COVID-19). It is the first national guidance issued for COVID-19 and will be further developed into the Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units (COVID-19 SoNG).

It has been adapted from CDNA National Guidelines for Public Health Units MERS-CoV, utilising current CDC and WHO guidance, and is based on the current knowledge of the situation in mainland China and other countries, and experiences with SARS-CoV and MERS-CoV.

CDNA will review and update these recommendations as required as new information becomes available on the situation.

These interim Guidelines are to be used in the first instance whilst a Series of National Guidelines is being developed by the Communicable Diseases Network Australia (CDNA).

These interim guidelines capture the knowledge of experienced professionals, and provide guidance on best practise based upon the best available evidence at the time of completion.

Readers should not rely solely on the information contained within these Guidelines. Guideline information is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a health professional. Clinical judgement and discretion may be required in the interpretation and application of these guidelines.

The membership of the CDNA and the AHPPC, and the Commonwealth of Australia as represented by the Department of Health ('the Commonwealth'), do not warrant or represent that the information contained in these Guidelines is accurate, current or complete. The CDNA, the AHPPC and the Commonwealth do not accept any legal liability or responsibility for any loss, damages, costs or expenses incurred by the use of, or reliance on, or interpretation of, the information contained in these Guidelines.

Abbreviations and definitions

COVID-19:	coronavirus disease 2019. The name of the disease caused by the virus SARS-CoV-2, as agreed by the World Health Organization, the World Organization for Animal Health and the Food and Agriculture Organization of the United Nations. For more information, see the World Health Organization Director-General's remarks: https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020
SARS-CoV-2:	severe acute respiratory syndrome coronavirus 2. The formal name of the coronavirus that causes COVID-19, as determined by the International Committee on Taxonomy of Viruses. Previously, this coronavirus was commonly known as 'novel coronavirus 2019 (2019-nCoV)'. For more information see the International Committee on Taxonomy of Viruses manuscript: https://www.biorxiv.org/content/10.1101/2020.02.07.937862v1.full.pdf

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1. Case definition

Confirmed case

A person who tests positive to a validated specific SARS-CoV-2 nucleic acid test or has the virus identified by electron microscopy or viral culture.

Probable case

A person with fever ($\geq 38^{\circ}\text{C}$)¹ or history of fever (e.g. night sweats, chills) **OR** acute respiratory infection (e.g. cough, shortness of breath, sore throat) **AND** who is a household contact of a confirmed case of COVID-19, where testing has not been conducted.

Suspect case

A person who meets the following epidemiological and clinical criteria:

Epidemiological criteria	Clinical criteria	Action
Very high risk <ul style="list-style-type: none"> Close contact (see Contact definition below) in the 14 days prior to illness onset with a confirmed case International travel in the 14 days prior to illness onset Cruise ship passengers and crew who have travelled in the 14 days prior to illness onset 	Fever ($\geq 38^{\circ}\text{C}$) ¹ or history of fever OR acute respiratory infection (e.g. cough, shortness of breath, sore throat)	Test ²
High risk setting <ol style="list-style-type: none"> Two or more cases of illness clinically consistent with COVID-19 (see clinical criteria) in the following settings: <ul style="list-style-type: none"> Aged care and other residential care facilities Military operational settings Boarding schools Correctional facilities Detention centres Aboriginal rural and remote communities, in consultation with the local PHU Settings where COVID-19 outbreaks have occurred, in consultation with the local PHU Individual patients with illness clinically consistent with COVID-19 (see clinical criteria) in a geographically localised area with elevated risk of community transmission, as defined by PHUs 	Fever ($\geq 38^{\circ}\text{C}$) ¹ or history of fever (e.g. night sweats, chills) OR acute respiratory infection (e.g. cough, shortness of breath, sore throat)	Test (on site for aged care residents, where feasible)

Moderate risk <ul style="list-style-type: none"> Healthcare workers, aged or residential care workers 	Fever ($\geq 38^{\circ}\text{C}$) ¹ or history of fever (e.g. night sweats, chills) OR acute respiratory infection (e.g. cough, shortness of breath, sore throat)	Test
Background risk (No epidemiological risk factors)	Hospitalised patients with fever ($\geq 38^{\circ}\text{C}$) ¹ AND acute respiratory symptoms (e.g. cough, shortness of breath, sore throat) ³ of an unknown cause	Test

¹ It is recommended that temperature is measured using a tympanic, oral or other thermometer proven to consistently and accurately represent core body temperature.

² Testing household contacts of confirmed cases of COVID-19 may not be indicated where resources are constrained. These cases would be considered 'probable cases' (see definition above).

³ Clinical judgement should be exercised in testing hospitalised patients. All patients should attend an emergency department if clinical deterioration occurs.

Rationale for current case definitions

The case definitions are based on what is currently known about the clinical and epidemiological profile of cases of COVID-19 presenting to date both in Australia and internationally. Health authorities are constantly monitoring the spectrum of clinical symptoms as cases arise, and, if there are any significant shifts, they will be reflected in the above definitions in future versions of this document.

The 14 day period is based upon what is currently known to be the upper time limit of the incubation period. As more precise information about the incubation period emerges, this will be reviewed.

2. Laboratory testing

Patients meeting the suspect case definition ([above](#)) should be tested for SARS-CoV-2. Where applicable, consult with your state/territory communicable diseases agency to seek advice on which laboratories can provide SARS-CoV-2 testing; appropriate specimen type, collection and transport; and also to facilitate contact management if indicated.

When collecting respiratory specimens, transmission-based precautions should be observed whether or not respiratory symptoms are present.

For most patients with mild illness in the community, collection of upper respiratory specimens (i.e. nasopharyngeal or oropharyngeal swabs) is a low risk procedure and can be performed using **contact and droplet precautions**:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield), and surgical mask.

- To collect combined nasopharyngeal/nasal and oropharyngeal swabs, stand slightly to the side of the patient to avoid exposure to respiratory secretions, should the patient cough or sneeze.
- At completion of consultation, remove personal protective equipment (PPE) and perform hand hygiene, wipe any contacted/contaminated surfaces with detergent /disinfectant.
- Note that, for droplet precautions, the room does not need to be left empty after sample collection.

If the patient has severe symptoms suggestive of pneumonia, e.g. fever and breathing difficulty, or frequent, severe or productive coughing episodes then **contact and airborne precautions** should be observed.

Patients with these symptoms should be managed in hospital, and sample collection conducted in a negative pressure room, if available. If referral to hospital for specimen collection is not possible, specimens should be collected in a room from which air does not circulate to other areas. The door should be closed during specimens collection and the room left vacant for at least 30 minutes afterwards (cleaning can be performed during this time by a person wearing PPE).

The following precautions should be observed:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield) and a **P2/N95 respirator – which should be fit checked.**
- At completion of consultation, remove gown and gloves, perform hand hygiene, remove eye protection and P2/N95 respirator. Do not touch the front of any item of PPE during removal; perform hand hygiene.
- The room surfaces should be wiped clean with disinfectant wipes by a person wearing gloves, gown and surgical mask.

For further information on circumstances requiring airborne precautions, see [aerosol generating procedures](#).

Routine tests for acute pneumonia/pneumonitis should be performed where indicated, including bacterial cultures, acute and convalescent serology, urinary antigen testing and nucleic acid tests for respiratory pathogens, according to local protocols.

Serology for SARS-CoV-2 is not yet available. Collection of serum for storage by the SARS-CoV-2 testing laboratory is recommended to facilitate retrospective testing, if this is relevant, once serology tests become available.

See [Appendix A](#) for additional SARS-CoV-2 laboratory testing information.

3. Case management

Response times

On the same day as notification of a suspected or confirmed case, begin follow up investigation and, where applicable, notify your central state or territory communicable diseases agency.

PHU staff should be available to contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners.

Response procedure

Case investigation

The response to a notification will normally be carried out in collaboration with the clinicians managing the case, and be guided by the COVID-19 public health unit checklist and the COVID-19 investigation form (currently pending).

Regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend that tests be done.
- Seek the treating doctor's permission to contact the case or relevant care-giver.
- Determine if the diagnosis has been discussed with the case or relevant care-giver before beginning the interview.
- Review case and contact management.
- Ensure appropriate infection control guidelines are followed in caring for the case.
- Identify the likely source of infection.

Note: If interviews with suspected cases are conducted face-to-face, the person conducting the interview must have a thorough understanding of infection control practices and be competent in using appropriate PPE.

Case treatment

In the absence of pathogen-specific interventions, patient management largely depends on supportive treatment, and vigilance for and treatment of complications.

[Further advice on clinical management is available from WHO:](https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2) (https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2)

Education

Provide a COVID-19 factsheet to cases and their close contacts.

Ensure that they are aware of the signs and symptoms of COVID-19, the requirements of quarantine and isolation, contact details of the PHU and the infection control practices that can prevent the transmission of COVID-19.

Isolation and restriction

Cases will generally be managed in hospital. If clinically indicated, cases may be managed at home only if it can be ensured that the case and household contacts are counselled about risk and that appropriate infection control measures are in place.

Healthcare workers and others who come into contact with suspected and confirmed cases must be protected according to recommended infection control guidelines. Visitors should be restricted to close family members.

A risk assessment should be undertaken for suspected cases who initially test negative for SARS-CoV-2. If there is no alternative diagnosis and a high index of suspicion remains that such cases may have COVID-19, consideration should be given to continued isolation and use of the recommended infection control precautions, pending further testing (see [Laboratory testing section](#) and [Appendix A](#)) and re-assessment.

While recommendations on isolation and PPE for management of suspected and confirmed cases initially took a deliberately cautious approach, emerging evidence and expert advice now supports requirements commensurate with the risk in particular clinical circumstances.

In addition to standard precautions, interim recommendations for the use of PPE during clinical care of people with possible COVID-19 are:

- **Contact and droplet precautions** are recommended for **routine care** of patients in quarantine or with suspected or confirmed COVID-19.
- **Contact and airborne precautions** are recommended when performing **aerosol-generating procedures**, including intubation and bronchoscopy, and for care of **critically ill patients** (see [Appendix B](#) for further information).

Other recommended infection control measures include:

- When a patient who meets the suspect case definition presents to a healthcare setting (GP, hospital ED, or pathology collection centre) and whether or not respiratory symptoms are present, the patient should immediately be:
 - given a surgical mask to put on, and
 - directed to a single room. If the patient has severe symptoms suggestive of pneumonia, they should be directed to a negative pressure room, if available, or a room from which the air does not circulate to other areas.
- If a patient with confirmed COVID-19 needs to be transferred out of their isolation room, the patient should wear a “surgical” face mask and follow respiratory hygiene and cough etiquette.

Release from isolation

1. Confirmed cases with mild illness who did not require hospitalization.

The case can be released from isolation if they meet all of the following criteria:

- at least 10 days have passed since the onset of symptoms; and
- there has been resolution of all symptoms of the acute illness for the previous 72 hours¹

The case should be advised to continue to be diligent to hand hygiene and cough etiquette and practise social distancing, as is indicated for the rest of the community, as this will assist in reducing transmission.

2. Confirmed cases with more severe illness who have been discharged from hospital.

If the case is ready clinically for hospital discharge, but has not had two consecutive swabs taken at least 24 hours apart which are negative for SARS-CoV-2 by PCR, then they should be discharged to home isolation.

The case can be released from isolation if they meet all of the following criteria:

- at least 10 days have passed since hospital discharge; and
- there has been resolution of all symptoms of the acute illness for the previous 72 hours¹

The case should be advised to continue to be diligent to hand hygiene and cough etiquette and practise social distancing, as is indicated for the rest of the community, as this will assist in reducing transmission.

3. All cases who have specimens taken at clinical recovery can be released from isolation if they meet the criteria below.

Healthcare workers and workers in aged care facilities must meet the following criteria for release from isolation.

A confirmed case can be released from isolation if they meet all of the following criteria:

- the person has been afebrile for the previous 48 hours;
- resolution of the acute illness for the previous 24 hours¹;
- be at least 7 days after the onset of the acute illness;
- PCR negative on at least two consecutive respiratory specimens collected 24 hours apart after the acute illness has resolved^{2, 3} – this will be reviewed as the pandemic evolves in Australia.

¹Some people may have pre-existing illnesses with chronic respiratory signs or symptoms, such as chronic cough. For these people, the treating medical practitioner should make an assessment as to whether the signs and symptoms of COVID-19 have resolved.

²If the patient has a productive cough due to a pre-existing respiratory illness or other ongoing lower respiratory tract disease, then the sputum or other lower respiratory tract specimens must be PCR negative for SARS-CoV-2. Otherwise upper respiratory tract specimens (nasopharyngeal or nose and throat swabs) must be PCR negative.

³A small proportion of people may have an illness that has completely resolved but their respiratory specimens remain persistently PCR positive. A decision on release from isolation for these people should be made on a case-by-case basis after consultation between the person's treating medical practitioner, the testing laboratory and public health. Results of viral culture, if available, may be included in this consideration.

Follow up should include the person being reviewed seven days after release from isolation for:

- clinical review to ensure full symptom resolution
- collection of a serum specimen for storage and possible later serologic testing (the person should be informed that this is for future test development and does not inform their clinical care).

Routine PCR testing at seven days after release is not recommended unless the person has clinical features consistent with COVID-19.

Faecal sampling is not recommended as a standard test, however, it may be done for patients with gastrointestinal symptoms. For cases who do have faecal samples tested, and remain persistently PCR positive in these samples after all the release from isolation criteria (above) are met, further or extended precautions and exclusions should be implemented on a case-by-case basis:

- All cases with diarrhoea should be advised not to prepare food for others until 48 hours after symptoms have resolved.

- Cases who have employment that may pose an increased risk of onward transmission (e.g. healthcare workers, restaurant workers and food handlers), should be excluded from work until 48 hours after any symptoms of diarrhoea have resolved.
- Cases with ongoing diarrhoea or faecal incontinence who may have limited capacity to maintain standards of personal hygiene should continue to be isolated until 48 hours after the resolution of these symptoms.

Patients do not require repeat testing until they are PCR negative in faecal samples. It is recommended that people who remained persistently PCR positive in faecal samples use soap and water for hand hygiene. If this is unavailable, alcohol hand gel should be used. Education emphasising the importance of proper hand hygiene should be provided to **all** cases upon release from isolation.

Aerosol-generating procedures

Appropriate care should be taken during aerosol-generating procedures. Aerosol-generating procedures include: tracheal intubation, non-invasive ventilation, tracheostomy, cardiopulmonary resuscitation, manual ventilation before intubation, bronchoscopy, and high flow nasal oxygen. Collection of upper respiratory specimens is not generally regarded as aerosol generating, but airborne precautions should be used for collection of specimens from severely symptomatic patients (see [Laboratory testing section](#)).

P2/N95 respirators should be used only when required. Unless used correctly, i.e. with fit-checking, they are unlikely to protect against airborne pathogen spread.

Airborne precautions should be used routinely for aerosol-generating procedures, such as bronchoscopy, intubation, suctioning etc. in hospital settings. Nebuliser use should be discouraged and alternative administration devices (e.g. spacers) should be used.

The [Laboratory testing section](#) provides detailed information on sample collection for SARS-CoV-2.

Active case finding

Contacts (see [Contact management section](#)) should be identified and advised to immediately seek medical advice should they develop symptoms. Contacts or caregivers should be asked to also inform the public health agency if they develop symptoms.

4. Environmental evaluation

Where local transmission of COVID-19 is thought possible, a thorough review of contributing environmental factors should be done. This should include a review of infection control procedures, and opportunities for exposure to respiratory or faecal contamination.

If a case has had occupational exposure to animals it may be appropriate to consult with animal health authorities.

5. Infectious period

Infectious period of COVID-19 remains unknown, however there is some evidence to support the occurrence of pre-symptomatic or asymptomatic transmission (1). As a precautionary approach, cases are considered to be infectious 24-hours prior to onset of symptoms. Cases are considered to pose a risk of onward transmission and require isolation until criteria listed in the [release from isolation section](#) have been met.

6. Contact management

As there remain gaps in the understanding of infectivity of COVID-19 cases and transmission modes, the definition of contacts and their public health management is based on available information on COVID-19 together with observations from similar serious coronaviruses – SARS-CoV and MERS-CoV.

Identification of contacts

Persons categorised as close contacts (see definition of “close contacts” below) of a confirmed case should be followed-up and provided with information; close contacts should be monitored for the development of symptoms for 14 days after the last exposure to the case (i.e. the maximum incubation period) where feasible to do so.

Contacts of suspect cases should also be considered for contact management if there is likely to be a delay in confirming or excluding COVID-19 in the suspected case, such as delayed testing.

Less frequent active follow-up together with passive surveillance may be necessary if there are large numbers of close contacts to monitor.

Close contact definition

A close contact is defined as requiring:

- greater than 15 minutes face-to-face contact in any setting with a confirmed case in the period extending from 24 hours before onset of symptoms in the confirmed case, or
- sharing of a closed space with a confirmed case for a prolonged period (e.g. more than 2 hours) in the period extending from 24 hours before onset of symptoms in the confirmed case.

For the purposes of surveillance, a close contact includes a person meeting any of the following criteria:

- Living in the same household or household-like setting (e.g. in a boarding school or hostel).
- Direct contact with the body fluids or laboratory specimens of a case without recommended PPE or failure of PPE.
- A person who spent 2 hours or longer in the same room (such as a GP or ED waiting room; a school classroom; communal room in an aged care facility). See [Special situations](#) for further information specific to aged care facilities and schools.
- A person in the same hospital room when an aerosol generating procedure is undertaken on the case, without recommended PPE.

- Aircraft passengers who were seated in the same row as the case, or in the two rows in front or two rows behind a confirmed COVID-19 case. Contact tracing of people who may have had close contact on long bus or train trips should also be attempted where possible, using similar seating/proximity criteria.
- For aircraft crew exposed to a confirmed case, a case-by-case risk assessment should be conducted by the airline to identify which crew member(s) should be managed as close contacts. See [Special situations](#) for further information.
- If an aircraft crew member is the COVID-19 case, contact tracing efforts should concentrate on passengers seated in the area where the crew member was working during the flight and all of the other members of the crew.
- Close contacts on cruise ships can be difficult to identify, and a case-by-case risk assessment should be conducted to identify which passengers and crew should be managed as close contacts. See [Special situations](#) for further information.

Contact needs to have occurred within the period extending 24 hours before onset of symptoms in the case until the case is classified as no longer infectious by the treating team (usually 24 hours after the resolution of symptoms).

Note that:

- Healthcare workers and other contacts who have taken recommended infection control precautions, including the use of full PPE, while caring for a symptomatic confirmed COVID-19 case are not considered to be close contacts.
- Contact tracing is not required for close contacts arriving on international flights on or after 16 March 2020.

Returned Traveller definition

Returned travellers are defined as those who have undertaken international travel to any country outside Australia in the last 14 days.

Contact assessment

All persons identified as having had contact with a confirmed case should be assessed to see if they should be classified as a close contact and have demographic and epidemiological data collected. Information on close contacts should be managed according to jurisdictional requirements.

Identification and assessment of the contacts of suspected cases may be deferred pending the results of initial laboratory testing.

Close contact testing

Routine laboratory screening for COVID-19 is not recommended for asymptomatic close contacts.

Prophylaxis

No specific chemoprophylaxis is available for contacts.

Education

Close contacts should be counselled about their risk and the symptoms of COVID-19 and provided with a COVID-19 factsheet. They should be advised to self-quarantine.

Quarantine and restriction

Close contacts

Asymptomatic close contacts should be advised to self-quarantine at home for 14 days following the last contact with the case, and to monitor their health for 14 days after the last possible contact with a confirmed COVID-19 case.

Where feasible to do so, public health units should conduct active daily monitoring of close contacts for symptoms for 14 days after the last possible contact with a confirmed COVID-19 case.

Self-quarantined close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

For the purpose of contact management, swabs are **not** indicated during quarantine in well people. A medical clearance from a health care provider is not required for release from quarantine or for other purposes such as returning to work, school or university.

Returned travellers

All returned travellers who have undertaken international travel and returned on or after **16 March 2020** should self-quarantine at home for 14 days after arrival in Australia.

Returned travellers who have travelled in or transited through **mainland China or Iran** should self-quarantine at home for 14 days after leaving the higher risk country.

Returned travellers who have travelled in or transited through **Italy** on or after 11 March 2020 should self-quarantine at home for 14 days after leaving the higher risk country.

Returned travellers who have travelled in or transited through **South Korea** on or after 5 March 2020 should self-quarantine at home for 14 days after leaving the higher risk country.

Self-quarantined returned travellers should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

All returned travellers who have undertaken international travel prior to 16 March 2020, and are not required to self-quarantine as per the advice above, should self-monitor for symptoms, practise social distancing when outside the workplace and [immediately isolate themselves if they become unwell](#). This advice should be followed for 14 days after returning to Australia.

Social distancing is an effective measure, but it is recognised that it cannot be practised in all situations and the aim is to generally reduce the potential for transmission. Whilst practising social distancing, people can travel to work (including by public transport) and carry out normal duties. Social distancing outside the workplace is aimed at nonessential activities and includes:

- Avoiding crowds and mass gatherings.
- Avoiding small gatherings in enclosed spaces, for example family celebrations.
- Attempting to keep a distance of 1.5 metres between themselves and other people where possible, for example when out and about in public spaces.

All returned travellers who have undertaken international travel in the last 14 days **who are unwell** with fever, or with respiratory symptoms (with or without fever) or other symptoms consistent with COVID-19 should be isolated and managed as per the current recommendations for suspected cases.

Special risk settings

Healthcare workers

All healthcare workers should observe usual infection prevention and control practices in the workplace. This includes healthcare workers and other staff in any setting who have direct patient contact.

Healthcare workers with influenza like illness should not work while they are symptomatic. They should undergo isolation and additionally be tested for SARS-CoV-2 if they meet the suspect case definition (fever AND acute respiratory illness).

Healthcare workers who are defined as close contacts should be treated as such (see section [6. Contact Management](#)).

In settings where the loss of the healthcare worker will have a significant impact on health services an individual risk assessment should be conducted in collaboration with the PHU.

Self-quarantined healthcare worker close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Public health units may assist infection control units of health facilities to identify and monitor healthcare worker close contacts.

It is recognised that clinical work restrictions on healthcare worker close contacts may place strain on individuals and on health services. This underlines the importance of ensuring healthcare workers implement appropriate infection control precautions when assessing and managing suspected, confirmed COVID-19 cases.

Staff (including Healthcare workers) who have direct patient contact in a hospital or residential/aged care facility.

Healthcare workers and other staff with close patient contact who work in hospitals or residential/aged care facilities should take additional precautions given they come into contact with a high case load of potentially vulnerable patients.

All healthcare workers and staff who have close patient contact in hospitals and/or residential/aged care facilities **who have returned from any higher risk country** should be advised not to undertake work in a health care or residential/aged care facility for 14 days since leaving the higher risk country. They should otherwise follow advice provided to other well returned travellers as above.

Aboriginal and Torres Strait Islander Communities

CDNA will continue to monitor the emerging evidence around COVID-19 transmission risks in healthcare settings and Aboriginal and Torres Strait Islander communities and revise these recommendations as needed. For further information, see section [7. Special situations – Aboriginal and Torres Strait Islander Communities](#).

Medical care for quarantined individuals

If individuals under self-quarantine need to see a doctor for any reason (e.g. fever and respiratory symptoms or other illness/injury), they should **telephone their GP or hospital Emergency Department before presenting. Patients with severe symptoms should call 000 and make it clear they are in self-quarantine or isolation because of COVID-19.** If the patient has **symptoms consistent with the COVID-19 [case definition](#)**, the local public health unit should be consulted about the most suitable venue for clinical assessment and specimen collection.

Management of symptomatic contacts

If fever or respiratory symptoms, with or without fever, or other symptoms consistent with COVID-19 develop within the first 14 days following the last contact, PHU staff should arrange for the individual to be immediately isolated and managed as per the current recommendations for suspected COVID-19 cases, with urgent testing for COVID-19 undertaken in an environment which minimises the exposure of others.

Ill contacts who are being evaluated for COVID-19 can be appropriately isolated and managed at home, unless their condition is severe enough to require hospitalisation.

Symptomatic contacts who test negative for SARS-CoV-2 by PCR will still need to be monitored for 14 days after their last contact with a confirmed COVID-19 case and may require re-testing.

7. Special situations

Cruise ships

Risk assessment and identification of contacts

Classification of contacts on cruise ships with one or more confirmed cases of COVID-19 should be made on a case-by-case basis.

Hospital transfer of suspect or confirmed cases

If suspect or confirmed cases on board require transfer to a hospital, the Commonwealth Biosecurity Officer will notify the port authority to provide access for medical transport. The jurisdictional Human Biosecurity Officer will then coordinate transfer of the person to an appropriate medical facility for further management, via the most appropriate means that adheres to necessary precautions.

Quarantine for passengers and crew after arrival at a port

Close contacts arriving prior to 16 March 2020, and any returned travellers arriving on or after 16 March 2020, should self-quarantine. Where feasible, self-quarantine at home should be recommended, (e.g. persons with a residence nearby) ensuring appropriate PPE precautions are employed during travel. For those for whom this is not possible, matters of self-quarantine should be addressed jurisdictionally.

Disembarking and embarking

After all suspect and confirmed cases have been managed appropriately and the Human Biosecurity Officer has determined that no other passengers or crew have symptoms consistent with COVID-19, remaining passengers and crew will be allowed to disembark. The vessel may be permitted to commence embarking once it is certain there is no risk of ongoing transmission.

Air crew

Risk assessment and identification of contacts

Decisions regarding the contact classification of cabin crews can be difficult to determine. On an aircraft with one or more confirmed cases of COVID-19, a case-by-case risk assessment should be conducted by the airline to identify which crew should be managed as close contacts.

Considerations for conducting a risk assessment should include:

- Proximity of crew to confirmed case
- Duration of exposure to confirmed case
- Size of the compartment in which the crew member and confirmed case interacted
- Precautions taken, including PPE worn, when in close proximity to the confirmed case

Where it has been determined that a crew member is a close contact, the airline is responsible for notifying the relevant state/territory public health authority to facilitate management of the close contact.

Aboriginal and Torres Strait Islander communities

Key drivers of increased risk of transmission and severity

- **Mobility:** Aboriginal and Torres Strait Islander peoples are highly mobile, with frequent travel often linked to family and cultural connections and community events involving long distances between cities, towns, and communities. In addition, remote communities have a high flow of visitors (e.g. tourists, fly-in fly-out clinicians and other workers). This increases the risk of transmission even in generally isolated communities.
- **Remoteness:** A fifth of the Aboriginal and Torres Strait Islander population lives in remote and very remote areas. There is often reduced access health services, these are usually at capacity in normal circumstances and are often reliant on temporary staff. Limited transport options may further inhibit presentations and delay laboratory testing.
- **Barriers to access:** Unwell people may present late in disease progression for many reasons including lack of availability of services, institutional racism, and mistrust of mainstream health services.
- **Overcrowding:** Many Aboriginal and Torres Strait Islander communities have insufficient housing infrastructure, which results in people living in overcrowded conditions. This facilitates disease transmission and makes it difficult for cases and contacts to maintain social distance measures and self-quarantine.
- **Burden of disease:** Aboriginal and Torres Strait Islander people experience a burden of disease 2.3 times the rate of other Australians. This may increase the risk of severe disease from SARS-CoV-2.

Key response strategies

- **Shared decision-making and governance:** Throughout all phases, COVID-19 response work should be collaborative to ensure local community leaders are central to the response. Further risk reduction strategies and public health responses should be co-developed, and co-designed, enabling Aboriginal and Torres Strait Islander people to contribute and fully participate in shared decision-making.
- **Social and cultural determinants of health:** Public health strategies should be considered within the context of a holistic approach that prioritises the safety and well-being of individuals, families and communities while acknowledging the centrality of culture, and the addressing racism, intergenerational trauma and other social determinants of health.
- **Community control:** The Aboriginal Community Controlled Health Services (ACCHS) sector provides a comprehensive model of culturally safe care with structured support and governance systems. The network of ACCHS and peak bodies should be included in the response as a fundamental mechanism of engagement and communication.
- **Appropriate communication:** Messages should be strengths-based and encompass Aboriginal ways of living, including family-centred approaches during both prevention and control phases. They should address factors that may contribute to risk such as social determinants of health, including living arrangements and accessibility to services.
- **Flexible and responsive models of care:** Consider flexible health service delivery and healthcare models (e.g. pandemic assessment centres, flexible ACCHSs clinic hours/location with additional staffing, and home visits). Consider employing the use of point of care influenza tests, where available, to help determine whether influenza is implicated in presentations in the community.
- **Isolation and quarantine:** Families should feel empowered and be part of decision-making around quarantine. This can be achieved through exploring with families what quarantine looks like, working through how it might impact on the family and their way of living, and identifying ways around it. Family members will want to visit unwell people in hospital. It should be made clear that there are other ways to be with sick family members in hospital, maintain communication with families and communities in lieu of gatherings (e.g. staying socially connected through the internet and video calling).

Aged care facilities

Aged care facilities are high-risk settings for infectious disease outbreaks. This is due to the fact that there is often high density living with extensive close physical contact between staff and residents during the provision of care. Residents are at increased risk of severe illness and death due to their age and presence of co-morbid conditions. There are often many visitors, volunteers and staff moving between the community and facilities, which can promote the spread of infectious diseases.

Preventative measures

In addition to usual preventative protocols, aged care facilities should ensure that high rates of influenza vaccination are maintained amongst all occupants and staff. Messaging to discourage unwell visitors from visiting facilities and occupants should be reinforced, and care should be taken to ensure unwell staff and volunteers know not to present to work while symptomatic with any infectious condition. Visitors, residents and staff should be encouraged to increase their frequency of hand hygiene (with soap and water or using alcohol hand rub), surface cleaning, and to use correct cough/sneeze etiquette.

Outbreaks

The vast majority of aged care facilities should be primed and already have frameworks and protocols for testing and isolation in the event of respiratory disease outbreaks.

Outbreaks of COVID-19 in residential care facilities should be managed with close reference to the [Coronavirus \(COVID-19\) guidelines for outbreaks in residential care facilities](https://www.health.gov.au/resources/publications/coronavirus-covid-19-guidelines-for-outbreaks-in-residential-care-facilities) (available at: <https://www.health.gov.au/resources/publications/coronavirus-covid-19-guidelines-for-outbreaks-in-residential-care-facilities>). The guidelines provide specific advice on the prevention, control and public health management of COVID-19 outbreaks in residential care facilities in Australia.

Schools

The best way to prevent transmission of COVID-19 in schools is through the promotion of correct hand hygiene habits and cough/sneeze etiquette. Children or staff with upper respiratory tract illness should not attend school while symptomatic. If a child or staff member becomes ill with upper respiratory tract symptoms, they should be isolated from other students and sent home as soon as possible.

Contact tracing or management of school outbreaks may require temporary full or partial school closures; however, closures are not generally recommended as a reactive measure on public health grounds.

8. References

1. Chang D, Xu H, Rebaza A, Sharma L, Dela Cruz CS. Protecting health-care workers from subclinical coronavirus infection. *Lancet Respir Med*. 2020.

9. Appendices

Appendix A: SARS-CoV-2 Laboratory testing information

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

Appendix A: SARS-CoV-2 Laboratory testing information

Laboratory testing for SARS-CoV-2 continues to evolve rapidly with the accumulation of clinical data, and as reagents and protocols are refined.

The aim of testing is to, if clinically appropriate, exclude common respiratory viruses using local hospital and community nucleic acid testing capacity, and to simultaneously refer onward to a laboratory with capacity to test for SARS-CoV-2. As co-infection is possible, initial testing protocols should include testing for SARS-CoV-2 in patients with epidemiological risk, even where another infection is shown to be present.

Samples for testing

- (i) upper respiratory tract samples
- (ii) lower respiratory tract sample if the lower tract is involved
- (iii) serum (to be stored pending serology availability)

Upper respiratory tract samples

1. Nasopharyngeal and oropharyngeal swab: may be dacron or rayon, although flocked preferred
 - oropharyngeal (throat): swab the tonsillar beds and the back of the throat, avoiding the tongue
 - nasopharyngeal: swab the right or left nasopharynx by gently inserting the swab along the floor of the nasal cavity parallel to the palate until resistance is encountered, and rotate gently for 10-15 seconds; then withdraw and repeat the process in the other nostril. **To conserve swabs** the same swab that has been used to sample the oropharynx should be utilised for nasopharynx sampling
 - place the swab(s) back into the accompanying transport medium

Sampling both sites, oropharynx and also the nasopharynx, is recommended to optimise the chances of virus detection. The swab(s) should be placed in transport medium, which may be viral transport medium (VTM) or Liquid Amies. Dry swabs are not recommended.

If SARS-CoV-2 testing is to be undertaken in a different laboratory to testing for other respiratory viruses, then the original swab and remaining eluate should be forwarded for SARS-CoV-2 testing.

2. Nasal wash/aspirates

- collect 2-3 mL into a sterile, leak-proof, screw-top dry sterile container

A nasal wash or aspirate if available, may be substituted for the nasopharyngeal swab sample described above.

Lower respiratory tract samples

1. Sputum

- patient should rinse his/her mouth with water before collection
- expectorate deep cough sputum directly into a sterile, leak-proof, screw-top dry sterile container

2. Bronchoalveolar lavage, tracheal aspirate, pleural fluid

- collect 2-3 mL into a sterile, leak-proof, screw-top sputum collection cup or dry sterile container

As lower respiratory tract specimens contain the highest viral loads in SARS-CoV and MERS-CoV, it is advised that lower respiratory tract specimens should be collected for SARS-CoV-2 testing where possible. Initial experience in testing for SARS-CoV-2 seems to be consistent with this prior experience. Repeat testing (especially of lower respiratory tract specimens) in clinically compatible cases should be performed if initial results are negative and there remains a high index of suspicion of infection.

Serology

Serum should be collected during the acute phase of the illness (preferably within the first 7 days of symptom onset), stored, and when serology testing becomes available tested in parallel with convalescent sera collected 3 or more weeks after acute infection. If no acute sample was collected, sera collected 14 or more days after symptom onset may be tested.

Specimen handling in the laboratory

Microbiology Laboratory

Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS 2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment. Specimens should be transported in accordance with current regulatory requirements as diagnostic samples for testing.

Clinical Pathology

Non-respiratory specimens (blood, urine, stool) are known to contain virus. Standard precautions should be used for non-microbial pathology testing (such as routine biochemistry and haematology). Where possible auto-analysers should be used according to standard practices and/or local protocols. There is evidence that capping and uncapping of samples is not a high risk aerosol generating procedure.

Respiratory Virus Diagnostic Testing

Nucleic acid testing of the upper or lower respiratory tract samples is performed for influenza and other common respiratory viruses using standard protocols and methods of the hospital or community laboratory.

Standard protocols of the testing laboratory for respiratory sample processing should be used. This is expected to consist of PC2 laboratory practices, and use of a Class II Biosafety cabinet for aerosol generating procedures (such as centrifuging without sealed carriers, vortexing). Viral culture can only be undertaken in an accredited laboratory that has a PC3 facility.

The residue (original swab and remaining eluate) of the upper tract sample is forwarded together with the lower tract sample and the serum to the reference laboratory with SARS-CoV-2 testing capacity requesting SARS-CoV-2 testing.

Clinical liaison with jurisdictional public health officers is essential to coordinate referral and testing.

Standard protocols should be used for sample packaging and transport as diagnostic samples for testing (i.e. Category B).

SARS-CoV-2 specific testing

Nucleic acid testing (NAT) using real time polymerase chain reaction (RT-PCR) is the method of choice for detection of SARS-CoV-2. Specific diagnostic test approaches for SARS-CoV-2 will be described here only in broad terms. There is significant variation in PCR assays employed by different PHLN member laboratories, and test algorithms are likely to be further refined over time. Commercial assays are becoming available from March 2020 and evaluation of these, or reference to another laboratory evaluation, needs to be performed prior to introduction.

[Specific Real Time PCR primer sets to detect SARS-CoV-2 are available](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance). Some PHLN member laboratories have designed their own, and some have implemented primer sets recommended to the World Health Organization (WHO) by leading international coronavirus reference laboratories (available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance>). The majority of PHLN testing capacity now employs relatively swift RT-PCR assays for screening, with a laboratory turnaround time of several hours. Confirmation of positives is being done either with RT-PCR assays detecting a different target gene, or broadly reactive PCR tests with sequencing of amplicons (see below).

Well pedigreed PCR primer sets, probes and protocols are available from the WHO/ European Viral Archive (EVAg) (available at: https://www.who.int/docs/default-source/coronaviruse/protocol-v2-1.pdf?sfvrsn=a9ef618c_2).

Many PCR assays, including those available through WHO will also detect other zoonotic coronaviruses such as SARS-CoV, sometimes with a recognisable shift in the cycle threshold value (Ct) compared to the SARS-CoV-2 target, but not commonly circulating coronaviruses usually detected by commercial assays (e.g. NL63, 229E strains).

Several Australian PHLN reference laboratories began diagnostic testing for the current outbreak using PCR assays capable of detecting a wide range of coronaviruses, including zoonotic and novel pathogens. A number of these were mapped against the promulgated nucleic acid sequence of SARS-CoV-2 from Wuhan, China (GenBank accession MN908947, December 2019) early in the course of the outbreak. Nucleic acid sequencing of amplicons from positive tests is used to identify the coronavirus in this approach. These assays have relatively long turnaround times and have largely been replaced by RT-PCR other than as a confirmatory test in some laboratories.

Complementary DNA (cDNA) synthesized from the VIDRL SARS-CoV-2 has now been made available to all PHLN member laboratories as a test positive control. Synthetic positive control material in the form of nucleic acid templates is also available through WHO/ European Viral Archive (EVAg).

There is variable use of one or two viral targets for SARS-CoV-2 testing. Confirmatory testing using an alternative target, at least in the early stages, for positive samples, is recommended if using a single target.

Testing algorithms are likely to be revised pending further information about the virus, and the number of specimens received in the laboratory for testing.

Viral culture should not be performed for routine diagnosis, and should only be attempted in reference laboratories with appropriate experience and containment facilities. Currently where attempted this is being done at Physical Containment Level 3 (PC3), consistent with current recommendations for SARS-CoV, pending specific SARS-CoV-2 international recommendations.

The Royal College of Pathologists of Australasia Quality Assurance Program (RCPAQAP) with Australian Government support, performed the first SARS-CoV-2 specific QAP, which closed on 11th March 2020, and involved 16 public and private laboratories in all Australian states and in New Zealand. This proficiency testing program (PTP) supplemented previous SARS-CoV, MERS-CoV and other coronaviruses PTP. A second, more detailed PTP is planned to be performed by the RCPA QAP in mid 2020. The second PTP is planned for distribution to a wider range of laboratories, once testing has been extended to more laboratories.

Randox Laboratories and Quality Control for Molecular Diagnostics (QCMD) have announced a pilot EQA scheme for coronaviruses which will include inactivated SARS-CoV-2.

Further Information

The [Department of Health has produced a series of resources on COVID-19 for health professionals, including pathology providers and healthcare managers, these may be accessed here](#).

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

These recommendations are intended for hospital personnel who enter a clinical space with COVID-19 patients, including wardspersons, food deliverers, cleaners, and clinical personnel.

Background:

Although Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) which causes COVID-19 has spread rapidly and widely in mainland China, there has been limited transmission elsewhere, i.e. containment precautions have been mostly successful to date. At the time of writing, the crude mortality (~2%) in China is based on laboratory confirmed cases; many milder cases are almost certainly not being tested and the mortality is likely to be lower. Most cases in Australia have been relatively mild but a small number of deaths has been reported outside of mainland China. While a number of healthcare-associated infections have been reported with COVID-19 (in healthcare workers and patients)—as occurred with SARS and MERS—the risk for COVID-19 is likely to be very low, when infection control precautions are adhered to correctly.

General principles:

- **Standard precautions, including hand hygiene (5 Moments)** for all patients with respiratory infections. Patients and staff should observe cough etiquette and respiratory hygiene,
- **Transmission-based precautions** for patients with suspected or confirmed COVID-19:
 - **Contact and droplet precautions** for **routine care** of patients.
 - **Contact and airborne precautions** for **aerosol generating procedures (AGPs)**.

Contact and droplet precautions:

Contact and droplet precautions can be safely used for routine patient care of inpatients with suspected or confirmed COVID-19 (see Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units for case definition)

- On presentation or admission to hospital the patient should be:
 - given a surgical mask to put on, and
 - placed in a single room (ensuring air does not circulate to other areas)
 - placed in a negative pressure room (in the event of AGPs being performed).
- If transfer outside the room is essential, the patient should wear a surgical mask during transfer and follow respiratory hygiene and cough etiquette.
- For most inpatient contacts between healthcare staff and patients the following PPE is safe and appropriate and should be put on before entering the patient's room:
 - long-sleeved gown
 - surgical mask
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- For hospitalised patients requiring frequent attendance by medical and nursing staff, a P2/N95 respirator should be considered for prolonged or very close contact.

Contact and airborne precautions for aerosol-generating procedures (AGPs) and care of clinically ill patients requiring high level/high volume hands-on contact outside of ICU:

- **Contact and airborne precautions should be used routinely for AGPs**, which include:
 - tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy (and bronchoalveolar lavage), high flow nasal oxygen
 - The use of nebulisers should be avoided and alternative medication administration devices (e.g. spacers) used.
- PPE for contact and airborne procedures should be put on before entering patients room:
 - long-sleeved gown
 - P2/N95 respirator (mask) – should be fit-checked with each use
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- P2/N95 respirators (mask) should be used only when required.
- Unless used correctly, i.e. with fit-checking, a P2/N95 respirator (mask) is unlikely to protect against airborne pathogen spread.
 - An air-tight seal may be difficult to achieve for people with facial hair. Fit checking with a range of P2/N95 respirators must occur to assess the most suitable one to achieve a protective seal. If a tight seal cannot be achieved, facial hair should be removed.

Care of critically ill patients in ICU

- Patients who require admission to ICU with severe COVID-19 are likely to have a high viral load, particularly in the lower respiratory tract
- **Contact and airborne precautions** (as above) are required for patient care and are adequate for most AGPs.
 - The risk of aerosol transmission is reduced once the patient is intubated with a closed ventilator circuit but there is a potential, but unknown, risk of transmission from other body fluids such as diarrhoeal stool or vomitus or inadvertent circuit disconnection
- If a health care professional is required to remain in the patient's room continuously for a long period (e.g. more than one hour), because of the need to perform multiple procedures, the use of a powered air purifying respirator (PAPR) may be considered for additional comfort and visibility. A number of different types of relatively lightweight, comfortable PAPRs are now available and should be used according to manufacturer's instructions. Only **PPE marked as reusable** should be reused, following **reprocessing** according to manufacturer's instructions, All other PPE must be disposed of after use.

ICU staff caring for patients with COVID-19 (or any other potentially serious infectious disease) should be trained in the correct use of PPE, including by an infection control professional. This also applies particularly to the use of PAPRs, if required. Particular care should be taken on removal of PAPR, which is associated with a risk of contamination.

Additional precautions:**Staff**

- A staff log for each room entry should be maintained, to allow monitoring of potential breaches of infection control and follow-up contacts, if necessary.

Disposal of PPE and other waste

- Waste should be disposed in the normal way for clinical waste
- All non-clinical waste is disposed of into general waste

Handling of linen

- Routine procedures for handling of infectious linen should be followed
- Visibly soiled linen should be placed in a (soluble) plastic bag inside a linen skip

Environmental cleaning of patient care areas

- Cleaners should observe contact and droplet precautions (as above).
- Frequently touched surfaces (such as doorknobs, bedrails, tabletops, light switches, patient handsets) in the patient's room should be cleaned daily.
- Terminal cleaning of all surfaces in the room (as above plus floor, ceiling, walls, blinds) should be performed after the patient is discharged.
- A combined cleaning and disinfection procedure should be used, either 2-step— detergent clean, followed by disinfectant; or 2-in-1 step— using a product that has both cleaning and disinfectant properties. Any hospital-grade, TGA-listed disinfectant that is commonly against norovirus is suitable, if used according to manufacturer's instructions.

Coronavirus Disease 2019 (COVID-19)

CDNA National Guidelines for Public Health Units

Revision history			
Version	Date	Revised by	Changes
2.4	26 March 2020	Communicable Diseases Network Australia	Inclusion of advice for probable cases throughout.
2.3	24 March 2020	Communicable Diseases Network Australia	Revised: Case definition.
2.2	21 March 2020	Communicable Diseases Network Australia	Revised: Case management – Release from isolation.
2.1	20 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management, Special situations.
2.0	13 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management, Laboratory testing, Appendix A.
1.18	10 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Case management, Contact management. Inclusion of Air crew and Schools advice in Special situations section.
1.17	05 March 2020	Communicable Diseases Network Australia	Inclusion of self-quarantine advice for returned travellers from South Korea, revised Case management, inclusion of table of contents.
1.16	04 March 2020	Communicable Diseases Network Australia	Inclusion of Aboriginal and Torres Strait Islander community advice in Special situations section.
1.15	03 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management.
1.14	02 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Risk stratification of countries, Contact management.
1.13	28 February 2020	Communicable Diseases Network Australia	Revised: Laboratory testing, isolation and restriction and Appendix A: laboratory testing information.
1.12	27 February 2020	Communicable Diseases Network Australia	Inclusion of Cambodia in the list of countries in the Person under investigation section.

1.11	26 February 2020	Communicable Diseases Network Australia	Inclusion of Italy in the list of countries in the Person Under Investigation section.
1.10	23 February 2020	Communicable Diseases Network Australia	Inclusion of South Korea and Iran in the list of countries in the Person Under Investigation section.
1.9	21 February 2020	Communicable Diseases Network Australia	Revised: case definition, infectious period, contact management, special situation (cruise ship). Specific changes are highlighted.
1.8	17 February 2020	Communicable Diseases Network Australia	Inclusion of statement reflecting that passengers of the Diamond Princess cruise meet the criteria for close contact.
1.7	15 February 2020	Communicable Diseases Network Australia	Revised case definition.
1.6	14 February 2020	Communicable Diseases Network Australia	Addition of Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19). Updated nomenclature.
1.5	7 February 2020	Communicable Diseases Network Australia	Inclusion of advice on release from isolation.
1.4	6 February 2020	Communicable Diseases Network Australia	Revised case definition and added rationale. Updated infection control advice throughout.
1.3	4 February 2020	Communicable Diseases Network Australia	Revised the case definition and use of the terms 'quarantine' and 'isolation'.
1.2	2 February 2020	Communicable Diseases Network Australia	Revised the case definition, close and casual contact definitions and added self-isolation guidance.
1.1	27 January 2020	Communicable Diseases Network Australia	Removed references to Wuhan and revised the case definition.
1.0	23 January 2020	Communicable Diseases Network Australia	Developed by the 2019-nCoV Working Group.

This document summarises interim recommendations for surveillance, infection control, laboratory testing and contact management for coronavirus disease 2019 (COVID-19). It is the first national guidance issued for COVID-19 and will be further developed into the Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units (COVID-19 SoNG).

It has been adapted from CDNA National Guidelines for Public Health Units MERS-CoV, utilising current CDC and WHO guidance, and is based on the current knowledge of the situation in mainland China and other countries, and experiences with SARS-CoV and MERS-CoV.

CDNA will review and update these recommendations as required as new information becomes available on the situation.

These interim Guidelines are to be used in the first instance whilst a Series of National Guidelines is being developed by the Communicable Diseases Network Australia (CDNA).

These interim guidelines capture the knowledge of experienced professionals, and provide guidance on best practise based upon the best available evidence at the time of completion.

Readers should not rely solely on the information contained within these Guidelines. Guideline information is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a health professional. Clinical judgement and discretion may be required in the interpretation and application of these guidelines.

The membership of the CDNA and the AHPPC, and the Commonwealth of Australia as represented by the Department of Health ('the Commonwealth'), do not warrant or represent that the information contained in these Guidelines is accurate, current or complete. The CDNA, the AHPPC and the Commonwealth do not accept any legal liability or responsibility for any loss, damages, costs or expenses incurred by the use of, or reliance on, or interpretation of, the information contained in these Guidelines.

Abbreviations and definitions

COVID-19:	coronavirus disease 2019. The name of the disease caused by the virus SARS-CoV-2, as agreed by the World Health Organization, the World Organization for Animal Health and the Food and Agriculture Organization of the United Nations. For more information, see the World Health Organization Director-General's remarks: https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020
SARS-CoV-2:	severe acute respiratory syndrome coronavirus 2. The formal name of the coronavirus that causes COVID-19, as determined by the International Committee on Taxonomy of Viruses. Previously, this coronavirus was commonly known as 'novel coronavirus 2019 (2019-nCoV)'. For more information see the International Committee on Taxonomy of Viruses manuscript: https://www.biorxiv.org/content/10.1101/2020.02.07.937862v1.full.pdf

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1. Case definition

Confirmed case

A person who tests positive to a validated specific SARS-CoV-2 nucleic acid test or has the virus identified by electron microscopy or viral culture.

Probable case

A person with fever ($\geq 38^{\circ}\text{C}$)¹ or history of fever (e.g. night sweats, chills) **OR** acute respiratory infection (e.g. cough, shortness of breath, sore throat) **AND** who is a household contact (see [Contact definition below](#)) of a confirmed **or probable** case of COVID-19, where testing has not been conducted.

Suspect case

A person who meets the following epidemiological and clinical criteria:

Epidemiological criteria	Clinical criteria	Action
Very high risk <ul style="list-style-type: none"> Close contact (see Contact definition below) in the 14 days prior to illness onset with a confirmed or probable case International travel in the 14 days prior to illness onset Cruise ship passengers and crew who have travelled in the 14 days prior to illness onset 	Fever ($\geq 38^{\circ}\text{C}$) ¹ or history of fever OR acute respiratory infection (e.g. cough, shortness of breath, sore throat)	Test ²
High risk setting <ol style="list-style-type: none"> Two or more cases of illness clinically consistent with COVID-19 (see clinical criteria) in the following settings: <ul style="list-style-type: none"> Aged care and other residential care facilities Military operational settings Boarding schools Correctional facilities Detention centres Aboriginal rural and remote communities, in consultation with the local PHU Settings where COVID-19 outbreaks have occurred, in consultation with the local PHU Individual patients with illness clinically consistent with COVID-19 (see clinical criteria) in a geographically localised area with elevated risk of community transmission, as defined by PHUs 	Fever ($\geq 38^{\circ}\text{C}$) ¹ or history of fever (e.g. night sweats, chills) OR acute respiratory infection (e.g. cough, shortness of breath, sore throat)	Test (on site for aged care residents, where feasible)

Moderate risk <ul style="list-style-type: none"> Healthcare workers, aged or residential care workers 	Fever ($\geq 38^{\circ}\text{C}$) ¹ or history of fever (e.g. night sweats, chills) OR acute respiratory infection (e.g. cough, shortness of breath, sore throat)	Test
Background risk (No epidemiological risk factors)	Hospitalised patients with fever ($\geq 38^{\circ}\text{C}$) ¹ AND acute respiratory symptoms (e.g. cough, shortness of breath, sore throat) ³ of an unknown cause	Test

¹ It is recommended that temperature is measured using a tympanic, oral or other thermometer proven to consistently and accurately represent core body temperature.

² Testing household contacts of confirmed **or probable** cases of COVID-19 may not be indicated where resources are constrained. These cases would be considered 'probable cases' (see definition above).

³ Clinical judgement should be exercised in testing hospitalised patients. All patients should attend an emergency department if clinical deterioration occurs.

Rationale for current case definitions

The case definitions are based on what is currently known about the clinical and epidemiological profile of cases of COVID-19 presenting to date both in Australia and internationally. Health authorities are constantly monitoring the spectrum of clinical symptoms as cases arise, and, if there are any significant shifts, they will be reflected in the above definitions in future versions of this document.

The 14 day period is based upon what is currently known to be the upper time limit of the incubation period. As more precise information about the incubation period emerges, this will be reviewed.

2. Laboratory testing

Patients meeting the suspect case definition ([above](#)) should be tested for SARS-CoV-2. Where applicable, consult with your state/territory communicable diseases agency to seek advice on which laboratories can provide SARS-CoV-2 testing; appropriate specimen type, collection and transport; and also to facilitate contact management if indicated.

When collecting respiratory specimens, transmission-based precautions should be observed whether or not respiratory symptoms are present.

For most patients with mild illness in the community, collection of upper respiratory specimens (i.e. nasopharyngeal or oropharyngeal swabs) is a low risk procedure and can be performed using **contact and droplet precautions**:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield), and surgical mask.

- To collect combined nasopharyngeal/nasal and oropharyngeal swabs, stand slightly to the side of the patient to avoid exposure to respiratory secretions, should the patient cough or sneeze.
- At completion of consultation, remove personal protective equipment (PPE) and perform hand hygiene, wipe any contacted/contaminated surfaces with detergent /disinfectant.
- Note that, for droplet precautions, the room does not need to be left empty after sample collection.

If the patient has severe symptoms suggestive of pneumonia, e.g. fever and breathing difficulty, or frequent, severe or productive coughing episodes then **contact and airborne precautions** should be observed.

Patients with these symptoms should be managed in hospital, and sample collection conducted in a negative pressure room, if available. If referral to hospital for specimen collection is not possible, specimens should be collected in a room from which air does not circulate to other areas. The door should be closed during specimens collection and the room left vacant for at least 30 minutes afterwards (cleaning can be performed during this time by a person wearing PPE).

The following precautions should be observed:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield) and a **P2/N95 respirator – which should be fit checked.**
- At completion of consultation, remove gown and gloves, perform hand hygiene, remove eye protection and P2/N95 respirator. Do not touch the front of any item of PPE during removal; perform hand hygiene.
- The room surfaces should be wiped clean with disinfectant wipes by a person wearing gloves, gown and surgical mask.

For further information on circumstances requiring airborne precautions, see [aerosol generating procedures](#).

Routine tests for acute pneumonia/pneumonitis should be performed where indicated, including bacterial cultures, acute and convalescent serology, urinary antigen testing and nucleic acid tests for respiratory pathogens, according to local protocols.

Serology for SARS-CoV-2 is not yet available. Collection of serum for storage by the SARS-CoV-2 testing laboratory is recommended to facilitate retrospective testing, if this is relevant, once serology tests become available.

See [Appendix A](#) for additional SARS-CoV-2 laboratory testing information.

3. Case management

Response times

On the same day as notification of a confirmed, **probable, or suspect** case, begin follow up investigation and, where applicable, notify your central state or territory communicable diseases agency.

PHU staff should be available to contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners.

Response procedure

Case investigation

The response to a notification will normally be carried out in collaboration with the clinicians managing the case, and be guided by the COVID-19 public health unit checklist and the COVID-19 investigation form (currently pending).

Regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend that tests be done.
- Seek the treating doctor's permission to contact the case or relevant care-giver.
- Determine if the diagnosis has been discussed with the case or relevant care-giver before beginning the interview.
- Review case and contact management.
- Ensure appropriate infection control guidelines are followed in caring for the case.
- Identify the likely source of infection.

Note: If interviews with suspected cases are conducted face-to-face, the person conducting the interview must have a thorough understanding of infection control practices and be competent in using appropriate PPE.

Case treatment

In the absence of pathogen-specific interventions, patient management largely depends on supportive treatment, and vigilance for and treatment of complications.

[Further advice on clinical management is available from WHO:](https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2) (https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2)

Education

Provide a COVID-19 factsheet to cases and their close contacts.

Ensure that they are aware of the signs and symptoms of COVID-19, the requirements of quarantine and isolation, contact details of the PHU and the infection control practices that can prevent the transmission of COVID-19.

Isolation and restriction

Cases will generally be managed in hospital. If clinically indicated, cases may be managed at home only if it can be ensured that the case and household contacts are counselled about risk and that appropriate infection control measures are in place.

Healthcare workers and others who come into contact with confirmed, **probable, and suspect** cases must be protected according to recommended infection control guidelines. Visitors should be restricted to close family members.

A risk assessment should be undertaken for suspected cases who initially test negative for SARS-CoV-2. If there is no alternative diagnosis and a high index of suspicion remains that such cases may have COVID-19, consideration should be given to continued isolation and use of the recommended infection control precautions, pending further testing (see [Laboratory testing section](#) and [Appendix A](#)) and re-assessment.

While recommendations on isolation and PPE for management of confirmed, probable, and suspect cases initially took a deliberately cautious approach, emerging evidence and expert advice now supports requirements commensurate with the risk in particular clinical circumstances.

In addition to standard precautions, interim recommendations for the use of PPE during clinical care of people with possible COVID-19 are:

- **Contact and droplet precautions** are recommended for **routine care** of patients in quarantine or with confirmed, probable, or suspected COVID-19.
- **Contact and airborne precautions** are recommended when performing **aerosol-generating procedures**, including intubation and bronchoscopy, and for care of **critically ill patients** (see [Appendix B](#) for further information).

Other recommended infection control measures include:

- When a patient who meets the suspect case definition presents to a healthcare setting (GP, hospital ED, or pathology collection centre) and whether or not respiratory symptoms are present, the patient should immediately be:
 - given a surgical mask to put on, and
 - directed to a single room. If the patient has severe symptoms suggestive of pneumonia, they should be directed to a negative pressure room, if available, or a room from which the air does not circulate to other areas.
- If a patient with confirmed or probable COVID-19 needs to be transferred out of their isolation room, the patient should wear a “surgical” face mask and follow respiratory hygiene and cough etiquette.

Release from isolation

1. Confirmed or probable cases with mild illness who did not require hospitalisation.

The case can be released from isolation if they meet all of the following criteria:

- at least 10 days have passed since the onset of symptoms; and
- there has been resolution of all symptoms of the acute illness for the previous 72 hours¹

The case should be advised to continue to be diligent to hand hygiene and cough etiquette and practise social distancing, as is indicated for the rest of the community, as this will assist in reducing transmission.

2. Confirmed or probable cases with more severe illness who have been discharged from hospital.

If the case is ready clinically for hospital discharge, but has not had two consecutive swabs taken at least 24 hours apart which are negative for SARS-CoV-2 by PCR, then they should be discharged to home isolation.

The case can be released from isolation if they meet all of the following criteria:

- at least 10 days have passed since hospital discharge; and

- there has been resolution of all symptoms of the acute illness for the previous 72 hours¹

The case should be advised to continue to be diligent to hand hygiene and cough etiquette and practise social distancing, as is indicated for the rest of the community, as this will assist in reducing transmission.

3. All cases who have specimens taken at clinical recovery can be released from isolation if they meet the criteria below.

Healthcare workers and workers in aged care facilities must meet the following criteria for release from isolation.

A confirmed **or probable** case can be released from isolation if they meet all of the following criteria:

- the person has been afebrile for the previous 48 hours;
- resolution of the acute illness for the previous 24 hours¹;
- be at least 7 days after the onset of the acute illness;
- PCR negative on at least two consecutive respiratory specimens collected 24 hours apart after the acute illness has resolved^{2, 3} – this will be reviewed as the pandemic evolves in Australia.

¹Some people may have pre-existing illnesses with chronic respiratory signs or symptoms, such as chronic cough. For these people, the treating medical practitioner should make an assessment as to whether the signs and symptoms of COVID-19 have resolved.

²If the patient has a productive cough due to a pre-existing respiratory illness or other ongoing lower respiratory tract disease, then the sputum or other lower respiratory tract specimens must be PCR negative for SARS-CoV-2. Otherwise upper respiratory tract specimens (nasopharyngeal or nose and throat swabs) must be PCR negative.

³A small proportion of people may have an illness that has completely resolved but their respiratory specimens remain persistently PCR positive. A decision on release from isolation for these people should be made on a case-by-case basis after consultation between the person's treating medical practitioner, the testing laboratory and public health. Results of viral culture, if available, may be included in this consideration.

Follow up should include the person being reviewed seven days after release from isolation for:

- clinical review to ensure full symptom resolution
- collection of a serum specimen for storage and possible later serologic testing (the person should be informed that this is for future test development and does not inform their clinical care).

Routine PCR testing at seven days after release is not recommended unless the person has clinical features consistent with COVID-19.

Faecal sampling is not recommended as a standard test, however, it may be done for patients with gastrointestinal symptoms. For cases who do have faecal samples tested, and remain persistently PCR positive in these samples after all the release from isolation criteria (above) are met, further or extended precautions and exclusions should be implemented on a case-by-case basis:

- All cases with diarrhoea should be advised not to prepare food for others until 48 hours after symptoms have resolved.
- Cases who have employment that may pose an increased risk of onward transmission (e.g. healthcare workers, restaurant workers and food handlers), should be excluded from work until 48 hours after any symptoms of diarrhoea have resolved.
- Cases with ongoing diarrhoea or faecal incontinence who may have limited capacity to maintain standards of personal hygiene should continue to be isolated until 48 hours after the resolution of these symptoms.

Patients do not require repeat testing until they are PCR negative in faecal samples. It is recommended that people who remained persistently PCR positive in faecal samples use soap and water for hand hygiene. If this is unavailable, alcohol hand gel should be used. Education emphasising the importance of proper hand hygiene should be provided to **all** cases upon release from isolation.

Aerosol-generating procedures

Appropriate care should be taken during aerosol-generating procedures. Aerosol-generating procedures include: tracheal intubation, non-invasive ventilation, tracheostomy, cardiopulmonary resuscitation, manual ventilation before intubation, bronchoscopy, and high flow nasal oxygen. Collection of upper respiratory specimens is not generally regarded as aerosol generating, but airborne precautions should be used for collection of specimens from severely symptomatic patients (see [Laboratory testing section](#)).

P2/N95 respirators should be used only when required. Unless used correctly, i.e. with fit-checking, they are unlikely to protect against airborne pathogen spread.

Airborne precautions should be used routinely for aerosol-generating procedures, such as bronchoscopy, intubation, suctioning etc. in hospital settings. Nebuliser use should be discouraged and alternative administration devices (e.g. spacers) should be used.

The [Laboratory testing section](#) provides detailed information on sample collection for SARS-CoV-2.

Active case finding

Contacts (see [Contact management section](#)) should be identified and advised to immediately seek medical advice should they develop symptoms. Contacts or caregivers should be asked to also inform the public health agency if they develop symptoms.

4. Environmental evaluation

Where local transmission of COVID-19 is thought possible, a thorough review of contributing environmental factors should be done. This should include a review of infection control procedures, and opportunities for exposure to respiratory or faecal contamination.

If a case has had occupational exposure to animals it may be appropriate to consult with animal health authorities.

5. Infectious period

Infectious period of COVID-19 remains unknown, however there is some evidence to support the occurrence of pre-symptomatic or asymptomatic transmission (1). As a precautionary approach, cases are considered to be infectious 24-hours prior to onset of symptoms. Cases are considered to pose a risk of onward transmission and require isolation until criteria listed in the [release from isolation section](#) have been met.

6. Contact management

As there remain gaps in the understanding of infectivity of COVID-19 cases and transmission modes, the definition of contacts and their public health management is based on available information on COVID-19 together with observations from similar serious coronaviruses – SARS-CoV and MERS-CoV.

Identification of contacts

Persons categorised as close contacts (see definition of “close contacts” below) of a confirmed or probable case should be followed-up, provided with information, and self-quarantine at home for 14 days following the last contact with the case. Close contacts should be monitored for the development of symptoms for 14 days after the last exposure to the case (i.e. the maximum incubation period) where feasible to do so.

Contacts of suspect cases should also be considered for contact management if there is likely to be a delay in confirming or excluding COVID-19 in the suspect case, such as delayed testing.

Less frequent active follow-up together with passive surveillance may be necessary if there are large numbers of close contacts to monitor.

Close contact definition

A close contact is defined as requiring:

- greater than 15 minutes face-to-face contact in any setting with a confirmed or probable case in the period extending from 24 hours before onset of symptoms in the confirmed or probable case, or
- sharing of a closed space with a confirmed or probable case for a prolonged period (e.g. more than 2 hours) in the period extending from 24 hours before onset of symptoms in the confirmed or probable case.

For the purposes of surveillance, a close contact includes a person meeting any of the following criteria:

- Living in the same household or household-like setting (e.g. in a boarding school or hostel) – referred to as ‘household contacts’.
- Direct contact with the body fluids or laboratory specimens of a case without recommended PPE or failure of PPE.
- A person who spent 2 hours or longer in the same room (such as a GP or ED waiting room; a school classroom; communal room in an aged care facility). See [Special situations](#) for further information specific to aged care facilities and schools.

- A person in the same hospital room when an aerosol generating procedure is undertaken on the case, without recommended PPE.
- Aircraft passengers who were seated in the same row as the case, or in the two rows in front or two rows behind a confirmed **or probable** COVID-19 case. Contact tracing of people who may have had close contact on long bus or train trips should also be attempted where possible, using similar seating/proximity criteria.
- For aircraft crew exposed to a confirmed **or probable** case, a case-by-case risk assessment should be conducted by the airline to identify which crew member(s) should be managed as close contacts. See [Special situations](#) for further information.
- If an aircraft crew member is the COVID-19 case, contact tracing efforts should concentrate on passengers seated in the area where the crew member was working during the flight and all of the other members of the crew.
- Close contacts on cruise ships can be difficult to identify, and a case-by-case risk assessment should be conducted to identify which passengers and crew should be managed as close contacts. See [Special situations](#) for further information.

Contact needs to have occurred within the period extending 24 hours before onset of symptoms in the case until the case is classified as no longer infectious by the treating team (usually 24 hours after the resolution of symptoms).

Note that:

- Healthcare workers and other contacts who have taken recommended infection control precautions, including the use of full PPE, while caring for a symptomatic confirmed **or probable** COVID-19 cases are not considered to be close contacts.
- Contact tracing is not required for close contacts arriving on international flights on or after 16 March 2020.

Returned Traveller definition

Returned travellers are defined as those who have undertaken international travel to any country outside Australia in the last 14 days.

Contact assessment

All persons identified as having had contact with a confirmed **or probable** case should be assessed to see if they should be classified as a close contact and have demographic and epidemiological data collected. Information on close contacts should be managed according to jurisdictional requirements.

Identification and assessment of the contacts of suspected cases may be deferred pending the results of initial laboratory testing.

Close contact testing

Routine laboratory screening for COVID-19 is not recommended for asymptomatic close contacts.

Prophylaxis

No specific chemoprophylaxis is available for contacts.

Education

Close contacts should be counselled about their risk and the symptoms of COVID-19 and provided with a COVID-19 factsheet. They should be advised to self-quarantine.

Quarantine and restriction

Close contacts

Asymptomatic close contacts should be advised to self-quarantine at home for 14 days following the last contact with the case, and to monitor their health for 14 days after the last possible contact with a confirmed **or probable** COVID-19 case.

Where feasible to do so, public health units should conduct active daily monitoring of close contacts for symptoms for 14 days after the last possible contact with a confirmed **or probable** COVID-19 case.

Self-quarantined close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

For the purpose of contact management, swabs are **not** indicated during quarantine in well people. A medical clearance from a health care provider is not required for release from quarantine or for other purposes such as returning to work, school or university.

Returned travellers

All returned travellers who have undertaken international travel and returned on or after **16 March 2020** should self-quarantine at home for 14 days after arrival in Australia.

Returned travellers who have travelled in or transited through **mainland China or Iran** should self-quarantine at home for 14 days after leaving the higher risk country.

Returned travellers who have travelled in or transited through **Italy** on or after 11 March 2020 should self-quarantine at home for 14 days after leaving the higher risk country.

Returned travellers who have travelled in or transited through **South Korea** on or after 5 March 2020 should self-quarantine at home for 14 days after leaving the higher risk country.

Self-quarantined returned travellers should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

All returned travellers who have undertaken international travel prior to 16 March 2020, and are not required to self-quarantine as per the advice above, should self-monitor for symptoms, practise social distancing when outside the workplace and [immediately isolate themselves if they become unwell](#). This advice should be followed for 14 days after returning to Australia.

Social distancing is an effective measure, but it is recognised that it cannot be practised in all situations and the aim is to generally reduce the potential for transmission. Whilst practising social distancing, people can travel to work (including by public transport) and carry out normal duties. Social distancing outside the workplace is aimed at nonessential activities and includes:

- Avoiding crowds and mass gatherings.
- Avoiding small gatherings in enclosed spaces, for example family celebrations.
- Attempting to keep a distance of 1.5 metres between themselves and other people where possible, for example when out and about in public spaces.

All returned travellers who have undertaken international travel in the last 14 days **who are unwell** with fever, or with respiratory symptoms (with or without fever) or other symptoms consistent with COVID-19 should be isolated and managed as per the current recommendations for suspected cases.

Special risk settings

Healthcare workers

All healthcare workers should observe usual infection prevention and control practices in the workplace. This includes healthcare workers and other staff in any setting who have direct patient contact.

Healthcare workers with influenza like illness should not work while they are symptomatic. They should undergo isolation and additionally be tested for SARS-CoV-2 if they meet the suspect case definition (fever **OR** acute respiratory illness).

Healthcare workers who are defined as close contacts should be treated as such (see section [6. Contact Management](#)).

In settings where the loss of the healthcare worker will have a significant impact on health services an individual risk assessment should be conducted in collaboration with the PHU.

Self-quarantined healthcare worker close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Public health units may assist infection control units of health facilities to identify and monitor healthcare worker close contacts.

It is recognised that clinical work restrictions on healthcare worker close contacts may place strain on individuals and on health services. This underlines the importance of ensuring healthcare workers implement appropriate infection control precautions when assessing and managing confirmed, **probable, and suspect** COVID-19 cases.

Staff (including Healthcare workers) who have direct patient contact in a hospital or residential/aged care facility.

Healthcare workers and other staff with close patient contact who work in hospitals or residential/aged care facilities should take additional precautions given they come into contact with a high case load of potentially vulnerable patients.

All healthcare workers and staff who have close patient contact in hospitals and/or residential/aged care facilities **who have returned from any higher risk country** should be advised not to undertake work in a health care or residential/aged care facility for 14 days since leaving the higher risk country. They should otherwise follow advice provided to other well returned travellers as above.

Aboriginal and Torres Strait Islander Communities

CDNA will continue to monitor the emerging evidence around COVID-19 transmission risks in healthcare settings and Aboriginal and Torres Strait Islander communities and revise these recommendations as needed. For further information, see section [7. Special situations – Aboriginal and Torres Strait Islander Communities](#).

Medical care for quarantined individuals

If individuals under self-quarantine need to see a doctor for any reason (e.g. fever and respiratory symptoms or other illness/injury), they should **telephone their GP or hospital Emergency Department before presenting. Patients with severe symptoms should call 000 and make it clear they are in self-quarantine or isolation because of COVID-19.** If the patient has **symptoms consistent with the COVID-19 [case definition](#)**, the local public health unit should be consulted about the most suitable venue for clinical assessment and specimen collection.

Management of symptomatic contacts

If fever or respiratory symptoms, with or without fever, or other symptoms consistent with COVID-19 develop within the first 14 days following the last contact, PHU staff should arrange for the individual to be immediately isolated and managed as per the current recommendations for suspected COVID-19 cases, with urgent testing for COVID-19 undertaken in an environment which minimises the exposure of others.

Ill contacts who are being evaluated for COVID-19 can be appropriately isolated and managed at home, unless their condition is severe enough to require hospitalisation.

Symptomatic contacts who test negative for SARS-CoV-2 by PCR will still need to be monitored for 14 days after their last contact with a confirmed **or probable** COVID-19 case and may require re-testing.

7. Special situations

Cruise ships

Risk assessment and identification of contacts

Classification of contacts on cruise ships with one or more confirmed **or probable** cases of COVID-19 should be made on a case-by-case basis.

Hospital transfer of confirmed, **probable or suspect** cases

If confirmed, **probable or suspect** cases on board require transfer to a hospital, the Commonwealth Biosecurity Officer will notify the port authority to provide access for medical transport. The jurisdictional Human Biosecurity Officer will then coordinate transfer of the person to an appropriate medical facility for further management, via the most appropriate means that adheres to necessary precautions.

Quarantine for passengers and crew after arrival at a port

Close contacts arriving prior to 16 March 2020, and any returned travellers arriving on or after 16 March 2020, should self-quarantine. Where feasible, self-quarantine at home should be recommended, (e.g. persons with a residence nearby) ensuring appropriate PPE precautions are employed during travel. For those for whom this is not possible, matters of self-quarantine should be addressed jurisdictionally.

Disembarking and embarking

After all confirmed, probable and suspect cases have been managed appropriately and the Human Biosecurity Officer has determined that no other passengers or crew have symptoms consistent with COVID-19, remaining passengers and crew will be allowed to disembark. The vessel may be permitted to commence embarking once it is certain there is no risk of ongoing transmission.

Air crew

Risk assessment and identification of contacts

Decisions regarding the contact classification of cabin crews can be difficult to determine. On an aircraft with one or more confirmed or probable cases of COVID-19, a case-by-case risk assessment should be conducted by the airline to identify which crew should be managed as close contacts.

Considerations for conducting a risk assessment should include:

- Proximity of crew to confirmed or probable case
- Duration of exposure to confirmed or probable case
- Size of the compartment in which the crew member and confirmed or probable case interacted
- Precautions taken, including PPE worn, when in close proximity to the confirmed or probable case

Where it has been determined that a crew member is a close contact, the airline is responsible for notifying the relevant state/territory public health authority to facilitate management of the close contact.

Aboriginal and Torres Strait Islander communities

Key drivers of increased risk of transmission and severity

- **Mobility:** Aboriginal and Torres Strait Islander peoples are highly mobile, with frequent travel often linked to family and cultural connections and community events involving long distances between cities, towns, and communities. In addition, remote communities have a high flow of visitors (e.g. tourists, fly-in fly-out clinicians and other workers). This increases the risk of transmission even in generally isolated communities.
- **Remoteness:** A fifth of the Aboriginal and Torres Strait Islander population lives in remote and very remote areas. There is often reduced access health services, these are usually at capacity in normal circumstances and are often reliant on temporary staff. Limited transport options may further inhibit presentations and delay laboratory testing.
- **Barriers to access:** Unwell people may present late in disease progression for many reasons including lack of availability of services, institutional racism, and mistrust of mainstream health services.
- **Overcrowding:** Many Aboriginal and Torres Strait Islander communities have insufficient housing infrastructure, which results in people living in overcrowded conditions. This facilitates disease transmission and makes it difficult for cases and contacts to maintain social distance measures and self-quarantine.
- **Burden of disease:** Aboriginal and Torres Strait Islander people experience a burden of disease 2.3 times the rate of other Australians. This may increase the risk of severe disease from SARS-CoV-2.

Key response strategies

- **Shared decision-making and governance:** Throughout all phases, COVID-19 response work should be collaborative to ensure local community leaders are central to the response. Further risk reduction strategies and public health responses should be co-developed, and co-designed, enabling Aboriginal and Torres Strait Islander people to contribute and fully participate in shared decision-making.
- **Social and cultural determinants of health:** Public health strategies should be considered within the context of a holistic approach that prioritises the safety and well-being of individuals, families and communities while acknowledging the centrality of culture, and the addressing racism, intergenerational trauma and other social determinants of health.
- **Community control:** The Aboriginal Community Controlled Health Services (ACCHS) sector provides a comprehensive model of culturally safe care with structured support and governance systems. The network of ACCHS and peak bodies should be included in the response as a fundamental mechanism of engagement and communication.
- **Appropriate communication:** Messages should be strengths-based and encompass Aboriginal ways of living, including family-centred approaches during both prevention and control phases. They should address factors that may contribute to risk such as social determinants of health, including living arrangements and accessibility to services.
- **Flexible and responsive models of care:** Consider flexible health service delivery and healthcare models (e.g. pandemic assessment centres, flexible ACCHSs clinic hours/location with additional staffing, and home visits). Consider employing the use of point of care influenza tests, where available, to help determine whether influenza is implicated in presentations in the community.
- **Isolation and quarantine:** Families should feel empowered and be part of decision-making around quarantine. This can be achieved through exploring with families what quarantine looks like, working through how it might impact on the family and their way of living, and identifying ways around it. Family members will want to visit unwell people in hospital. It should be made clear that there are other ways to be with sick family members in hospital, maintain communication with families and communities in lieu of gatherings (e.g. staying socially connected through the internet and video calling).

Aged care facilities

Aged care facilities are high-risk settings for infectious disease outbreaks. This is due to the fact that there is often high density living with extensive close physical contact between staff and residents during the provision of care. Residents are at increased risk of severe illness and death due to their age and presence of co-morbid conditions. There are often many visitors, volunteers and staff moving between the community and facilities, which can promote the spread of infectious diseases.

Preventative measures

In addition to usual preventative protocols, aged care facilities should ensure that high rates of influenza vaccination are maintained amongst all occupants and staff. Messaging to discourage unwell visitors from visiting facilities and occupants should be reinforced, and care should be taken to ensure unwell staff and volunteers know not to present to work while symptomatic with any infectious condition. Visitors, residents and staff should be encouraged to increase their frequency of hand hygiene (with soap and water or using alcohol hand rub), surface cleaning, and to use correct cough/sneeze etiquette.

Outbreaks

The vast majority of aged care facilities should be primed and already have frameworks and protocols for testing and isolation in the event of respiratory disease outbreaks.

Outbreaks of COVID-19 in residential care facilities should be managed with close reference to the [Coronavirus \(COVID-19\) guidelines for outbreaks in residential care facilities](https://www.health.gov.au/resources/publications/coronavirus-covid-19-guidelines-for-outbreaks-in-residential-care-facilities) (available at: <https://www.health.gov.au/resources/publications/coronavirus-covid-19-guidelines-for-outbreaks-in-residential-care-facilities>). The guidelines provide specific advice on the prevention, control and public health management of COVID-19 outbreaks in residential care facilities in Australia.

Schools

The best way to prevent transmission of COVID-19 in schools is through the promotion of correct hand hygiene habits and cough/sneeze etiquette. Children or staff with upper respiratory tract illness should not attend school while symptomatic. If a child or staff member becomes ill with upper respiratory tract symptoms, they should be isolated from other students and sent home as soon as possible.

Contact tracing or management of school outbreaks may require temporary full or partial school closures; however, closures are not generally recommended as a reactive measure on public health grounds.

8. References

1. Chang D, Xu H, Rebaza A, Sharma L, Dela Cruz CS. Protecting health-care workers from subclinical coronavirus infection. *Lancet Respir Med*. 2020.

9. Appendices

Appendix A: SARS-CoV-2 Laboratory testing information

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

Appendix A: SARS-CoV-2 Laboratory testing information

Laboratory testing for SARS-CoV-2 continues to evolve rapidly with the accumulation of clinical data, and as reagents and protocols are refined.

The aim of testing is to, if clinically appropriate, exclude common respiratory viruses using local hospital and community nucleic acid testing capacity, and to simultaneously refer onward to a laboratory with capacity to test for SARS-CoV-2. As co-infection is possible, initial testing protocols should include testing for SARS-CoV-2 in patients with epidemiological risk, even where another infection is shown to be present.

Samples for testing

- (i) upper respiratory tract samples
- (ii) lower respiratory tract sample if the lower tract is involved
- (iii) serum (to be stored pending serology availability)

Upper respiratory tract samples

1. Nasopharyngeal and oropharyngeal swab: may be dacron or rayon, although flocked preferred
 - oropharyngeal (throat): swab the tonsillar beds and the back of the throat, avoiding the tongue
 - nasopharyngeal: swab the right or left nasopharynx by gently inserting the swab along the floor of the nasal cavity parallel to the palate until resistance is encountered, and rotate gently for 10-15 seconds; then withdraw and repeat the process in the other nostril. **To conserve swabs** the same swab that has been used to sample the oropharynx should be utilised for nasopharynx sampling
 - place the swab(s) back into the accompanying transport medium

Sampling both sites, oropharynx and also the nasopharynx, is recommended to optimise the chances of virus detection. The swab(s) should be placed in transport medium, which may be viral transport medium (VTM) or Liquid Amies. Dry swabs are not recommended.

If SARS-CoV-2 testing is to be undertaken in a different laboratory to testing for other respiratory viruses, then the original swab and remaining eluate should be forwarded for SARS-CoV-2 testing.

2. Nasal wash/aspirates

- collect 2-3 mL into a sterile, leak-proof, screw-top dry sterile container

A nasal wash or aspirate if available, may be substituted for the nasopharyngeal swab sample described above.

Lower respiratory tract samples**1. Sputum**

- patient should rinse his/her mouth with water before collection
- expectorate deep cough sputum directly into a sterile, leak-proof, screw-top dry sterile container

2. Bronchoalveolar lavage, tracheal aspirate, pleural fluid

- collect 2-3 mL into a sterile, leak-proof, screw-top sputum collection cup or dry sterile container

As lower respiratory tract specimens contain the highest viral loads in SARS-CoV and MERS-CoV, it is advised that lower respiratory tract specimens should be collected for SARS-CoV-2 testing where possible. Initial experience in testing for SARS-CoV-2 seems to be consistent with this prior experience. Repeat testing (especially of lower respiratory tract specimens) in clinically compatible cases should be performed if initial results are negative and there remains a high index of suspicion of infection.

Serology

Serum should be collected during the acute phase of the illness (preferably within the first 7 days of symptom onset), stored, and when serology testing becomes available tested in parallel with convalescent sera collected 3 or more weeks after acute infection. If no acute sample was collected, sera collected 14 or more days after symptom onset may be tested.

Specimen handling in the laboratory***Microbiology Laboratory***

Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS 2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment. Specimens should be transported in accordance with current regulatory requirements as diagnostic samples for testing.

Clinical Pathology

Non-respiratory specimens (blood, urine, stool) are known to contain virus. Standard precautions should be used for non-microbial pathology testing (such as routine biochemistry and haematology). Where possible auto-analysers should be used according to standard practices and/or local protocols. There is evidence that capping and uncapping of samples is not a high risk aerosol generating procedure.

Respiratory Virus Diagnostic Testing

Nucleic acid testing of the upper or lower respiratory tract samples is performed for influenza and other common respiratory viruses using standard protocols and methods of the hospital or community laboratory.

Standard protocols of the testing laboratory for respiratory sample processing should be used. This is expected to consist of PC2 laboratory practices, and use of a Class II Biosafety cabinet for aerosol generating procedures (such as centrifuging without sealed carriers, vortexing). Viral culture can only be undertaken in an accredited laboratory that has a PC3 facility.

The residue (original swab and remaining eluate) of the upper tract sample is forwarded together with the lower tract sample and the serum to the reference laboratory with SARS-CoV-2 testing capacity requesting SARS-CoV-2 testing.

Clinical liaison with jurisdictional public health officers is essential to coordinate referral and testing.

Standard protocols should be used for sample packaging and transport as diagnostic samples for testing (i.e. Category B).

SARS-CoV-2 specific testing

Nucleic acid testing (NAT) using real time polymerase chain reaction (RT-PCR) is the method of choice for detection of SARS-CoV-2. Specific diagnostic test approaches for SARS-CoV-2 will be described here only in broad terms. There is significant variation in PCR assays employed by different PHLN member laboratories, and test algorithms are likely to be further refined over time. Commercial assays are becoming available from March 2020 and evaluation of these, or reference to another laboratory evaluation, needs to be performed prior to introduction.

[Specific Real Time PCR primer sets to detect SARS-CoV-2 are available](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance). Some PHLN member laboratories have designed their own, and some have implemented primer sets recommended to the World Health Organization (WHO) by leading international coronavirus reference laboratories (available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance>). The majority of PHLN testing capacity now employs relatively swift RT-PCR assays for screening, with a laboratory turnaround time of several hours. Confirmation of positives is being done either with RT-PCR assays detecting a different target gene, or broadly reactive PCR tests with sequencing of amplicons (see below).

Well pedigreed PCR primer sets, probes and protocols are available from the WHO/ European Viral Archive (EVAg) (available at: https://www.who.int/docs/default-source/coronaviruse/protocol-v2-1.pdf?sfvrsn=a9ef618c_2).

Many PCR assays, including those available through WHO will also detect other zoonotic coronaviruses such as SARS-CoV, sometimes with a recognisable shift in the cycle threshold value (Ct) compared to the SARS-CoV-2 target, but not commonly circulating coronaviruses usually detected by commercial assays (e.g. NL63, 229E strains).

Several Australian PHLN reference laboratories began diagnostic testing for the current outbreak using PCR assays capable of detecting a wide range of coronaviruses, including zoonotic and novel pathogens. A number of these were mapped against the promulgated nucleic acid sequence of SARS-CoV-2 from Wuhan, China (GenBank accession MN908947, December 2019) early in the course of the outbreak. Nucleic acid sequencing of amplicons from positive tests is used to identify the coronavirus in this approach. These assays have relatively long turnaround times and have largely been replaced by RT-PCR other than as a confirmatory test in some laboratories.

Complementary DNA (cDNA) synthesized from the VIDRL SARS-CoV-2 has now been made available to all PHLN member laboratories as a test positive control. Synthetic positive control material in the form of nucleic acid templates is also available through WHO/ European Viral Archive (EVAg).

There is variable use of one or two viral targets for SARS-CoV-2 testing. Confirmatory testing using an alternative target, at least in the early stages, for positive samples, is recommended if using a single target.

Testing algorithms are likely to be revised pending further information about the virus, and the number of specimens received in the laboratory for testing.

Viral culture should not be performed for routine diagnosis, and should only be attempted in reference laboratories with appropriate experience and containment facilities. Currently where attempted this is being done at Physical Containment Level 3 (PC3), consistent with current recommendations for SARS-CoV, pending specific SARS-CoV-2 international recommendations.

The Royal College of Pathologists of Australasia Quality Assurance Program (RCPAQAP) with Australian Government support, performed the first SARS-CoV-2 specific QAP, which closed on 11th March 2020, and involved 16 public and private laboratories in all Australian states and in New Zealand. This proficiency testing program (PTP) supplemented previous SARS-CoV, MERS-CoV and other coronaviruses PTP. A second, more detailed PTP is planned to be performed by the RCPA QAP in mid 2020. The second PTP is planned for distribution to a wider range of laboratories, once testing has been extended to more laboratories.

Randox Laboratories and Quality Control for Molecular Diagnostics (QCMD) have announced a pilot EQA scheme for coronaviruses which will include inactivated SARS-CoV-2.

Further Information

The [Department of Health has produced a series of resources on COVID-19 for health professionals, including pathology providers and healthcare managers, these may be accessed here](#).

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

These recommendations are intended for hospital personnel who enter a clinical space with COVID-19 patients, including wardspersons, food deliverers, cleaners, and clinical personnel.

Background:

Although Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) which causes COVID-19 has spread rapidly and widely in mainland China, there has been limited transmission elsewhere, i.e. containment precautions have been mostly successful to date. At the time of writing, the crude mortality (~2%) in China is based on laboratory confirmed cases; many milder cases are almost certainly not being tested and the mortality is likely to be lower. Most cases in Australia have been relatively mild but a small number of deaths has been reported outside of mainland China. While a number of healthcare-associated infections have been reported with COVID-19 (in healthcare workers and patients)—as occurred with SARS and MERS—the risk for COVID-19 is likely to be very low, when infection control precautions are adhered to correctly.

General principles:

- **Standard precautions, including hand hygiene (5 Moments)** for all patients with respiratory infections. Patients and staff should observe cough etiquette and respiratory hygiene,
- **Transmission-based precautions** for patients with confirmed, probable, or suspected COVID-19:
 - **Contact and droplet precautions** for routine care of patients.
 - **Contact and airborne precautions** for aerosol generating procedures (AGPs).

Contact and droplet precautions:

Contact and droplet precautions can be safely used for routine patient care of inpatients with confirmed, probable or suspected COVID-19 (see Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units for case definition)

- On presentation or admission to hospital the patient should be:
 - given a surgical mask to put on, and
 - placed in a single room (ensuring air does not circulate to other areas)
 - placed in a negative pressure room (in the event of AGPs being performed).
- If transfer outside the room is essential, the patient should wear a surgical mask during transfer and follow respiratory hygiene and cough etiquette.
- For most inpatient contacts between healthcare staff and patients the following PPE is safe and appropriate and should be put on before entering the patient's room:
 - long-sleeved gown
 - surgical mask
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- For hospitalised patients requiring frequent attendance by medical and nursing staff, a P2/N95 respirator should be considered for prolonged or very close contact.

Contact and airborne precautions for aerosol-generating procedures (AGPs) and care of clinically ill patients requiring high level/high volume hands-on contact outside of ICU:

- **Contact and airborne precautions should be used routinely for AGPs**, which include:
 - tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy (and bronchoalveolar lavage), high flow nasal oxygen
 - The use of nebulisers should be avoided and alternative medication administration devices (e.g. spacers) used.
- PPE for contact and airborne procedures should be put on before entering patients room:
 - long-sleeved gown
 - P2/N95 respirator (mask) – should be fit-checked with each use
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- P2/N95 respirators (mask) should be used only when required.
- Unless used correctly, i.e. with fit-checking, a P2/N95 respirator (mask) is unlikely to protect against airborne pathogen spread.
 - An air-tight seal may be difficult to achieve for people with facial hair. Fit checking with a range of P2/N95 respirators must occur to assess the most suitable one to achieve a protective seal. If a tight seal cannot be achieved, facial hair should be removed.

Care of critically ill patients in ICU

- Patients who require admission to ICU with severe COVID-19 are likely to have a high viral load, particularly in the lower respiratory tract
- **Contact and airborne precautions** (as above) are required for patient care and are adequate for most AGPs.
 - The risk of aerosol transmission is reduced once the patient is intubated with a closed ventilator circuit but there is a potential, but unknown, risk of transmission from other body fluids such as diarrhoeal stool or vomitus or inadvertent circuit disconnection
- If a health care professional is required to remain in the patient's room continuously for a long period (e.g. more than one hour), because of the need to perform multiple procedures, the use of a powered air purifying respirator (PAPR) may be considered for additional comfort and visibility. A number of different types of relatively lightweight, comfortable PAPRs are now available and should be used according to manufacturer's instructions. Only **PPE marked as reusable** should be reused, following **reprocessing** according to manufacturer's instructions, All other PPE must be disposed of after use.

ICU staff caring for patients with COVID-19 (or any other potentially serious infectious disease) should be trained in the correct use of PPE, including by an infection control professional. This also applies particularly to the use of PAPRs, if required. Particular care should be taken on removal of PAPR, which is associated with a risk of contamination.

Additional precautions:**Staff**

- A staff log for each room entry should be maintained, to allow monitoring of potential breaches of infection control and follow-up contacts, if necessary.

Disposal of PPE and other waste

- Waste should be disposed in the normal way for clinical waste
- All non-clinical waste is disposed of into general waste

Handling of linen

- Routine procedures for handling of infectious linen should be followed
- Visibly soiled linen should be placed in a (soluble) plastic bag inside a linen skip

Environmental cleaning of patient care areas

- Cleaners should observe contact and droplet precautions (as above).
- Frequently touched surfaces (such as doorknobs, bedrails, tabletops, light switches, patient handsets) in the patient's room should be cleaned daily.
- Terminal cleaning of all surfaces in the room (as above plus floor, ceiling, walls, blinds) should be performed after the patient is discharged.
- A combined cleaning and disinfection procedure should be used, either 2-step— detergent clean, followed by disinfectant; or 2-in-1 step— using a product that has both cleaning and disinfectant properties. Any hospital-grade, TGA-listed disinfectant that is commonly against norovirus is suitable, if used according to manufacturer's instructions.

Coronavirus Disease 2019 (COVID-19)

CDNA National Guidelines for Public Health Units

Revision history			
Version	Date	Revised by	Changes
2.5	06 April 2020	Communicable Disease Network Australia	Revised: Case definition.
2.4	26 March 2020	Communicable Diseases Network Australia	Inclusion of advice for probable cases throughout.
2.3	24 March 2020	Communicable Diseases Network Australia	Revised: Case definition.
2.2	21 March 2020	Communicable Diseases Network Australia	Revised: Case management – Release from isolation.
2.1	20 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management, Special situations.
2.0	13 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management, Laboratory testing, Appendix A.
1.18	10 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Case management, Contact management. Inclusion of Air crew and Schools advice in Special situations section.
1.17	05 March 2020	Communicable Diseases Network Australia	Inclusion of self-quarantine advice for returned travellers from South Korea, revised Case management, inclusion of table of contents.
1.16	04 March 2020	Communicable Diseases Network Australia	Inclusion of Aboriginal and Torres Strait Islander community advice in Special situations section.
1.15	03 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management.
1.14	02 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Risk stratification of countries, Contact management.
1.13	28 February 2020	Communicable Diseases Network Australia	Revised: Laboratory testing, isolation and restriction and Appendix A: laboratory testing information.

1.12	27 February 2020	Communicable Diseases Network Australia	Inclusion of Cambodia in the list of countries in the Person under investigation section.
1.11	26 February 2020	Communicable Diseases Network Australia	Inclusion of Italy in the list of countries in the Person Under Investigation section.
1.10	23 February 2020	Communicable Diseases Network Australia	Inclusion of South Korea and Iran in the list of countries in the Person Under Investigation section.
1.9	21 February 2020	Communicable Diseases Network Australia	Revised: case definition, infectious period, contact management, special situation (cruise ship). Specific changes are highlighted.
1.8	17 February 2020	Communicable Diseases Network Australia	Inclusion of statement reflecting that passengers of the Diamond Princess cruise meet the criteria for close contact.
1.7	15 February 2020	Communicable Diseases Network Australia	Revised case definition.
1.6	14 February 2020	Communicable Diseases Network Australia	Addition of Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19). Updated nomenclature.
1.5	7 February 2020	Communicable Diseases Network Australia	Inclusion of advice on release from isolation.
1.4	6 February 2020	Communicable Diseases Network Australia	Revised case definition and added rationale. Updated infection control advice throughout.
1.3	4 February 2020	Communicable Diseases Network Australia	Revised the case definition and use of the terms 'quarantine' and 'isolation'.
1.2	2 February 2020	Communicable Diseases Network Australia	Revised the case definition, close and casual contact definitions and added self-isolation guidance.
1.1	27 January 2020	Communicable Diseases Network Australia	Removed references to Wuhan and revised the case definition.
1.0	23 January 2020	Communicable Diseases Network Australia	Developed by the 2019-nCoV Working Group.

This document summarises interim recommendations for surveillance, infection control, laboratory testing and contact management for coronavirus disease 2019 (COVID-19). It is the first national

guidance issued for COVID-19 and will be further developed into the Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units (COVID-19 SoNG).

It has been adapted from CDNA National Guidelines for Public Health Units MERS-CoV, utilising current CDC and WHO guidance, and is based on the current knowledge of the situation in mainland China and other countries, and experiences with SARS-CoV and MERS-CoV.

CDNA will review and update these recommendations as required as new information becomes available on the situation.

These interim Guidelines are to be used in the first instance whilst a Series of National Guidelines is being developed by the Communicable Diseases Network Australia (CDNA).

These interim guidelines capture the knowledge of experienced professionals, and provide guidance on best practise based upon the best available evidence at the time of completion.

Readers should not rely solely on the information contained within these Guidelines. Guideline information is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a health professional. Clinical judgement and discretion may be required in the interpretation and application of these guidelines.

The membership of the CDNA and the AHPPC, and the Commonwealth of Australia as represented by the Department of Health ('the Commonwealth'), do not warrant or represent that the information contained in these Guidelines is accurate, current or complete. The CDNA, the AHPPC and the Commonwealth do not accept any legal liability or responsibility for any loss, damages, costs or expenses incurred by the use of, or reliance on, or interpretation of, the information contained in these Guidelines.

Abbreviations and definitions

COVID-19:	coronavirus disease 2019. The name of the disease caused by the virus SARS-CoV-2, as agreed by the World Health Organization, the World Organization for Animal Health and the Food and Agriculture Organization of the United Nations. For more information, see the World Health Organization Director-General's remarks: https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020
SARS-CoV-2:	severe acute respiratory syndrome coronavirus 2. The formal name of the coronavirus that causes COVID-19, as determined by the International Committee on Taxonomy of Viruses. Previously, this coronavirus was commonly known as 'novel coronavirus 2019 (2019-nCoV)'. For more information see the International Committee on Taxonomy of Viruses manuscript: https://www.biorxiv.org/content/10.1101/2020.02.07.937862v1.full.pdf

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1. Case definition

Confirmed case

A person who tests positive to a validated specific SARS-CoV-2 nucleic acid test or has the virus identified by electron microscopy or viral culture.

Probable case

A person, **who has not been tested**, with fever ($\geq 38^{\circ}\text{C}$)¹ or history of fever (e.g. night sweats, chills) **OR** acute respiratory infection (e.g. cough, shortness of breath, sore throat) **AND** who is a household contact (see [Contact definition](#) below) of a confirmed or probable case of COVID-19.

Suspect case

A person who meets the following epidemiological and clinical criteria:

Epidemiological criteria	Clinical criteria	Action
Very high risk <ul style="list-style-type: none"> Close contact (see Contact definition below) in the 14 days prior to illness onset with a confirmed or probable case International travel in the 14 days prior to illness onset Cruise ship passengers and crew who have travelled in the 14 days prior to illness onset 	Fever ($\geq 38^{\circ}\text{C}$) ¹ or history of fever OR acute respiratory infection (e.g. cough, shortness of breath, sore throat)	Test ²
High risk setting <ol style="list-style-type: none"> Two or more plausibly-linked cases of illness clinically consistent with COVID-19 (see clinical criteria) in the following settings: <ul style="list-style-type: none"> Aged care and other residential care facilities Military – group residential and other closed settings, such as Navy ships or living in accommodation Boarding schools Correctional facilities Detention centres Aboriginal and Torres Strait Islander rural and remote communities, in consultation with the local PHU Settings where COVID-19 outbreaks have occurred, in consultation with the local PHU People who, in the 14 days prior to illness onset lived in or travelled through a geographically localised area with elevated risk of community transmission, as defined by public health authorities⁴ 	Fever ($\geq 38^{\circ}\text{C}$) ¹ or history of fever (e.g. night sweats, chills) OR acute respiratory infection (e.g. cough, shortness of breath, sore throat) ³	Test (on site for aged care residents, where feasible)

Epidemiological criteria	Clinical criteria	Action
Moderate risk <ul style="list-style-type: none"> Healthcare workers, aged or residential care workers 	Fever ($\geq 38^{\circ}\text{C}$) ¹ or history of fever (e.g. night sweats, chills) OR acute respiratory infection (e.g. cough, shortness of breath, sore throat)	Test
Background risk (No epidemiological risk factors)	Hospitalised patients with fever ($\geq 38^{\circ}\text{C}$) ¹ AND acute respiratory symptoms (e.g. cough, shortness of breath, sore throat) ⁵ of an unknown cause	Test

¹ It is recommended that temperature is measured using a tympanic, oral or other thermometer proven to consistently and accurately represent core body temperature.

² Testing household contacts of confirmed or probable cases of COVID-19 may not be indicated where resources are constrained. These cases would be considered 'probable cases' (see definition above).

³ In certain high risk outbreak settings, public health units may consider testing asymptomatic contacts to inform management of the outbreak.

⁴ For further information on geographically localised areas with elevated risk of community transmission, see: <https://www1.health.gov.au/internet/main/publishing.nsf/Content/cdna-song-novel-coronavirus.htm>

⁵ Clinical judgement should be exercised in testing hospitalised patients. All patients should attend an emergency department if clinical deterioration occurs.

Rationale for current case definitions

The case definitions are based on what is currently known about the clinical and epidemiological profile of cases of COVID-19 presenting to date both in Australia and internationally. Health authorities are constantly monitoring the spectrum of clinical symptoms as cases arise, and, if there are any significant shifts, they will be reflected in the above definitions in future versions of this document.

The 14 day period is based upon what is currently known to be the upper time limit of the incubation period. As more precise information about the incubation period emerges, this will be reviewed.

2. Laboratory testing

Patients meeting the suspect case definition ([above](#)) should be tested for SARS-CoV-2. Where applicable, consult with your state/territory communicable diseases agency to seek advice on which laboratories can provide SARS-CoV-2 testing; appropriate specimen type, collection and transport; and also to facilitate contact management if indicated.

When collecting respiratory specimens, transmission-based precautions should be observed whether or not respiratory symptoms are present.

For most patients with mild illness in the community, collection of upper respiratory specimens (i.e. nasopharyngeal or oropharyngeal swabs) is a low risk procedure and can be performed using **contact and droplet precautions**:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield), and surgical mask.
- To collect combined nasopharyngeal/nasal and oropharyngeal swabs, stand slightly to the side of the patient to avoid exposure to respiratory secretions, should the patient cough or sneeze.
- At completion of consultation, remove personal protective equipment (PPE) and perform hand hygiene, wipe any contacted/contaminated surfaces with detergent /disinfectant.
- Note that, for droplet precautions, the room does not need to be left empty after sample collection.

If the patient has severe symptoms suggestive of pneumonia, e.g. fever and breathing difficulty, or frequent, severe or productive coughing episodes then **contact and airborne precautions** should be observed.

Patients with these symptoms should be managed in hospital, and sample collection conducted in a negative pressure room, if available. If referral to hospital for specimen collection is not possible, specimens should be collected in a room from which air does not circulate to other areas. The door should be closed during specimens collection and the room left vacant for at least 30 minutes afterwards (cleaning can be performed during this time by a person wearing PPE).

The following precautions should be observed:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield) and a **P2/N95 respirator – which should be fit checked**.
- At completion of consultation, remove gown and gloves, perform hand hygiene, remove eye protection and P2/N95 respirator. Do not touch the front of any item of PPE during removal; perform hand hygiene.
- The room surfaces should be wiped clean with disinfectant wipes by a person wearing gloves, gown and surgical mask.

For further information on circumstances requiring airborne precautions, see [aerosol generating procedures](#).

Routine tests for acute pneumonia/pneumonitis should be performed where indicated, including bacterial cultures, acute and convalescent serology, urinary antigen testing and nucleic acid tests for respiratory pathogens, according to local protocols.

Serology for SARS-CoV-2 is not yet available. Collection of serum for storage by the SARS-CoV-2 testing laboratory is recommended to facilitate retrospective testing, if this is relevant, once serology tests become available.

See [Appendix A](#) for additional SARS-CoV-2 laboratory testing information.

3. Case management

Response times

On the same day as notification of a confirmed, probable, or suspect case, begin follow up investigation and, where applicable, notify your central state or territory communicable diseases agency.

PHU staff should be available to contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners.

Response procedure

Case investigation

The response to a notification will normally be carried out in collaboration with the clinicians managing the case, and be guided by the COVID-19 public health unit checklist and the COVID-19 investigation form (currently pending).

Regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend that tests be done.
- Seek the treating doctor's permission to contact the case or relevant care-giver.
- Determine if the diagnosis has been discussed with the case or relevant care-giver before beginning the interview.
- Review case and contact management.
- Ensure appropriate infection control guidelines are followed in caring for the case.
- Identify the likely source of infection.

Note: If interviews with suspected cases are conducted face-to-face, the person conducting the interview must have a thorough understanding of infection control practices and be competent in using appropriate PPE.

Case treatment

In the absence of pathogen-specific interventions, patient management largely depends on supportive treatment, and vigilance for and treatment of complications.

[Further advice on clinical management is available from WHO:](https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2) (https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2)

Education

Provide a COVID-19 factsheet to cases and their close contacts.

Ensure that they are aware of the signs and symptoms of COVID-19, the requirements of quarantine and isolation, contact details of the PHU and the infection control practices that can prevent the transmission of COVID-19.

Isolation and restriction

Cases will generally be managed in hospital. If clinically indicated, cases may be managed at home only if it can be ensured that the case and household contacts are counselled about risk and that appropriate infection control measures are in place.

Healthcare workers and others who come into contact with confirmed, probable, and suspect cases must be protected according to recommended infection control guidelines. Visitors should be restricted to close family members.

A risk assessment should be undertaken for suspected cases who initially test negative for SARS-CoV-2. If there is no alternative diagnosis and a high index of suspicion remains that such cases may have COVID-19, consideration should be given to continued isolation and use of the recommended infection control precautions, pending further testing (see [Laboratory testing section](#) and [Appendix A](#)) and re-assessment.

While recommendations on isolation and PPE for management of confirmed, probable, and suspect cases initially took a deliberately cautious approach, emerging evidence and expert advice now supports requirements commensurate with the risk in particular clinical circumstances.

In addition to standard precautions, interim recommendations for the use of PPE during clinical care of people with possible COVID-19 are:

- **Contact and droplet precautions** are recommended for **routine care** of patients in quarantine or with confirmed, probable, or suspected COVID-19.
- **Contact and airborne precautions** are recommended when performing **aerosol-generating procedures**, including intubation and bronchoscopy, and for care of **critically ill patients** (see [Appendix B](#) for further information).

Other recommended infection control measures include:

- When a patient who meets the suspect case definition presents to a healthcare setting (GP, hospital ED, or pathology collection centre) and whether or not respiratory symptoms are present, the patient should immediately be:
 - given a surgical mask to put on, and
 - directed to a single room. If the patient has severe symptoms suggestive of pneumonia, they should be directed to a negative pressure room, if available, or a room from which the air does not circulate to other areas.
- If a patient with confirmed or probable COVID-19 needs to be transferred out of their isolation room, the patient should wear a “surgical” face mask and follow respiratory hygiene and cough etiquette.

Release from isolation

1. Confirmed or probable cases with mild illness who did not require hospitalisation.

The case can be released from isolation if they meet all of the following criteria:

- at least 10 days have passed since the onset of symptoms; and
- there has been resolution of all symptoms of the acute illness for the previous 72 hours¹

The case should be advised to continue to be diligent to hand hygiene and cough etiquette and practise social distancing, as is indicated for the rest of the community, as this will assist in reducing transmission.

2. Confirmed or probable cases with more severe illness who have been discharged from hospital.

If the case is ready clinically for hospital discharge, but has not had two consecutive swabs taken at least 24 hours apart which are negative for SARS-CoV-2 by PCR, then they should be discharged to home isolation.

The case can be released from isolation if they meet all of the following criteria:

- at least 10 days have passed since hospital discharge; and
- there has been resolution of all symptoms of the acute illness for the previous 72 hours¹

The case should be advised to continue to be diligent to hand hygiene and cough etiquette and practise social distancing, as is indicated for the rest of the community, as this will assist in reducing transmission.

3. All cases who have specimens taken at clinical recovery can be released from isolation if they meet the criteria below.

Healthcare workers and workers in aged care facilities must meet the following criteria for release from isolation.

A confirmed or probable case can be released from isolation if they meet all of the following criteria:

- the person has been afebrile for the previous 48 hours;
- resolution of the acute illness for the previous 24 hours¹;
- be at least 7 days after the onset of the acute illness;
- PCR negative on at least two consecutive respiratory specimens collected 24 hours apart after the acute illness has resolved^{2, 3} – this will be reviewed as the pandemic evolves in Australia.

¹Some people may have pre-existing illnesses with chronic respiratory signs or symptoms, such as chronic cough. For these people, the treating medical practitioner should make an assessment as to whether the signs and symptoms of COVID-19 have resolved.

²If the patient has a productive cough due to a pre-existing respiratory illness or other ongoing lower respiratory tract disease, then the sputum or other lower respiratory tract specimens must be PCR negative for SARS-CoV-2. Otherwise upper respiratory tract specimens (nasopharyngeal or nose and throat swabs) must be PCR negative.

³A small proportion of people may have an illness that has completely resolved but their respiratory specimens remain persistently PCR positive. A decision on release from isolation for these people should be made on a case-by-case basis after consultation between the person's treating medical practitioner, the testing laboratory and public health. Results of viral culture, if available, may be included in this consideration.

Follow up should include the person being reviewed seven days after release from isolation for:

- clinical review to ensure full symptom resolution
- collection of a serum specimen for storage and possible later serologic testing (the person should be informed that this is for future test development and does not inform their clinical care).

Routine PCR testing at seven days after release is not recommended unless the person has clinical features consistent with COVID-19.

Faecal sampling is not recommended as a standard test, however, it may be done for patients with gastrointestinal symptoms. For cases who do have faecal samples tested, and remain persistently PCR positive in these samples after all the release from isolation criteria (above) are met, further or extended precautions and exclusions should be implemented on a case-by-case basis:

- All cases with diarrhoea should be advised not to prepare food for others until 48 hours after symptoms have resolved.
- Cases who have employment that may pose an increased risk of onward transmission (e.g. healthcare workers, restaurant workers and food handlers), should be excluded from work until 48 hours after any symptoms of diarrhoea have resolved.
- Cases with ongoing diarrhoea or faecal incontinence who may have limited capacity to maintain standards of personal hygiene should continue to be isolated until 48 hours after the resolution of these symptoms.

Patients do not require repeat testing until they are PCR negative in faecal samples. It is recommended that people who remained persistently PCR positive in faecal samples use soap and water for hand hygiene. If this is unavailable, alcohol hand gel should be used. Education emphasising the importance of proper hand hygiene should be provided to **all** cases upon release from isolation.

Aerosol-generating procedures

Appropriate care should be taken during aerosol-generating procedures. Aerosol-generating procedures include: tracheal intubation, non-invasive ventilation, tracheostomy, cardiopulmonary resuscitation, manual ventilation before intubation, bronchoscopy, and high flow nasal oxygen. Collection of upper respiratory specimens is not generally regarded as aerosol generating, but airborne precautions should be used for collection of specimens from severely symptomatic patients (see [Laboratory testing section](#)).

P2/N95 respirators should be used only when required. Unless used correctly, i.e. with fit-checking, they are unlikely to protect against airborne pathogen spread.

Airborne precautions should be used routinely for aerosol-generating procedures, such as bronchoscopy, intubation, suctioning etc. in hospital settings. Nebuliser use should be discouraged and alternative administration devices (e.g. spacers) should be used.

The [Laboratory testing section](#) provides detailed information on sample collection for SARS-CoV-2.

Active case finding

Contacts (see [Contact management section](#)) should be identified and advised to immediately seek medical advice should they develop symptoms. Contacts or caregivers should be asked to also inform the public health agency if they develop symptoms.

4. Environmental evaluation

Where local transmission of COVID-19 is thought possible, a thorough review of contributing environmental factors should be done. This should include a review of infection control procedures, and opportunities for exposure to respiratory or faecal contamination.

If a case has had occupational exposure to animals it may be appropriate to consult with animal health authorities.

5. Infectious period

Infectious period of COVID-19 remains unknown, however there is some evidence to support the occurrence of pre-symptomatic or asymptomatic transmission (1). As a precautionary approach, cases are considered to be infectious 24-hours prior to onset of symptoms. Cases are considered to pose a risk of onward transmission and require isolation until criteria listed in the [release from isolation section](#) have been met.

6. Contact management

As there remain gaps in the understanding of infectivity of COVID-19 cases and transmission modes, the definition of contacts and their public health management is based on available information on COVID-19 together with observations from similar serious coronaviruses – SARS-CoV and MERS-CoV.

Identification of contacts

Persons categorised as close contacts (see definition of “close contacts” below) of a confirmed or probable case should be followed-up, provided with information, and self-quarantine at home for 14 days following the last contact with the case. Close contacts should be monitored for the development of symptoms for 14 days after the last exposure to the case (i.e. the maximum incubation period) where feasible to do so.

Contacts of suspect cases should also be considered for contact management if there is likely to be a delay in confirming or excluding COVID-19 in the suspect case, such as delayed testing.

Less frequent active follow-up together with passive surveillance may be necessary if there are large numbers of close contacts to monitor.

Close contact definition

A close contact is defined as requiring:

- greater than 15 minutes face-to-face contact in any setting with a confirmed or probable case in the period extending from before onset of symptoms in the confirmed or probable case, or
- sharing of a closed space with a confirmed or probable case for a prolonged period (e.g. more than 2 hours) in the period extending from 24 hours before onset of symptoms in the confirmed or probable case.

For the purposes of surveillance, a close contact includes a person meeting any of the following criteria:

- Living in the same household or household-like setting (e.g. in a boarding school or hostel) – referred to as ‘household contacts’.
- Direct contact with the body fluids or laboratory specimens of a case without recommended PPE or failure of PPE.
- A person who spent 2 hours or longer in the same room (such as a GP or ED waiting room; a school classroom; communal room in an aged care facility). See [Special situations](#) for further information specific to aged care facilities and schools.
- A person in the same hospital room when an aerosol generating procedure is undertaken on the case, without recommended PPE.
- Aircraft passengers who were seated in the same row as the case, or in the two rows in front or two rows behind a confirmed or probable COVID-19 case. Contact tracing of people who may have had close contact on long bus or train trips should also be attempted where possible, using similar seating/proximity criteria.
- For aircraft crew exposed to a confirmed or probable case, a case-by-case risk assessment should be conducted by the airline to identify which crew member(s) should be managed as close contacts. See [Special situations](#) for further information.
- If an aircraft crew member is the COVID-19 case, contact tracing efforts should concentrate on passengers seated in the area where the crew member was working during the flight and all of the other members of the crew.
- Close contacts on cruise ships can be difficult to identify, and a case-by-case risk assessment should be conducted to identify which passengers and crew should be managed as close contacts. See [Special situations](#) for further information.

Contact needs to have occurred within the period extending 24 hours before onset of symptoms in the case until the case is classified as no longer infectious by the treating team (usually 24 hours after the resolution of symptoms).

Note that:

- Healthcare workers and other contacts who have taken recommended infection control precautions, including the use of full PPE, while caring for a symptomatic confirmed or probable COVID-19 cases are not considered to be close contacts.
- Contact tracing is not required for close contacts arriving on international flights on or after 16 March 2020.

Returned Traveller definition

Returned travellers are defined as those who have undertaken international travel to any country outside Australia in the last 14 days.

Contact assessment

All persons identified as having had contact with a confirmed or probable case should be assessed to see if they should be classified as a close contact and have demographic and epidemiological data collected. Information on close contacts should be managed according to jurisdictional requirements.

Identification and assessment of the contacts of suspected cases may be deferred pending the results of initial laboratory testing.

Close contact testing

Routine laboratory screening for COVID-19 is not recommended for asymptomatic close contacts.

Prophylaxis

No specific chemoprophylaxis is available for contacts.

Education

Close contacts should be counselled about their risk and the symptoms of COVID-19 and provided with a COVID-19 factsheet. They should be advised to self-quarantine.

Quarantine and restriction

Close contacts

Asymptomatic close contacts should be advised to self-quarantine at home for 14 days following the last contact with the case, and to monitor their health for 14 days after the last possible contact with a confirmed or probable COVID-19 case.

Where feasible to do so, public health units should conduct active daily monitoring of close contacts for symptoms for 14 days after the last possible contact with a confirmed or probable COVID-19 case.

Self-quarantined close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

For the purpose of contact management, swabs are **not** indicated during quarantine in well people. A medical clearance from a health care provider is not required for release from quarantine or for other purposes such as returning to work, school or university.

Returned travellers

All returned travellers who have undertaken international travel and returned on or after **16 March 2020** should self-quarantine at home for 14 days after arrival in Australia.

Returned travellers who have travelled in or transited through **mainland China or Iran** should self-quarantine at home for 14 days after leaving the higher risk country.

Returned travellers who have travelled in or transited through **Italy** on or after 11 March 2020 should self-quarantine at home for 14 days after leaving the higher risk country.

Returned travellers who have travelled in or transited through **South Korea** on or after 5 March 2020 should self-quarantine at home for 14 days after leaving the higher risk country.

Self-quarantined returned travellers should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

All returned travellers who have undertaken international travel prior to 16 March 2020, and are not required to self-quarantine as per the advice above, should self-monitor for symptoms, practise social distancing when outside the workplace and [immediately isolate themselves if they become unwell](#). This advice should be followed for 14 days after returning to Australia.

Social distancing is an effective measure, but it is recognised that it cannot be practised in all situations and the aim is to generally reduce the potential for transmission. Whilst practising social

distancing, people can travel to work (including by public transport) and carry out normal duties. Social distancing outside the workplace is aimed at nonessential activities and includes:

- Avoiding crowds and mass gatherings.
- Avoiding small gatherings in enclosed spaces, for example family celebrations.
- Attempting to keep a distance of 1.5 metres between themselves and other people where possible, for example when out and about in public spaces.

All returned travellers who have undertaken international travel in the last 14 days **who are unwell** with fever, or with respiratory symptoms (with or without fever) or other symptoms consistent with COVID-19 should be isolated and managed as per the current recommendations for suspected cases.

Special risk settings

Healthcare workers

All healthcare workers should observe usual infection prevention and control practices in the workplace. This includes healthcare workers and other staff in any setting who have direct patient contact.

Healthcare workers with influenza like illness should not work while they are symptomatic. They should undergo isolation and additionally be tested for SARS-CoV-2 if they meet the suspect case definition (fever OR acute respiratory illness).

Healthcare workers who are defined as close contacts should be treated as such (see section [6. Contact Management](#)).

In settings where the loss of the healthcare worker will have a significant impact on health services an individual risk assessment should be conducted in collaboration with the PHU.

Self-quarantined healthcare worker close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Public health units may assist infection control units of health facilities to identify and monitor healthcare worker close contacts.

It is recognised that clinical work restrictions on healthcare worker close contacts may place strain on individuals and on health services. This underlines the importance of ensuring healthcare workers implement appropriate infection control precautions when assessing and managing confirmed, probable, and suspect COVID-19 cases.

Staff (including Healthcare workers) who have direct patient contact in a hospital or residential/aged care facility.

Healthcare workers and other staff with close patient contact who work in hospitals or residential/aged care facilities should take additional precautions given they come into contact with a high case load of potentially vulnerable patients.

All healthcare workers and staff who have close patient contact in hospitals and/or residential/aged care facilities **who have returned from any higher risk country** should be advised not to undertake work in a health care or residential/aged care facility for 14 days since leaving the higher risk country. They should otherwise follow advice provided to other well returned travellers as above.

Aboriginal and Torres Strait Islander Communities

CDNA will continue to monitor the emerging evidence around COVID-19 transmission risks in healthcare settings and Aboriginal and Torres Strait Islander communities and revise these recommendations as needed. For further information, see section [7. Special situations – Aboriginal and Torres Strait Islander Communities](#).

Medical care for quarantined individuals

If individuals under self-quarantine need to see a doctor for any reason (e.g. fever and respiratory symptoms or other illness/injury), they should **telephone their GP or hospital Emergency Department before presenting. Patients with severe symptoms should call 000 and make it clear they are in self-quarantine or isolation because of COVID-19.** If the patient has **symptoms consistent with the COVID-19 [case definition](#)**, the local public health unit should be consulted about the most suitable venue for clinical assessment and specimen collection.

Management of symptomatic contacts

If fever or respiratory symptoms, with or without fever, or other symptoms consistent with COVID-19 develop within the first 14 days following the last contact, PHU staff should arrange for the individual to be immediately isolated and managed as per the current recommendations for suspected COVID-19 cases, with urgent testing for COVID-19 undertaken in an environment which minimises the exposure of others.

Ill contacts who are being evaluated for COVID-19 can be appropriately isolated and managed at home, unless their condition is severe enough to require hospitalisation.

Symptomatic contacts who test negative for SARS-CoV-2 by PCR will still need to be monitored for 14 days after their last contact with a confirmed or probable COVID-19 case and may require re-testing.

7. Special situations

Cruise ships

Risk assessment and identification of contacts

Classification of contacts on cruise ships with one or more confirmed or probable cases of COVID-19 should be made on a case-by-case basis.

Hospital transfer of confirmed, probable or suspect cases

If confirmed, probable or suspect cases on board require transfer to a hospital, the Commonwealth Biosecurity Officer will notify the port authority to provide access for medical transport. The jurisdictional Human Biosecurity Officer will then coordinate transfer of the person to an appropriate medical facility for further management, via the most appropriate means that adheres to necessary precautions.

Quarantine for passengers and crew after arrival at a port

Close contacts arriving prior to 16 March 2020, and any returned travellers arriving on or after 16 March 2020, should self-quarantine. Where feasible, self-quarantine at home should be recommended, (e.g. persons with a residence nearby) ensuring appropriate PPE precautions are

employed during travel. For those for whom this is not possible, matters of self-quarantine should be addressed jurisdictionally.

Disembarking and embarking

After all confirmed, probable and suspect cases have been managed appropriately and the Human Biosecurity Officer has determined that no other passengers or crew have symptoms consistent with COVID-19, remaining passengers and crew will be allowed to disembark. The vessel may be permitted to commence embarking once it is certain there is no risk of ongoing transmission.

Air crew

Risk assessment and identification of contacts

Decisions regarding the contact classification of cabin crews can be difficult to determine. On an aircraft with one or more confirmed or probable cases of COVID-19, a case-by-case risk assessment should be conducted by the airline to identify which crew should be managed as close contacts.

Considerations for conducting a risk assessment should include:

- Proximity of crew to confirmed or probable case
- Duration of exposure to confirmed or probable case
- Size of the compartment in which the crew member and confirmed or probable case interacted
- Precautions taken, including PPE worn, when in close proximity to the confirmed or probable case

Where it has been determined that a crew member is a close contact, the airline is responsible for notifying the relevant state/territory public health authority to facilitate management of the close contact.

Aboriginal and Torres Strait Islander communities

Key drivers of increased risk of transmission and severity

- **Mobility:** Aboriginal and Torres Strait Islander peoples are highly mobile, with frequent travel often linked to family and cultural connections and community events involving long distances between cities, towns, and communities. In addition, remote communities have a high flow of visitors (e.g. tourists, fly-in fly-out clinicians and other workers). This increases the risk of transmission even in generally isolated communities.
- **Remoteness:** A fifth of the Aboriginal and Torres Strait Islander population lives in remote and very remote areas. There is often reduced access health services, these are usually at capacity in normal circumstances and are often reliant on temporary staff. Limited transport options may further inhibit presentations and delay laboratory testing.
- **Barriers to access:** Unwell people may present late in disease progression for many reasons including lack of availability of services, institutional racism, and mistrust of mainstream health services.
- **Overcrowding:** Many Aboriginal and Torres Strait Islander communities have insufficient housing infrastructure, which results in people living in overcrowded conditions. This facilitates disease transmission and makes it difficult for cases and contacts to maintain social distance measures and self-quarantine.

- **Burden of disease:** Aboriginal and Torres Strait Islander people experience a burden of disease 2.3 times the rate of other Australians. This may increase the risk of severe disease from SARS-CoV-2.

Key response strategies

- **Shared decision-making and governance:** Throughout all phases, COVID-19 response work should be collaborative to ensure local community leaders are central to the response. Further risk reduction strategies and public health responses should be co-developed, and co-designed, enabling Aboriginal and Torres Strait Islander people to contribute and fully participate in shared decision-making.
- **Social and cultural determinants of health:** Public health strategies should be considered within the context of a holistic approach that prioritises the safety and well-being of individuals, families and communities while acknowledging the centrality of culture, and the addressing racism, intergenerational trauma and other social determinants of health.
- **Community control:** The Aboriginal Community Controlled Health Services (ACCHS) sector provides a comprehensive model of culturally safe care with structured support and governance systems. The network of ACCHS and peak bodies should be included in the response as a fundamental mechanism of engagement and communication.
- **Appropriate communication:** Messages should be strengths-based and encompass Aboriginal ways of living, including family-centred approaches during both prevention and control phases. They should address factors that may contribute to risk such as social determinants of health, including living arrangements and accessibility to services.
- **Flexible and responsive models of care:** Consider flexible health service delivery and healthcare models (e.g. pandemic assessment centres, flexible ACCHSs clinic hours/location with additional staffing, and home visits). Consider employing the use of point of care influenza tests, where available, to help determine whether influenza is implicated in presentations in the community.
- **Isolation and quarantine:** Families should feel empowered and be part of decision-making around quarantine. This can be achieved through exploring with families what quarantine looks like, working through how it might impact on the family and their way of living, and identifying ways around it. Family members will want to visit unwell people in hospital. It should be made clear that there are other ways to be with sick family members in hospital, maintain communication with families and communities in lieu of gatherings (e.g. staying socially connected through the internet and video calling).

Aged care facilities

Aged care facilities are high-risk settings for infectious disease outbreaks. This is due to the fact that there is often high density living with extensive close physical contact between staff and residents during the provision of care. Residents are at increased risk of severe illness and death due to their age and presence of co-morbid conditions. There are often many visitors, volunteers and staff moving between the community and facilities, which can promote the spread of infectious diseases.

Preventative measures

In addition to usual preventative protocols, aged care facilities should ensure that high rates of influenza vaccination are maintained amongst all occupants and staff. Messaging to discourage unwell visitors from visiting facilities and occupants should be reinforced, and care should be taken to ensure unwell staff and volunteers know not to present to work while symptomatic with any infectious condition. Visitors, residents and staff should be encouraged to increase their frequency of hand hygiene (with soap and water or using alcohol hand rub), surface cleaning, and to use correct cough/sneeze etiquette.

Outbreaks

The vast majority of aged care facilities should be primed and already have frameworks and protocols for testing and isolation in the event of respiratory disease outbreaks.

Outbreaks of COVID-19 in residential care facilities should be managed with close reference to the [Coronavirus \(COVID-19\) guidelines for outbreaks in residential care facilities](https://www.health.gov.au/resources/publications/coronavirus-covid-19-guidelines-for-outbreaks-in-residential-care-facilities) (available at: <https://www.health.gov.au/resources/publications/coronavirus-covid-19-guidelines-for-outbreaks-in-residential-care-facilities>). The guidelines provide specific advice on the prevention, control and public health management of COVID-19 outbreaks in residential care facilities in Australia.

Schools

The best way to prevent transmission of COVID-19 in schools is through the promotion of correct hand hygiene habits and cough/sneeze etiquette. Children or staff with upper respiratory tract illness should not attend school while symptomatic. If a child or staff member becomes ill with upper respiratory tract symptoms, they should be isolated from other students and sent home as soon as possible.

Contact tracing or management of school outbreaks may require temporary full or partial school closures; however, closures are not generally recommended as a reactive measure on public health grounds.

8. References

1. Chang D, Xu H, Rebaza A, Sharma L, Dela Cruz CS. Protecting health-care workers from subclinical coronavirus infection. *Lancet Respir Med*. 2020.

9. Appendices

Appendix A: SARS-CoV-2 Laboratory testing information

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

Appendix A: SARS-CoV-2 Laboratory testing information

Laboratory testing for SARS-CoV-2 continues to evolve rapidly with the accumulation of clinical data, and as reagents and protocols are refined.

The aim of testing is to, if clinically appropriate, exclude common respiratory viruses using local hospital and community nucleic acid testing capacity, and to simultaneously refer onward to a laboratory with capacity to test for SARS-CoV-2. As co-infection is possible, initial testing protocols should include testing for SARS-CoV-2 in patients with epidemiological risk, even where another infection is shown to be present.

Samples for testing

- (i) upper respiratory tract samples
- (ii) lower respiratory tract sample if the lower tract is involved
- (iii) serum (to be stored pending serology availability)

Upper respiratory tract samples

1. Nasopharyngeal and oropharyngeal swab: may be dacron or rayon, although flocked preferred
 - oropharyngeal (throat): swab the tonsillar beds and the back of the throat, avoiding the tongue
 - nasopharyngeal: swab the right or left nasopharynx by gently inserting the swab along the floor of the nasal cavity parallel to the palate until resistance is encountered, and rotate gently for 10-15 seconds; then withdraw and repeat the process in the other nostril. **To conserve swabs** the same swab that has been used to sample the oropharynx should be utilised for nasopharynx sampling
 - place the swab(s) back into the accompanying transport medium

Sampling both sites, oropharynx and also the nasopharynx, is recommended to optimise the chances of virus detection. The swab(s) should be placed in transport medium, which may be viral transport medium (VTM) or Liquid Amies. Dry swabs are not recommended.

If SARS-CoV-2 testing is to be undertaken in a different laboratory to testing for other respiratory viruses, then the original swab and remaining eluate should be forwarded for SARS-CoV-2 testing.

2. Nasal wash/aspirates

- collect 2-3 mL into a sterile, leak-proof, screw-top dry sterile container

A nasal wash or aspirate if available, may be substituted for the nasopharyngeal swab sample described above.

Lower respiratory tract samples**1. Sputum**

- patient should rinse his/her mouth with water before collection
- expectorate deep cough sputum directly into a sterile, leak-proof, screw-top dry sterile container

2. Bronchoalveolar lavage, tracheal aspirate, pleural fluid

- collect 2-3 mL into a sterile, leak-proof, screw-top sputum collection cup or dry sterile container

As lower respiratory tract specimens contain the highest viral loads in SARS-CoV and MERS-CoV, it is advised that lower respiratory tract specimens should be collected for SARS-CoV-2 testing where possible. Initial experience in testing for SARS-CoV-2 seems to be consistent with this prior experience. Repeat testing (especially of lower respiratory tract specimens) in clinically compatible cases should be performed if initial results are negative and there remains a high index of suspicion of infection.

Serology

Serum should be collected during the acute phase of the illness (preferably within the first 7 days of symptom onset), stored, and when serology testing becomes available tested in parallel with convalescent sera collected 3 or more weeks after acute infection. If no acute sample was collected, sera collected 14 or more days after symptom onset may be tested.

Specimen handling in the laboratory***Microbiology Laboratory***

Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS 2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment. Specimens should be transported in accordance with current regulatory requirements as diagnostic samples for testing.

Clinical Pathology

Non-respiratory specimens (blood, urine, stool) are known to contain virus. Standard precautions should be used for non-microbial pathology testing (such as routine biochemistry and haematology). Where possible auto-analysers should be used according to standard practices and/or local protocols. There is evidence that capping and uncapping of samples is not a high risk aerosol generating procedure.

Respiratory Virus Diagnostic Testing

Nucleic acid testing of the upper or lower respiratory tract samples is performed for influenza and other common respiratory viruses using standard protocols and methods of the hospital or community laboratory.

Standard protocols of the testing laboratory for respiratory sample processing should be used. This is expected to consist of PC2 laboratory practices, and use of a Class II Biosafety cabinet for aerosol generating procedures (such as centrifuging without sealed carriers, vortexing). Viral culture can only be undertaken in an accredited laboratory that has a PC3 facility.

The residue (original swab and remaining eluate) of the upper tract sample is forwarded together with the lower tract sample and the serum to the reference laboratory with SARS-CoV-2 testing capacity requesting SARS-CoV-2 testing.

Clinical liaison with jurisdictional public health officers is essential to coordinate referral and testing.

Standard protocols should be used for sample packaging and transport as diagnostic samples for testing (i.e. Category B).

SARS-CoV-2 specific testing

Nucleic acid testing (NAT) using real time polymerase chain reaction (RT-PCR) is the method of choice for detection of SARS-CoV-2. Specific diagnostic test approaches for SARS-CoV-2 will be described here only in broad terms. There is significant variation in PCR assays employed by different PHLN member laboratories, and test algorithms are likely to be further refined over time. Commercial assays are becoming available from March 2020 and evaluation of these, or reference to another laboratory evaluation, needs to be performed prior to introduction.

[Specific Real Time PCR primer sets to detect SARS-CoV-2 are available](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance). Some PHLN member laboratories have designed their own, and some have implemented primer sets recommended to the World Health Organization (WHO) by leading international coronavirus reference laboratories (available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance>). The majority of PHLN testing capacity now employs relatively swift RT-PCR assays for screening, with a laboratory turnaround time of several hours. Confirmation of positives is being done either with RT-PCR assays detecting a different target gene, or broadly reactive PCR tests with sequencing of amplicons (see below).

Well pedigreed PCR primer sets, probes and protocols are available from the WHO/ European Viral Archive (EVAg) (available at: https://www.who.int/docs/default-source/coronaviruse/protocol-v2-1.pdf?sfvrsn=a9ef618c_2).

Many PCR assays, including those available through WHO will also detect other zoonotic coronaviruses such as SARS-CoV, sometimes with a recognisable shift in the cycle threshold value (Ct) compared to the SARS-CoV-2 target, but not commonly circulating coronaviruses usually detected by commercial assays (e.g. NL63, 229E strains).

Several Australian PHLN reference laboratories began diagnostic testing for the current outbreak using PCR assays capable of detecting a wide range of coronaviruses, including zoonotic and novel pathogens. A number of these were mapped against the promulgated nucleic acid sequence of SARS-CoV-2 from Wuhan, China (GenBank accession MN908947, December 2019) early in the course of the outbreak. Nucleic acid sequencing of amplicons from positive tests is used to identify the coronavirus in this approach. These assays have relatively long turnaround times and have largely been replaced by RT-PCR other than as a confirmatory test in some laboratories.

Complementary DNA (cDNA) synthesized from the VIDRL SARS-CoV-2 has now been made available to all PHLN member laboratories as a test positive control. Synthetic positive control material in the form of nucleic acid templates is also available through WHO/ European Viral Archive (EVAg).

There is variable use of one or two viral targets for SARS-CoV-2 testing. Confirmatory testing using an alternative target, at least in the early stages, for positive samples, is recommended if using a single target.

Testing algorithms are likely to be revised pending further information about the virus, and the number of specimens received in the laboratory for testing.

Viral culture should not be performed for routine diagnosis, and should only be attempted in reference laboratories with appropriate experience and containment facilities. Currently where attempted this is being done at Physical Containment Level 3 (PC3), consistent with current recommendations for SARS-CoV, pending specific SARS-CoV-2 international recommendations.

The Royal College of Pathologists of Australasia Quality Assurance Program (RCPAQAP) with Australian Government support, performed the first SARS-CoV-2 specific QAP, which closed on 11th March 2020, and involved 16 public and private laboratories in all Australian states and in New Zealand. This proficiency testing program (PTP) supplemented previous SARS-CoV, MERS-CoV and other coronaviruses PTP. A second, more detailed PTP is planned to be performed by the RCPA QAP in mid 2020. The second PTP is planned for distribution to a wider range of laboratories, once testing has been extended to more laboratories.

Randox Laboratories and Quality Control for Molecular Diagnostics (QCMD) have announced a pilot EQA scheme for coronaviruses which will include inactivated SARS-CoV-2.

Further Information

The [Department of Health has produced a series of resources on COVID-19 for health professionals, including pathology providers and healthcare managers, these may be accessed here](#).

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

These recommendations are intended for hospital personnel who enter a clinical space with COVID-19 patients, including wardspersons, food deliverers, cleaners, and clinical personnel.

Background:

Although Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) which causes COVID-19 has spread rapidly and widely in mainland China, there has been limited transmission elsewhere, i.e. containment precautions have been mostly successful to date. At the time of writing, the crude mortality (~2%) in China is based on laboratory confirmed cases; many milder cases are almost certainly not being tested and the mortality is likely to be lower. Most cases in Australia have been relatively mild but a small number of deaths has been reported outside of mainland China. While a number of healthcare-associated infections have been reported with COVID-19 (in healthcare workers and patients)—as occurred with SARS and MERS—the risk for COVID-19 is likely to be very low, when infection control precautions are adhered to correctly.

General principles:

- **Standard precautions, including hand hygiene (5 Moments)** for all patients with respiratory infections. Patients and staff should observe cough etiquette and respiratory hygiene,
- **Transmission-based precautions** for patients with confirmed, probable, or suspected COVID-19:
 - **Contact and droplet precautions** for **routine care** of patients.
 - **Contact and airborne precautions** for **aerosol generating procedures (AGPs)**.

Contact and droplet precautions:

Contact and droplet precautions can be safely used for routine patient care of inpatients with confirmed, probable or suspected COVID-19 (see Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units for case definition)

- On presentation or admission to hospital the patient should be:
 - given a surgical mask to put on, and
 - placed in a single room (ensuring air does not circulate to other areas)
 - placed in a negative pressure room (in the event of AGPs being performed).
- If transfer outside the room is essential, the patient should wear a surgical mask during transfer and follow respiratory hygiene and cough etiquette.
- For most inpatient contacts between healthcare staff and patients the following PPE is safe and appropriate and should be put on before entering the patient's room:
 - long-sleeved gown
 - surgical mask
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- For hospitalised patients requiring frequent attendance by medical and nursing staff, a P2/N95 respirator should be considered for prolonged or very close contact.

Contact and airborne precautions for aerosol-generating procedures (AGPs) and care of clinically ill patients requiring high level/high volume hands-on contact outside of ICU:

- **Contact and airborne precautions should be used routinely for AGPs**, which include:
 - tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy (and bronchoalveolar lavage), high flow nasal oxygen
 - The use of nebulisers should be avoided and alternative medication administration devices (e.g. spacers) used.
- PPE for contact and airborne procedures should be put on before entering patients room:
 - long-sleeved gown
 - P2/N95 respirator (mask) – should be fit-checked with each use
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- P2/N95 respirators (mask) should be used only when required.
- Unless used correctly, i.e. with fit-checking, a P2/N95 respirator (mask) is unlikely to protect against airborne pathogen spread.
 - An air-tight seal may be difficult to achieve for people with facial hair. Fit checking with a range of P2/N95 respirators must occur to assess the most suitable one to achieve a protective seal. If a tight seal cannot be achieved, facial hair should be removed.

Care of critically ill patients in ICU

- Patients who require admission to ICU with severe COVID-19 are likely to have a high viral load, particularly in the lower respiratory tract
- **Contact and airborne precautions** (as above) are required for patient care and are adequate for most AGPs.
 - The risk of aerosol transmission is reduced once the patient is intubated with a closed ventilator circuit but there is a potential, but unknown, risk of transmission from other body fluids such as diarrhoeal stool or vomitus or inadvertent circuit disconnection
- If a health care professional is required to remain in the patient's room continuously for a long period (e.g. more than one hour), because of the need to perform multiple procedures, the use of a powered air purifying respirator (PAPR) may be considered for additional comfort and visibility. A number of different types of relatively lightweight, comfortable PAPRs are now available and should be used according to manufacturer's instructions. Only **PPE marked as reusable** should be reused, following **reprocessing** according to manufacturer's instructions, All other PPE must be disposed of after use.

ICU staff caring for patients with COVID-19 (or any other potentially serious infectious disease) should be trained in the correct use of PPE, including by an infection control professional. This also applies particularly to the use of PAPRs, if required. Particular care should be taken on removal of PAPR, which is associated with a risk of contamination.

Additional precautions:**Staff**

- A staff log for each room entry should be maintained, to allow monitoring of potential breaches of infection control and follow-up contacts, if necessary.

Disposal of PPE and other waste

- Waste should be disposed in the normal way for clinical waste
- All non-clinical waste is disposed of into general waste

Handling of linen

- Routine procedures for handling of infectious linen should be followed
- Visibly soiled linen should be placed in a (soluble) plastic bag inside a linen skip

Environmental cleaning of patient care areas

- Cleaners should observe contact and droplet precautions (as above).
- Frequently touched surfaces (such as doorknobs, bedrails, tabletops, light switches, patient handsets) in the patient's room should be cleaned daily.
- Terminal cleaning of all surfaces in the room (as above plus floor, ceiling, walls, blinds) should be performed after the patient is discharged.
- A combined cleaning and disinfection procedure should be used, either 2-step— detergent clean, followed by disinfectant; or 2-in-1 step— using a product that has both cleaning and disinfectant properties. Any hospital-grade, TGA-listed disinfectant that is commonly against norovirus is suitable, if used according to manufacturer's instructions.

Coronavirus Disease 2019 (COVID-19)

CDNA National Guidelines for Public Health Units

Revision history			
Version	Date	Revised by	Changes
2.6	17 April 2020	Communicable Disease Network Australia	Revised: Case management, Contact management – Close contact definition
2.5	06 April 2020	Communicable Disease Network Australia	Revised: Case definition.
2.4	26 March 2020	Communicable Diseases Network Australia	Inclusion of advice for probable cases throughout.
2.3	24 March 2020	Communicable Diseases Network Australia	Revised: Case definition.
2.2	21 March 2020	Communicable Diseases Network Australia	Revised: Case management – Release from isolation.
2.1	20 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management, Special situations.
2.0	13 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management, Laboratory testing, Appendix A.
1.18	10 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Case management, Contact management. Inclusion of Air crew and Schools advice in Special situations section.
1.17	05 March 2020	Communicable Diseases Network Australia	Inclusion of self-quarantine advice for returned travellers from South Korea, revised Case management, inclusion of table of contents.
1.16	04 March 2020	Communicable Diseases Network Australia	Inclusion of Aboriginal and Torres Strait Islander community advice in Special situations section.
1.15	03 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management.
1.14	02 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Risk stratification of countries, Contact management.

1.13	28 February 2020	Communicable Diseases Network Australia	Revised: Laboratory testing, isolation and restriction and Appendix A: laboratory testing information.
1.12	27 February 2020	Communicable Diseases Network Australia	Inclusion of Cambodia in the list of countries in the Person under investigation section.
1.11	26 February 2020	Communicable Diseases Network Australia	Inclusion of Italy in the list of countries in the Person Under Investigation section.
1.10	23 February 2020	Communicable Diseases Network Australia	Inclusion of South Korea and Iran in the list of countries in the Person Under Investigation section.
1.9	21 February 2020	Communicable Diseases Network Australia	Revised: case definition, infectious period, contact management, special situation (cruise ship). Specific changes are highlighted.
1.8	17 February 2020	Communicable Diseases Network Australia	Inclusion of statement reflecting that passengers of the Diamond Princess cruise meet the criteria for close contact.
1.7	15 February 2020	Communicable Diseases Network Australia	Revised case definition.
1.6	14 February 2020	Communicable Diseases Network Australia	Addition of Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19). Updated nomenclature.
1.5	7 February 2020	Communicable Diseases Network Australia	Inclusion of advice on release from isolation.
1.4	6 February 2020	Communicable Diseases Network Australia	Revised case definition and added rationale. Updated infection control advice throughout.
1.3	4 February 2020	Communicable Diseases Network Australia	Revised the case definition and use of the terms 'quarantine' and 'isolation'.
1.2	2 February 2020	Communicable Diseases Network Australia	Revised the case definition, close and casual contact definitions and added self-isolation guidance.
1.1	27 January 2020	Communicable Diseases Network Australia	Removed references to Wuhan and revised the case definition.
1.0	23 January 2020	Communicable Diseases Network Australia	Developed by the 2019-nCoV Working Group.

This document summarises interim recommendations for surveillance, infection control, laboratory testing and contact management for coronavirus disease 2019 (COVID-19). It is the first national guidance issued for COVID-19 and will be further developed into the Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units (COVID-19 SoNG).

It has been adapted from CDNA National Guidelines for Public Health Units MERS-CoV, utilising current CDC and WHO guidance, and is based on the current knowledge of the situation in mainland China and other countries, and experiences with SARS-CoV and MERS-CoV.

CDNA will review and update these recommendations as required as new information becomes available on the situation.

These interim Guidelines are to be used in the first instance whilst a Series of National Guidelines is being developed by the Communicable Diseases Network Australia (CDNA).

These interim guidelines capture the knowledge of experienced professionals, and provide guidance on best practise based upon the best available evidence at the time of completion.

Readers should not rely solely on the information contained within these Guidelines. Guideline information is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a health professional. Clinical judgement and discretion may be required in the interpretation and application of these guidelines.

The membership of the CDNA and the AHPPC, and the Commonwealth of Australia as represented by the Department of Health ('the Commonwealth'), do not warrant or represent that the information contained in these Guidelines is accurate, current or complete. The CDNA, the AHPPC and the Commonwealth do not accept any legal liability or responsibility for any loss, damages, costs or expenses incurred by the use of, or reliance on, or interpretation of, the information contained in these Guidelines.

Abbreviations and definitions

COVID-19:	coronavirus disease 2019. The name of the disease caused by the virus SARS-CoV-2, as agreed by the World Health Organization, the World Organization for Animal Health and the Food and Agriculture Organization of the United Nations. For more information, see the World Health Organization Director-General's remarks: https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020
SARS-CoV-2:	severe acute respiratory syndrome coronavirus 2. The formal name of the coronavirus that causes COVID-19, as determined by the International Committee on Taxonomy of Viruses. Previously, this coronavirus was commonly known as 'novel coronavirus 2019 (2019-nCoV)'. For more information see the International Committee on Taxonomy of Viruses manuscript: https://www.biorxiv.org/content/10.1101/2020.02.07.937862v1.full.pdf

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1. Case definition

Confirmed case

A person who tests positive to a validated specific SARS-CoV-2 nucleic acid test or has the virus identified by electron microscopy or viral culture.

Probable case

A person, who has not been tested, with fever ($\geq 38^{\circ}\text{C}$)¹ or history of fever (e.g. night sweats, chills) **OR** acute respiratory infection (e.g. cough, shortness of breath, sore throat) **AND** who is a household contact (see [Contact definition](#) below) of a confirmed or probable case of COVID-19.

Suspect case

A person who meets the following epidemiological and clinical criteria:

Epidemiological criteria	Clinical criteria	Action
Very high risk <ul style="list-style-type: none"> • Close contact (see Contact definition below) in the 14 days prior to illness onset with a confirmed or probable case • International travel in the 14 days prior to illness onset • Cruise ship passengers and crew who have travelled in the 14 days prior to illness onset 	Fever ($\geq 38^{\circ}\text{C}$) ¹ or history of fever OR acute respiratory infection (e.g. cough, shortness of breath, sore throat)	Test ²
High risk setting <ol style="list-style-type: none"> 1. Two or more plausibly-linked cases of illness clinically consistent with COVID-19 (see clinical criteria) in the following settings: <ul style="list-style-type: none"> • Aged care and other residential care facilities • Military – group residential and other closed settings, such as Navy ships or living in accommodation • Boarding schools • Correctional facilities • Detention centres • Aboriginal and Torres Strait Islander rural and remote communities, in consultation with the local PHU • Settings where COVID-19 outbreaks have occurred, in consultation with the local PHU 2. People who, in the 14 days prior to illness onset lived in or travelled through a geographically localised area with elevated risk of community transmission, as defined by public health authorities⁴ 	Fever ($\geq 38^{\circ}\text{C}$) ¹ or history of fever (e.g. night sweats, chills) OR acute respiratory infection (e.g. cough, shortness of breath, sore throat) ³	Test (on site for aged care residents, where feasible)

Epidemiological criteria	Clinical criteria	Action
Moderate risk <ul style="list-style-type: none"> Healthcare workers, aged or residential care workers 	Fever ($\geq 38^{\circ}\text{C}$) ¹ or history of fever (e.g. night sweats, chills) OR acute respiratory infection (e.g. cough, shortness of breath, sore throat)	Test
Background risk (No epidemiological risk factors)	Hospitalised patients with fever ($\geq 38^{\circ}\text{C}$) ¹ AND acute respiratory symptoms (e.g. cough, shortness of breath, sore throat) ⁵ of an unknown cause	Test

¹ It is recommended that temperature is measured using a tympanic, oral or other thermometer proven to consistently and accurately represent core body temperature.

² Testing household contacts of confirmed or probable cases of COVID-19 may not be indicated where resources are constrained. These cases would be considered 'probable cases' (see definition above).

³ In certain high risk outbreak settings, public health units may consider testing asymptomatic contacts to inform management of the outbreak.

⁴ For further information on geographically localised areas with elevated risk of community transmission, refer to the [Department of Health website](https://www1.health.gov.au/internet/main/publishing.nsf/Content/cdna-song-novel-coronavirus.htm) (<https://www1.health.gov.au/internet/main/publishing.nsf/Content/cdna-song-novel-coronavirus.htm>)

⁵ Clinical judgement should be exercised in testing hospitalised patients. All patients should attend an emergency department if clinical deterioration occurs.

Rationale for current case definitions

The case definitions are based on what is currently known about the clinical and epidemiological profile of cases of COVID-19 presenting to date both in Australia and internationally. Health authorities are constantly monitoring the spectrum of clinical symptoms as cases arise, and, if there are any significant shifts, they will be reflected in the above definitions in future versions of this document.

The 14 day period is based upon what is currently known to be the upper time limit of the incubation period. As more precise information about the incubation period emerges, this will be reviewed.

2. Laboratory testing

Patients meeting the suspect case definition ([above](#)) should be tested for SARS-CoV-2. Where applicable, consult with your state/territory communicable diseases agency to seek advice on which laboratories can provide SARS-CoV-2 testing; appropriate specimen type, collection and transport; and also to facilitate contact management if indicated.

When collecting respiratory specimens, transmission-based precautions should be observed whether or not respiratory symptoms are present.

For most patients with mild illness in the community, collection of upper respiratory specimens (i.e. nasopharyngeal or oropharyngeal swabs) is a low risk procedure and can be performed using **contact and droplet precautions**:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield), and surgical mask.
- To collect combined nasopharyngeal/nasal and oropharyngeal swabs, stand slightly to the side of the patient to avoid exposure to respiratory secretions, should the patient cough or sneeze.
- At completion of consultation, remove personal protective equipment (PPE) and perform hand hygiene, wipe any contacted/contaminated surfaces with detergent /disinfectant.
- Note that, for droplet precautions, the room does not need to be left empty after sample collection.

If the patient has severe symptoms suggestive of pneumonia, e.g. fever and breathing difficulty, or frequent, severe or productive coughing episodes then **contact and airborne precautions** should be observed.

Patients with these symptoms should be managed in hospital, and sample collection conducted in a negative pressure room, if available. If referral to hospital for specimen collection is not possible, specimens should be collected in a room from which air does not circulate to other areas. The door should be closed during specimens collection and the room left vacant for at least 30 minutes afterwards (cleaning can be performed during this time by a person wearing PPE).

The following precautions should be observed:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield) and a **P2/N95 respirator – which should be fit checked**.
- At completion of consultation, remove gown and gloves, perform hand hygiene, remove eye protection and P2/N95 respirator. Do not touch the front of any item of PPE during removal; perform hand hygiene.
- The room surfaces should be wiped clean with disinfectant wipes by a person wearing gloves, gown and surgical mask.

For further information on circumstances requiring airborne precautions, see [aerosol generating procedures](#).

Routine tests for acute pneumonia/pneumonitis should be performed where indicated, including bacterial cultures, acute and convalescent serology, urinary antigen testing and nucleic acid tests for respiratory pathogens, according to local protocols.

Serology for SARS-CoV-2 is not yet available. Collection of serum for storage by the SARS-CoV-2 testing laboratory is recommended to facilitate retrospective testing, if this is relevant, once serology tests become available.

See [Appendix A](#) for additional SARS-CoV-2 laboratory testing information.

3. Case management

Response times

On the same day as notification of a confirmed, probable, or suspect case, begin follow up investigation and, where applicable, notify your central state or territory communicable diseases agency.

PHU staff should be available to contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners.

Response procedure

Case investigation

The response to a notification will normally be carried out in collaboration with the clinicians managing the case, and be guided by the COVID-19 public health unit checklist and the COVID-19 investigation form (currently pending).

Regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend that tests be done.
- Seek the treating doctor's permission to contact the case or relevant care-giver.
- Determine if the diagnosis has been discussed with the case or relevant care-giver before beginning the interview.
- Review case and contact management.
- Ensure appropriate infection control guidelines are followed in caring for the case.
- Identify the likely source of infection.

Note: If interviews with suspected cases are conducted face-to-face, the person conducting the interview must have a thorough understanding of infection control practices and be competent in using appropriate PPE.

Case treatment

In the absence of pathogen-specific interventions, patient management largely depends on supportive treatment, and vigilance for and treatment of complications.

[Further advice on clinical management is available from WHO:](https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2) (https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2)

Education

Provide a COVID-19 factsheet to cases and their close contacts.

Ensure that they are aware of the signs and symptoms of COVID-19, the requirements of quarantine and isolation, contact details of the PHU and the infection control practices that can prevent the transmission of COVID-19.

Isolation and restriction

Cases will generally be managed in hospital. If clinically indicated, cases may be managed at home only if it can be ensured that the case and household contacts are counselled about risk and that appropriate infection control measures are in place.

Healthcare workers and others who come into contact with confirmed, probable, and suspect cases must be protected according to recommended infection control guidelines. Visitors should be restricted to close family members.

A risk assessment should be undertaken for suspected cases who initially test negative for SARS-CoV-2. If there is no alternative diagnosis and a high index of suspicion remains that such cases may have COVID-19, consideration should be given to continued isolation and use of the recommended infection control precautions, pending further testing (see [Laboratory testing section](#) and [Appendix A](#)) and re-assessment.

While recommendations on isolation and PPE for management of confirmed, probable, and suspect cases initially took a deliberately cautious approach, emerging evidence and expert advice now supports requirements commensurate with the risk in particular clinical circumstances.

In addition to standard precautions, interim recommendations for the use of PPE during clinical care of people with possible COVID-19 are:

- **Contact and droplet precautions** are recommended for **routine care** of patients in quarantine or with confirmed, probable, or suspected COVID-19.
- **Contact and airborne precautions** are recommended when performing **aerosol-generating procedures**, including intubation and bronchoscopy, and for care of **critically ill patients** (see [Appendix B](#) for further information).

Other recommended infection control measures include:

- When a patient who meets the suspect case definition presents to a healthcare setting (GP, hospital ED, or pathology collection centre) and whether or not respiratory symptoms are present, the patient should immediately be:
 - given a surgical mask to put on, and
 - directed to a single room. If the patient has severe symptoms suggestive of pneumonia, they should be directed to a negative pressure room, if available, or a room from which the air does not circulate to other areas.
- If a patient with confirmed or probable COVID-19 needs to be transferred out of their isolation room, the patient should wear a “surgical” face mask and follow respiratory hygiene and cough etiquette.

Release from isolation

1. Confirmed or probable cases with mild illness who did not require hospitalisation.

The case can be released from isolation if they meet all of the following criteria:

- at least 10 days have passed since the onset of symptoms; and
- there has been resolution of all symptoms of the acute illness for the previous 72 hours¹

The case should be advised to continue to be diligent to hand hygiene and cough etiquette and practise social distancing, as is indicated for the rest of the community, as this will assist in reducing transmission.

2. Confirmed or probable cases with more severe illness who have been discharged from hospital.

If the case is ready clinically for hospital discharge, but has not had two consecutive swabs taken at least 24 hours apart which are negative for SARS-CoV-02 by PCR, then they should be discharged to home isolation.

The case can be released from isolation if they meet all of the following criteria:

- at least 10 days have passed since hospital discharge; and
- there has been resolution of all symptoms of the acute illness for the previous 72 hours¹

The case should be advised to continue to be diligent to hand hygiene and cough etiquette and practise social distancing, as is indicated for the rest of the community, as this will assist in reducing transmission.

3. All cases who have specimens taken at clinical recovery can be released from isolation if they meet the criteria below.

Healthcare workers and workers in aged care facilities must meet the following criteria for release from isolation.

A confirmed or probable case can be released from isolation if they meet all of the following criteria:

- the person has been afebrile for the previous 48 hours;
- resolution of the acute illness for the previous 24 hours¹;
- be at least 7 days after the onset of the acute illness;
- PCR negative on at least two consecutive respiratory specimens collected 24 hours apart after the acute illness has resolved^{2, 3} – this will be reviewed as the pandemic evolves in Australia.

¹Some people may have pre-existing illnesses with chronic respiratory signs or symptoms, such as chronic cough. For these people, the treating medical practitioner should make an assessment as to whether the signs and symptoms of COVID-19 have resolved.

²If the patient has a productive cough due to a pre-existing respiratory illness or other ongoing lower respiratory tract disease, then the sputum or other lower respiratory tract specimens must be PCR negative for SARS-CoV-2. Otherwise upper respiratory tract specimens (nasopharyngeal or nose and throat swabs) must be PCR negative.

³A small proportion of people may have an illness that has completely resolved but their respiratory specimens remain persistently PCR positive. A decision on release from isolation for these people should be made on a case-by-case basis after consultation between the person's treating medical practitioner, the testing laboratory and public health, Results of viral culture, if available, may be included in this consideration.

Routine PCR testing at seven days after release is not recommended unless the person has clinical features consistent with COVID-19.

Faecal sampling is not recommended as a standard test, however, it may be done for patients with gastrointestinal symptoms. For cases who do have faecal samples tested, and remain persistently PCR positive in these samples after all the release from isolation criteria (above) are met, further or extended precautions and exclusions should be implemented on a case-by-case basis:

- All cases with diarrhoea should be advised not to prepare food for others until 48 hours after symptoms have resolved.
- Cases who have employment that may pose an increased risk of onward transmission (e.g. healthcare workers, restaurant workers and food handlers), should be excluded from work until 48 hours after any symptoms of diarrhoea have resolved.
- Cases with ongoing diarrhoea or faecal incontinence who may have limited capacity to maintain standards of personal hygiene should continue to be isolated until 48 hours after the resolution of these symptoms.

Patients do not require repeat testing until they are PCR negative in faecal samples. It is recommended that people who remained persistently PCR positive in faecal samples use soap and water for hand hygiene. If this is unavailable, alcohol hand gel should be used. Education emphasising the importance of proper hand hygiene should be provided to **all** cases upon release from isolation.

Aerosol-generating procedures

Appropriate care should be taken during aerosol-generating procedures. Aerosol-generating procedures include: tracheal intubation, non-invasive ventilation, tracheostomy, cardiopulmonary resuscitation, manual ventilation before intubation, bronchoscopy, and high flow nasal oxygen. Collection of upper respiratory specimens is not generally regarded as aerosol generating, but airborne precautions should be used for collection of specimens from severely symptomatic patients (see [Laboratory testing section](#)).

P2/N95 respirators should be used only when required. Unless used correctly, i.e. with fit-checking, they are unlikely to protect against airborne pathogen spread.

Airborne precautions should be used routinely for aerosol-generating procedures, such as bronchoscopy, intubation, suctioning etc. in hospital settings. Nebuliser use should be discouraged and alternative administration devices (e.g. spacers) should be used.

The [Laboratory testing section](#) provides detailed information on sample collection for SARS-CoV-2.

Active case finding

Contacts (see [Contact management section](#)) should be identified and advised to immediately seek medical advice should they develop symptoms. Contacts or caregivers should be asked to also inform the public health agency if they develop symptoms.

4. Environmental evaluation

Where local transmission of COVID-19 is thought possible, a thorough review of contributing environmental factors should be done. This should include a review of infection control procedures, and opportunities for exposure to respiratory or faecal contamination.

If a case has had occupational exposure to animals it may be appropriate to consult with animal health authorities.

5. Infectious period

Infectious period of COVID-19 remains unknown, however there is some evidence to support the occurrence of pre-symptomatic or asymptomatic transmission (1). As a precautionary approach, cases are considered to be infectious **48-hours** prior to onset of symptoms. Cases are considered to pose a risk of onward transmission and require isolation until criteria listed in the [release from isolation section](#) have been met.

6. Contact management

As there remain gaps in the understanding of infectivity of COVID-19 cases and transmission modes, the definition of contacts and their public health management is based on available information on COVID-19 together with observations from similar serious coronaviruses – SARS-CoV and MERS-CoV.

Identification of contacts

Persons categorised as close contacts (see definition of “close contacts” below) of a confirmed or probable case should be followed-up, provided with information, and self-quarantine at home for 14 days following the last contact with the case. Close contacts should be monitored for the development of symptoms for 14 days after the last exposure to the case (i.e. the maximum incubation period) where feasible to do so.

Contacts of suspect cases should also be considered for contact management if there is likely to be a delay in confirming or excluding COVID-19 in the suspect case, such as delayed testing.

Less frequent active follow-up together with passive surveillance may be necessary if there are large numbers of close contacts to monitor.

Close contact definition

A close contact is defined as requiring:

- face-to-face contact in any setting with a confirmed or probable case, **for greater than 15 minutes cumulative over the course of a week**, in the period extending from **48 hours** before onset of symptoms in the confirmed or probable case, or
- sharing of a closed space with a confirmed or probable case for a prolonged period (e.g. more than 2 hours) in the period extending from **48 hours** before onset of symptoms in the confirmed or probable case.

For the purposes of surveillance, a close contact includes a person meeting any of the following criteria:

- Living in the same household or household-like setting (e.g. in a boarding school or hostel) – referred to as ‘household contacts’.
- Direct contact with the body fluids or laboratory specimens of a case without recommended PPE or failure of PPE.
- A person who spent 2 hours or longer in the same room (such as a GP or ED waiting room; a school classroom; communal room in an aged care facility). See [Special situations](#) for further information specific to aged care facilities and schools.
- A person in the same hospital room when an aerosol generating procedure is undertaken on the case, without recommended PPE.
- Aircraft passengers who were seated in the same row as the case, or in the two rows in front or two rows behind a confirmed or probable COVID-19 case. Contact tracing of people who may have had close contact on long bus or train trips should also be attempted where possible, using similar seating/proximity criteria.
- For aircraft crew exposed to a confirmed or probable case, a case-by-case risk assessment should be conducted by the airline to identify which crew member(s) should be managed as close contacts. See [Special situations](#) for further information.
- If an aircraft crew member is the COVID-19 case, contact tracing efforts should concentrate on passengers seated in the area where the crew member was working during the flight and all of the other members of the crew.
- Close contacts on cruise ships can be difficult to identify, and a case-by-case risk assessment should be conducted to identify which passengers and crew should be managed as close contacts. See [Special situations](#) for further information.

Contact needs to have occurred within the period extending **48 hours** before onset of symptoms in the case until the case is classified as no longer infectious by the treating team (usually 24 hours after the resolution of symptoms).

Note that:

- Healthcare workers and other contacts who have taken recommended infection control precautions, including the use of full PPE, while caring for a symptomatic confirmed or probable COVID-19 cases are not considered to be close contacts.
- Contact tracing is not required for close contacts arriving on international flights on or after 16 March 2020.

Returned Traveller definition

Returned travellers are defined as those who have undertaken international travel to any country outside Australia in the last 14 days.

Contact assessment

All persons identified as having had contact with a confirmed or probable case should be assessed to see if they should be classified as a close contact and have demographic and epidemiological data collected. Information on close contacts should be managed according to jurisdictional requirements.

Identification and assessment of the contacts of suspected cases may be deferred pending the results of initial laboratory testing.

Close contact testing

Routine laboratory screening for COVID-19 is not recommended for asymptomatic close contacts; however, in certain high risk outbreak settings (see [suspect case definition](#)), public health units may consider testing asymptomatic contacts to inform management of the outbreak.

Prophylaxis

No specific chemoprophylaxis is available for contacts.

Education

Close contacts should be counselled about their risk and the symptoms of COVID-19 and provided with a COVID-19 factsheet. They should be advised to self-quarantine.

Quarantine and restriction

Close contacts

Asymptomatic close contacts should be advised to self-quarantine at home for 14 days following the last contact with the case, and to monitor their health for 14 days after the last possible contact with a confirmed or probable COVID-19 case.

Where feasible to do so, public health units should conduct active daily monitoring of close contacts for symptoms for 14 days after the last possible contact with a confirmed or probable COVID-19 case.

Self-quarantined close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

For the purpose of contact management, swabs are **not** indicated during quarantine in well people. A medical clearance from a health care provider is not required for release from quarantine or for other purposes such as returning to work, school or university.

Returned travellers

All returned travellers who have undertaken international travel and returned on or after **16 March 2020** should self-quarantine at home for 14 days after arrival in Australia.

Returned travellers who have travelled in or transited through **mainland China or Iran** should self-quarantine at home for 14 days after leaving the higher risk country.

Returned travellers who have travelled in or transited through **Italy** on or after 11 March 2020 should self-quarantine at home for 14 days after leaving the higher risk country.

Returned travellers who have travelled in or transited through **South Korea** on or after 5 March 2020 should self-quarantine at home for 14 days after leaving the higher risk country.

Self-quarantined returned travellers should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

All returned travellers who have undertaken international travel prior to 16 March 2020, and are not required to self-quarantine as per the advice above, should self-monitor for symptoms, practise social distancing when outside the workplace and [immediately isolate themselves if they become unwell](#). This advice should be followed for 14 days after returning to Australia.

Social distancing is an effective measure, but it is recognised that it cannot be practised in all situations and the aim is to generally reduce the potential for transmission. Whilst practising social distancing, people can travel to work (including by public transport) and carry out normal duties. Social distancing outside the workplace is aimed at nonessential activities and includes:

- Avoiding crowds and mass gatherings.
- Avoiding small gatherings in enclosed spaces, for example family celebrations.
- Attempting to keep a distance of 1.5 metres between themselves and other people where possible, for example when out and about in public spaces.

All returned travellers who have undertaken international travel in the last 14 days **who are unwell** with fever, or with respiratory symptoms (with or without fever) or other symptoms consistent with COVID-19 should be isolated and managed as per the current recommendations for suspected cases.

Special risk settings

Healthcare workers

All healthcare workers should observe usual infection prevention and control practices in the workplace. This includes healthcare workers and other staff in any setting who have direct patient contact.

Healthcare workers with influenza like illness should not work while they are symptomatic. They should undergo isolation and additionally be tested for SARS-CoV-2 if they meet the suspect case definition (fever OR acute respiratory illness).

Healthcare workers who are defined as close contacts should be treated as such (see section [6. Contact Management](#)).

In settings where the loss of the healthcare worker will have a significant impact on health services an individual risk assessment should be conducted in collaboration with the PHU.

Self-quarantined healthcare worker close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Public health units may assist infection control units of health facilities to identify and monitor healthcare worker close contacts.

It is recognised that clinical work restrictions on healthcare worker close contacts may place strain on individuals and on health services. This underlines the importance of ensuring healthcare workers implement appropriate infection control precautions when assessing and managing confirmed, probable, and suspect COVID-19 cases.

Staff (including Healthcare workers) who have direct patient contact in a hospital or residential/aged care facility.

Healthcare workers and other staff with close patient contact who work in hospitals or residential/aged care facilities should take additional precautions given they come into contact with a high case load of potentially vulnerable patients.

All healthcare workers and staff who have close patient contact in hospitals and/or residential/aged care facilities **who have returned from any higher risk country** should be advised not to undertake work in a health care or residential/aged care facility for 14 days since leaving the higher risk country. They should otherwise follow advice provided to other well returned travellers as above.

Aboriginal and Torres Strait Islander Communities

CDNA will continue to monitor the emerging evidence around COVID-19 transmission risks in healthcare settings and Aboriginal and Torres Strait Islander communities and revise these recommendations as needed. For further information, see section [7. Special situations – Aboriginal and Torres Strait Islander Communities](#).

Medical care for quarantined individuals

If individuals under self-quarantine need to see a doctor for any reason (e.g. fever and respiratory symptoms or other illness/injury), they should **telephone their GP or hospital Emergency Department before presenting. Patients with severe symptoms should call 000 and make it clear they are in self-quarantine or isolation because of COVID-19.** If the patient has **symptoms consistent with the COVID-19 [case definition](#)**, the local public health unit should be consulted about the most suitable venue for clinical assessment and specimen collection.

Management of symptomatic contacts

If fever or respiratory symptoms, with or without fever, or other symptoms consistent with COVID-19 develop within the first 14 days following the last contact, PHU staff should arrange for the individual to be immediately isolated and managed as per the current recommendations for suspected COVID-19 cases, with urgent testing for COVID-19 undertaken in an environment which minimises the exposure of others.

Ill contacts who are being evaluated for COVID-19 can be appropriately isolated and managed at home, unless their condition is severe enough to require hospitalisation.

Symptomatic contacts who test negative for SARS-CoV-2 by PCR will still need to be monitored for 14 days after their last contact with a confirmed or probable COVID-19 case and may require re-testing.

7. Special situations

Cruise ships

Risk assessment and identification of contacts

Classification of contacts on cruise ships with one or more confirmed or probable cases of COVID-19 should be made on a case-by-case basis.

Hospital transfer of confirmed, probable or suspect cases

If confirmed, probable or suspect cases on board require transfer to a hospital, the Commonwealth Biosecurity Officer will notify the port authority to provide access for medical transport. The jurisdictional Human Biosecurity Officer will then coordinate transfer of the person to an appropriate medical facility for further management, via the most appropriate means that adheres to necessary precautions.

Quarantine for passengers and crew after arrival at a port

Close contacts arriving prior to 16 March 2020, and any returned travellers arriving on or after 16 March 2020, should self-quarantine. Where feasible, self-quarantine at home should be recommended, (e.g. persons with a residence nearby) ensuring appropriate PPE precautions are employed during travel. For those for whom this is not possible, matters of self-quarantine should be addressed jurisdictionally.

Disembarking and embarking

After all confirmed, probable and suspect cases have been managed appropriately and the Human Biosecurity Officer has determined that no other passengers or crew have symptoms consistent with COVID-19, remaining passengers and crew will be allowed to disembark. The vessel may be permitted to commence embarking once it is certain there is no risk of ongoing transmission.

Air crew

Risk assessment and identification of contacts

Decisions regarding the contact classification of cabin crews can be difficult to determine. On an aircraft with one or more confirmed or probable cases of COVID-19, a case-by-case risk assessment should be conducted by the airline to identify which crew should be managed as close contacts.

Considerations for conducting a risk assessment should include:

- Proximity of crew to confirmed or probable case
- Duration of exposure to confirmed or probable case
- Size of the compartment in which the crew member and confirmed or probable case interacted
- Precautions taken, including PPE worn, when in close proximity to the confirmed or probable case

Where it has been determined that a crew member is a close contact, the airline is responsible for notifying the relevant state/territory public health authority to facilitate management of the close contact.

Aboriginal and Torres Strait Islander communities

Key drivers of increased risk of transmission and severity

- **Mobility:** Aboriginal and Torres Strait Islander peoples are highly mobile, with frequent travel often linked to family and cultural connections and community events involving long distances between cities, towns, and communities. In addition, remote communities have a high flow of visitors (e.g. tourists, fly-in fly-out clinicians and other workers). This increases the risk of transmission even in generally isolated communities.
- **Remoteness:** A fifth of the Aboriginal and Torres Strait Islander population lives in remote and very remote areas. There is often reduced access health services, these are usually at capacity in normal circumstances and are often reliant on temporary staff. Limited transport options may further inhibit presentations and delay laboratory testing.
- **Barriers to access:** Unwell people may present late in disease progression for many reasons including lack of availability of services, institutional racism, and mistrust of mainstream health services.

- **Overcrowding:** Many Aboriginal and Torres Strait Islander communities have insufficient housing infrastructure, which results in people living in overcrowded conditions. This facilitates disease transmission and makes it difficult for cases and contacts to maintain social distance measures and self-quarantine.
- **Burden of disease:** Aboriginal and Torres Strait Islander people experience a burden of disease 2.3 times the rate of other Australians. This may increase the risk of severe disease from SARS-CoV-2.

Key response strategies

- **Shared decision-making and governance:** Throughout all phases, COVID-19 response work should be collaborative to ensure local community leaders are central to the response. Further risk reduction strategies and public health responses should be co-developed, and co-designed, enabling Aboriginal and Torres Strait Islander people to contribute and fully participate in shared decision-making.
- **Social and cultural determinants of health:** Public health strategies should be considered within the context of a holistic approach that prioritises the safety and well-being of individuals, families and communities while acknowledging the centrality of culture, and the addressing racism, intergenerational trauma and other social determinants of health.
- **Community control:** The Aboriginal Community Controlled Health Services (ACCHS) sector provides a comprehensive model of culturally safe care with structured support and governance systems. The network of ACCHS and peak bodies should be included in the response as a fundamental mechanism of engagement and communication.
- **Appropriate communication:** Messages should be strengths-based and encompass Aboriginal ways of living, including family-centred approaches during both prevention and control phases. They should address factors that may contribute to risk such as social determinants of health, including living arrangements and accessibility to services.
- **Flexible and responsive models of care:** Consider flexible health service delivery and healthcare models (e.g. pandemic assessment centres, flexible ACCHSs clinic hours/location with additional staffing, and home visits). Consider employing the use of point of care influenza tests, where available, to help determine whether influenza is implicated in presentations in the community.
- **Isolation and quarantine:** Families should feel empowered and be part of decision-making around quarantine. This can be achieved through exploring with families what quarantine looks like, working through how it might impact on the family and their way of living, and identifying ways around it. Family members will want to visit unwell people in hospital. It should be made clear that there are other ways to be with sick family members in hospital, maintain communication with families and communities in lieu of gatherings (e.g. staying socially connected through the internet and video calling).

Aged care facilities

Aged care facilities are high-risk settings for infectious disease outbreaks. This is due to the fact that there is often high density living with extensive close physical contact between staff and residents during the provision of care. Residents are at increased risk of severe illness and death due to their age and presence of co-morbid conditions. There are often many visitors, volunteers and staff moving between the community and facilities, which can promote the spread of infectious diseases.

Preventative measures

In addition to usual preventative protocols, aged care facilities should ensure that high rates of influenza vaccination are maintained amongst all occupants and staff. Messaging to discourage unwell visitors from visiting facilities and occupants should be reinforced, and care should be taken to ensure unwell staff and volunteers know not to present to work while symptomatic with any infectious condition. Visitors, residents and staff should be encouraged to increase their frequency of hand hygiene (with soap and water or using alcohol hand rub), surface cleaning, and to use correct cough/sneeze etiquette.

Outbreaks

The vast majority of aged care facilities should be primed and already have frameworks and protocols for testing and isolation in the event of respiratory disease outbreaks.

Outbreaks of COVID-19 in residential care facilities should be managed with close reference to the [Coronavirus \(COVID-19\) guidelines for outbreaks in residential care facilities](https://www.health.gov.au/resources/publications/coronavirus-covid-19-guidelines-for-outbreaks-in-residential-care-facilities) (available at: <https://www.health.gov.au/resources/publications/coronavirus-covid-19-guidelines-for-outbreaks-in-residential-care-facilities>). The guidelines provide specific advice on the prevention, control and public health management of COVID-19 outbreaks in residential care facilities in Australia.

Schools

The best way to prevent transmission of COVID-19 in schools is through the promotion of correct hand hygiene habits and cough/sneeze etiquette. Children or staff with upper respiratory tract illness should not attend school while symptomatic. If a child or staff member becomes ill with upper respiratory tract symptoms, they should be isolated from other students and sent home as soon as possible.

Contact tracing or management of school outbreaks may require temporary full or partial school closures; however, closures are not generally recommended as a reactive measure on public health grounds.

8. References

1. Chang D, Xu H, Rebaza A, Sharma L, Dela Cruz CS. Protecting health-care workers from subclinical coronavirus infection. *Lancet Respir Med*. 2020.

9. Appendices

Appendix A: SARS-CoV-2 Laboratory testing information

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

Appendix A: SARS-CoV-2 Laboratory testing information

Laboratory testing for SARS-CoV-2 continues to evolve rapidly with the accumulation of clinical data, and as reagents and protocols are refined.

The aim of testing is to, if clinically appropriate, exclude common respiratory viruses using local hospital and community nucleic acid testing capacity, and to simultaneously refer onward to a laboratory with capacity to test for SARS-CoV-2. As co-infection is possible, initial testing protocols should include testing for SARS-CoV-2 in patients with epidemiological risk, even where another infection is shown to be present.

Samples for testing

- (i) upper respiratory tract samples
- (ii) lower respiratory tract sample if the lower tract is involved
- (iii) serum (to be stored pending serology availability)

Upper respiratory tract samples

1. Nasopharyngeal and oropharyngeal swab: may be dacron or rayon, although flocked preferred
 - oropharyngeal (throat): swab the tonsillar beds and the back of the throat, avoiding the tongue
 - nasopharyngeal: swab the right or left nasopharynx by gently inserting the swab along the floor of the nasal cavity parallel to the palate until resistance is encountered, and rotate gently for 10-15 seconds; then withdraw and repeat the process in the other nostril. **To conserve swabs** the same swab that has been used to sample the oropharynx should be utilised for nasopharynx sampling
 - place the swab(s) back into the accompanying transport medium

Sampling both sites, oropharynx and also the nasopharynx, is recommended to optimise the chances of virus detection. The swab(s) should be placed in transport medium, which may be viral transport medium (VTM) or Liquid Amies. Dry swabs are not recommended.

If SARS-CoV-2 testing is to be undertaken in a different laboratory to testing for other respiratory viruses, then the original swab and remaining eluate should be forwarded for SARS-CoV-2 testing.

2. Nasal wash/aspirates

- collect 2-3 mL into a sterile, leak-proof, screw-top dry sterile container

A nasal wash or aspirate if available, may be substituted for the nasopharyngeal swab sample described above.

Lower respiratory tract samples**1. Sputum**

- patient should rinse his/her mouth with water before collection
- expectorate deep cough sputum directly into a sterile, leak-proof, screw-top dry sterile container

2. Bronchoalveolar lavage, tracheal aspirate, pleural fluid

- collect 2-3 mL into a sterile, leak-proof, screw-top sputum collection cup or dry sterile container

As lower respiratory tract specimens contain the highest viral loads in SARS-CoV and MERS-CoV, it is advised that lower respiratory tract specimens should be collected for SARS-CoV-2 testing where possible. Initial experience in testing for SARS-CoV-2 seems to be consistent with this prior experience. Repeat testing (especially of lower respiratory tract specimens) in clinically compatible cases should be performed if initial results are negative and there remains a high index of suspicion of infection.

Serology

Serum should be collected during the acute phase of the illness (preferably within the first 7 days of symptom onset), stored, and when serology testing becomes available tested in parallel with convalescent sera collected 3 or more weeks after acute infection. If no acute sample was collected, sera collected 14 or more days after symptom onset may be tested.

Specimen handling in the laboratory***Microbiology Laboratory***

Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS 2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment. Specimens should be transported in accordance with current regulatory requirements as diagnostic samples for testing.

Clinical Pathology

Non-respiratory specimens (blood, urine, stool) are known to contain virus. Standard precautions should be used for non-microbial pathology testing (such as routine biochemistry and haematology). Where possible auto-analysers should be used according to standard practices and/or local protocols. There is evidence that capping and uncapping of samples is not a high risk aerosol generating procedure.

Respiratory Virus Diagnostic Testing

Nucleic acid testing of the upper or lower respiratory tract samples is performed for influenza and other common respiratory viruses using standard protocols and methods of the hospital or community laboratory.

Standard protocols of the testing laboratory for respiratory sample processing should be used. This is expected to consist of PC2 laboratory practices, and use of a Class II Biosafety cabinet for aerosol generating procedures (such as centrifuging without sealed carriers, vortexing). Viral culture can only be undertaken in an accredited laboratory that has a PC3 facility.

The residue (original swab and remaining eluate) of the upper tract sample is forwarded together with the lower tract sample and the serum to the reference laboratory with SARS-CoV-2 testing capacity requesting SARS-CoV-2 testing.

Clinical liaison with jurisdictional public health officers is essential to coordinate referral and testing.

Standard protocols should be used for sample packaging and transport as diagnostic samples for testing (i.e. Category B).

SARS-CoV-2 specific testing

Nucleic acid testing (NAT) using real time polymerase chain reaction (RT-PCR) is the method of choice for detection of SARS-CoV-2. Specific diagnostic test approaches for SARS-CoV-2 will be described here only in broad terms. There is significant variation in PCR assays employed by different PHLN member laboratories, and test algorithms are likely to be further refined over time. Commercial assays are becoming available from March 2020 and evaluation of these, or reference to another laboratory evaluation, needs to be performed prior to introduction.

[Specific Real Time PCR primer sets to detect SARS-CoV-2 are available](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance). Some PHLN member laboratories have designed their own, and some have implemented primer sets recommended to the World Health Organization (WHO) by leading international coronavirus reference laboratories (available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance>). The majority of PHLN testing capacity now employs relatively swift RT-PCR assays for screening, with a laboratory turnaround time of several hours. Confirmation of positives is being done either with RT-PCR assays detecting a different target gene, or broadly reactive PCR tests with sequencing of amplicons (see below).

Well pedigreed PCR primer sets, probes and protocols are available from the WHO/ European Viral Archive (EVAg) (available at: https://www.who.int/docs/default-source/coronaviruse/protocol-v2-1.pdf?sfvrsn=a9ef618c_2).

Many PCR assays, including those available through WHO will also detect other zoonotic coronaviruses such as SARS-CoV, sometimes with a recognisable shift in the cycle threshold value (Ct) compared to the SARS-CoV-2 target, but not commonly circulating coronaviruses usually detected by commercial assays (e.g. NL63, 229E strains).

Several Australian PHLN reference laboratories began diagnostic testing for the current outbreak using PCR assays capable of detecting a wide range of coronaviruses, including zoonotic and novel pathogens. A number of these were mapped against the promulgated nucleic acid sequence of SARS-CoV-2 from Wuhan, China (GenBank accession MN908947, December 2019) early in the course of the outbreak. Nucleic acid sequencing of amplicons from positive tests is used to identify the coronavirus in this approach. These assays have relatively long turnaround times and have largely been replaced by RT-PCR other than as a confirmatory test in some laboratories.

Complementary DNA (cDNA) synthesized from the VIDRL SARS-CoV-2 has now been made available to all PHLN member laboratories as a test positive control. Synthetic positive control material in the form of nucleic acid templates is also available through WHO/ European Viral Archive (EVAg).

There is variable use of one or two viral targets for SARS-CoV-2 testing. Confirmatory testing using an alternative target, at least in the early stages, for positive samples, is recommended if using a single target.

Testing algorithms are likely to be revised pending further information about the virus, and the number of specimens received in the laboratory for testing.

Viral culture should not be performed for routine diagnosis, and should only be attempted in reference laboratories with appropriate experience and containment facilities. Currently where attempted this is being done at Physical Containment Level 3 (PC3), consistent with current recommendations for SARS-CoV, pending specific SARS-CoV-2 international recommendations.

The Royal College of Pathologists of Australasia Quality Assurance Program (RCPAQAP) with Australian Government support, performed the first SARS-CoV-2 specific QAP, which closed on 11th March 2020, and involved 16 public and private laboratories in all Australian states and in New Zealand. This proficiency testing program (PTP) supplemented previous SARS-CoV, MERS-CoV and other coronaviruses PTP. A second, more detailed PTP is planned to be performed by the RCPA QAP in mid 2020. The second PTP is planned for distribution to a wider range of laboratories, once testing has been extended to more laboratories.

Randox Laboratories and Quality Control for Molecular Diagnostics (QCMD) have announced a pilot EQA scheme for coronaviruses which will include inactivated SARS-CoV-2.

Further Information

The [Department of Health has produced a series of resources on COVID-19 for health professionals, including pathology providers and healthcare managers, these may be accessed here](#).

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

These recommendations are intended for hospital personnel who enter a clinical space with COVID-19 patients, including wardspersons, food deliverers, cleaners, and clinical personnel.

Background:

Although Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) which causes COVID-19 has spread rapidly and widely in mainland China, there has been limited transmission elsewhere, i.e. containment precautions have been mostly successful to date. At the time of writing, the crude mortality (~2%) in China is based on laboratory confirmed cases; many milder cases are almost certainly not being tested and the mortality is likely to be lower. Most cases in Australia have been relatively mild but a small number of deaths has been reported outside of mainland China. While a number of healthcare-associated infections have been reported with COVID-19 (in healthcare workers and patients)—as occurred with SARS and MERS—the risk for COVID-19 is likely to be very low, when infection control precautions are adhered to correctly.

General principles:

- **Standard precautions, including hand hygiene (5 Moments)** for all patients with respiratory infections. Patients and staff should observe cough etiquette and respiratory hygiene,
- **Transmission-based precautions** for patients with confirmed, probable, or suspected COVID-19:
 - **Contact and droplet precautions** for **routine care** of patients.
 - **Contact and airborne precautions** for **aerosol generating procedures (AGPs)**.

Contact and droplet precautions:

Contact and droplet precautions can be safely used for routine patient care of inpatients with confirmed, probable or suspected COVID-19 (see Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units for case definition)

- On presentation or admission to hospital the patient should be:
 - given a surgical mask to put on, and
 - placed in a single room (ensuring air does not circulate to other areas)
 - placed in a negative pressure room (in the event of AGPs being performed).
- If transfer outside the room is essential, the patient should wear a surgical mask during transfer and follow respiratory hygiene and cough etiquette.
- For most inpatient contacts between healthcare staff and patients the following PPE is safe and appropriate and should be put on before entering the patient's room:
 - long-sleeved gown
 - surgical mask
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- For hospitalised patients requiring frequent attendance by medical and nursing staff, a P2/N95 respirator should be considered for prolonged or very close contact.

Contact and airborne precautions for aerosol-generating procedures (AGPs) and care of clinically ill patients requiring high level/high volume hands-on contact outside of ICU:

- **Contact and airborne precautions should be used routinely for AGPs**, which include:
 - tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy (and bronchoalveolar lavage), high flow nasal oxygen
 - The use of nebulisers should be avoided and alternative medication administration devices (e.g. spacers) used.
- PPE for contact and airborne procedures should be put on before entering patients room:
 - long-sleeved gown
 - P2/N95 respirator (mask) – should be fit-checked with each use
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- P2/N95 respirators (mask) should be used only when required.
- Unless used correctly, i.e. with fit-checking, a P2/N95 respirator (mask) is unlikely to protect against airborne pathogen spread.
 - An air-tight seal may be difficult to achieve for people with facial hair. Fit checking with a range of P2/N95 respirators must occur to assess the most suitable one to achieve a protective seal. If a tight seal cannot be achieved, facial hair should be removed.

Care of critically ill patients in ICU

- Patients who require admission to ICU with severe COVID-19 are likely to have a high viral load, particularly in the lower respiratory tract
- **Contact and airborne precautions** (as above) are required for patient care and are adequate for most AGPs.
 - The risk of aerosol transmission is reduced once the patient is intubated with a closed ventilator circuit but there is a potential, but unknown, risk of transmission from other body fluids such as diarrhoeal stool or vomitus or inadvertent circuit disconnection
- If a health care professional is required to remain in the patient's room continuously for a long period (e.g. more than one hour), because of the need to perform multiple procedures, the use of a powered air purifying respirator (PAPR) may be considered for additional comfort and visibility. A number of different types of relatively lightweight, comfortable PAPRs are now available and should be used according to manufacturer's instructions. Only **PPE marked as reusable** should be reused, following **reprocessing** according to manufacturer's instructions, All other PPE must be disposed of after use.

ICU staff caring for patients with COVID-19 (or any other potentially serious infectious disease) should be trained in the correct use of PPE, including by an infection control professional. This also applies particularly to the use of PAPRs, if required. Particular care should be taken on removal of PAPR, which is associated with a risk of contamination.

Additional precautions:**Staff**

- A staff log for each room entry should be maintained, to allow monitoring of potential breaches of infection control and follow-up contacts, if necessary.

Disposal of PPE and other waste

- Waste should be disposed in the normal way for clinical waste
- All non-clinical waste is disposed of into general waste

Handling of linen

- Routine procedures for handling of infectious linen should be followed
- Visibly soiled linen should be placed in a (soluble) plastic bag inside a linen skip

Environmental cleaning of patient care areas

- Cleaners should observe contact and droplet precautions (as above).
- Frequently touched surfaces (such as doorknobs, bedrails, tabletops, light switches, patient handsets) in the patient's room should be cleaned daily.
- Terminal cleaning of all surfaces in the room (as above plus floor, ceiling, walls, blinds) should be performed after the patient is discharged.
- A combined cleaning and disinfection procedure should be used, either 2-step— detergent clean, followed by disinfectant; or 2-in-1 step— using a product that has both cleaning and disinfectant properties. Any hospital-grade, TGA-listed disinfectant that is commonly against norovirus is suitable, if used according to manufacturer's instructions.

Coronavirus Disease 2019 (COVID-19)

CDNA National Guidelines for Public Health Units

Revision history			
Version	Date	Revised by	Changes
2.7	24 April 2020	Communicable Disease Network Australia	Revised: Case definition, Case management
2.6	17 April 2020	Communicable Disease Network Australia	Revised: Case management, Contact management – Close contact definition
2.5	06 April 2020	Communicable Disease Network Australia	Revised: Case definition.
2.4	26 March 2020	Communicable Diseases Network Australia	Inclusion of advice for probable cases throughout.
2.3	24 March 2020	Communicable Diseases Network Australia	Revised: Case definition.
2.2	21 March 2020	Communicable Diseases Network Australia	Revised: Case management – Release from isolation.
2.1	20 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management, Special situations.
2.0	13 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management, Laboratory testing, Appendix A.
1.18	10 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Case management, Contact management. Inclusion of Air crew and Schools advice in Special situations section.
1.17	05 March 2020	Communicable Diseases Network Australia	Inclusion of self-quarantine advice for returned travellers from South Korea, revised Case management, inclusion of table of contents.
1.16	04 March 2020	Communicable Diseases Network Australia	Inclusion of Aboriginal and Torres Strait Islander community advice in Special situations section.
1.15	03 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management.

1.14	02 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Risk stratification of countries, Contact management.
1.13	28 February 2020	Communicable Diseases Network Australia	Revised: Laboratory testing, isolation and restriction and Appendix A: laboratory testing information.
1.12	27 February 2020	Communicable Diseases Network Australia	Inclusion of Cambodia in the list of countries in the Person under investigation section.
1.11	26 February 2020	Communicable Diseases Network Australia	Inclusion of Italy in the list of countries in the Person Under Investigation section.
1.10	23 February 2020	Communicable Diseases Network Australia	Inclusion of South Korea and Iran in the list of countries in the Person Under Investigation section.
1.9	21 February 2020	Communicable Diseases Network Australia	Revised: case definition, infectious period, contact management, special situation (cruise ship). Specific changes are highlighted.
1.8	17 February 2020	Communicable Diseases Network Australia	Inclusion of statement reflecting that passengers of the Diamond Princess cruise meet the criteria for close contact.
1.7	15 February 2020	Communicable Diseases Network Australia	Revised case definition.
1.6	14 February 2020	Communicable Diseases Network Australia	Addition of Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19). Updated nomenclature.
1.5	7 February 2020	Communicable Diseases Network Australia	Inclusion of advice on release from isolation.
1.4	6 February 2020	Communicable Diseases Network Australia	Revised case definition and added rationale. Updated infection control advice throughout.
1.3	4 February 2020	Communicable Diseases Network Australia	Revised the case definition and use of the terms 'quarantine' and 'isolation'.
1.2	2 February 2020	Communicable Diseases Network Australia	Revised the case definition, close and casual contact definitions and added self-isolation guidance.
1.1	27 January 2020	Communicable Diseases Network Australia	Removed references to Wuhan and revised the case definition.

1.0	23 January 2020	Communicable Diseases Network Australia	Developed by the 2019-nCoV Working Group.
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This document summarises interim recommendations for surveillance, infection control, laboratory testing and contact management for coronavirus disease 2019 (COVID-19). It is the first national guidance issued for COVID-19 and will be further developed into the Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units (COVID-19 SoNG).

It has been adapted from CDNA National Guidelines for Public Health Units MERS-CoV, utilising current CDC and WHO guidance, and is based on the current knowledge of the situation in mainland China and other countries, and experiences with SARS-CoV and MERS-CoV.

CDNA will review and update these recommendations as required as new information becomes available on the situation.

These interim Guidelines are to be used in the first instance whilst a Series of National Guidelines is being developed by the Communicable Diseases Network Australia (CDNA).

These interim guidelines capture the knowledge of experienced professionals, and provide guidance on best practise based upon the best available evidence at the time of completion.

Readers should not rely solely on the information contained within these Guidelines. Guideline information is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a health professional. Clinical judgement and discretion may be required in the interpretation and application of these guidelines.

The membership of the CDNA and the AHPPC, and the Commonwealth of Australia as represented by the Department of Health ('the Commonwealth'), do not warrant or represent that the information contained in these Guidelines is accurate, current or complete. The CDNA, the AHPPC and the Commonwealth do not accept any legal liability or responsibility for any loss, damages, costs or expenses incurred by the use of, or reliance on, or interpretation of, the information contained in these Guidelines.

Abbreviations and definitions

COVID-19: coronavirus disease 2019. The name of the disease caused by the virus SARS-CoV-2, as agreed by the World Health Organization, the World Organization for Animal Health and the Food and Agriculture Organization of the United Nations. For more information, see the World Health Organization Director-General's remarks: <https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020>

SARS-CoV-2: severe acute respiratory syndrome coronavirus 2. The formal name of the coronavirus that causes COVID-19, as determined by the International Committee on Taxonomy of Viruses. Previously, this coronavirus was commonly known as 'novel coronavirus 2019 (2019-nCoV)'. For more information see the International Committee on Taxonomy of Viruses manuscript: <https://www.biorxiv.org/content/10.1101/2020.02.07.937862v1.full.pdf>

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1. Case definition

The case definition is based on what is currently known about the clinical and epidemiological profile of cases of COVID-19 presenting in Australia and internationally. Health authorities are constantly monitoring the spectrum of clinical symptoms and nature of illness. Using a 14 day exposure period will cover the duration of the incubation period in the vast majority of cases.

Confirmed case

A person who tests positive to a validated specific SARS-CoV-2 nucleic acid test or has the virus identified by electron microscopy or viral culture.

Probable case

A person, who has not been tested, with fever ($\geq 38^{\circ}\text{C}$)¹ or history of fever (e.g. night sweats, chills) **OR** acute respiratory infection (e.g. cough, shortness of breath, sore throat) **AND** who is a household contact (see [Contact definition](#) below) of a confirmed or probable case of COVID-19.

Suspect case

Clinical and public health judgement should be used to determine the need for testing in hospitalised patients and patients who do not meet the clinical or epidemiological criteria.

A person who meets the following clinical **AND** epidemiological criteria:

Clinical Criteria:

Fever ($\geq 38^{\circ}\text{C}$)¹ or history of fever (e.g. night sweats, chills) **OR** acute respiratory infection (e.g. cough, shortness of breath, sore throat).

Epidemiological criteria:

i. In the 14 days prior to illness onset:

- Close contact^{2,3} (see [Contact definition](#) below) with a confirmed or probable case
- International or interstate travel
- Passengers and crew who have travelled on a cruise ship
- Healthcare, aged or residential care workers and staff with direct patient contact
- People who have lived in or travelled through a geographically localised area with elevated risk of community transmission, as defined by public health authorities⁴

ii. Hospitalised patients, where no other clinical focus of infection or alternate explanation of the patient's illness is evident.

Footnotes:

¹ It is recommended that temperature is measured using a tympanic, oral or other thermometer proven to consistently and accurately represent core body temperature.

² Testing household contacts of confirmed or probable cases of COVID-19 may not be indicated where resources are constrained. These cases would be considered 'probable cases' (see definition above).

³ In certain high risk outbreak settings, public health units may consider testing asymptomatic contacts to inform management of the outbreak. For a list of settings, see [high risk settings](#).

⁴ For further information on geographically localised areas with elevated risk of community transmission, refer to the [Department of Health website](https://www1.health.gov.au/internet/main/publishing.nsf/Content/cdna-song-novel-coronavirus.htm):
(<https://www1.health.gov.au/internet/main/publishing.nsf/Content/cdna-song-novel-coronavirus.htm>)

Enhanced testing

The information in this section reflects the current national recommendations for SARS-CoV-2 testing. These recommendations will change over time based on a variety of factors, including current epidemiology and testing capacity. It is important to check relevant State and Territory health department case definitions and criteria for who should be tested, as these vary according to local epidemiology and circumstances.

Testing beyond the suspect case definition should be undertaken on patients with: fever ($\geq 38^{\circ}\text{C}$)¹ or history of fever (e.g. night sweats, chills) **OR** acute respiratory infection (e.g. cough, shortness of breath, sore throat), where no other clinical focus of infection or alternate explanation of the patient's illness is evident.

¹ It is recommended that temperature is measured using a tympanic, oral or other thermometer proven to consistently and accurately represent core body temperature.

It is recognised that without any other epidemiological risk factors, the risk of persons having COVID-19 is low. Any symptomatic persons should stay home until their symptoms have resolved. Respiratory specimens should be collected in accordance with the appropriate guidelines, refer to [Revised advice on non-inpatient care of people with suspected or confirmed COVID-19, including use of personal protective equipment \(PPE\)](https://www.health.gov.au/resources/publications/revised-advice-on-non-inpatient-care-of-people-with-suspected-or-confirmed-covid-19-including-use-of-personal-protective-equipment-ppe):
(<https://www.health.gov.au/resources/publications/revised-advice-on-non-inpatient-care-of-people-with-suspected-or-confirmed-covid-19-including-use-of-personal-protective-equipment-ppe>)

2. Laboratory testing

Patients meeting the suspect case definition ([above](#)) should be tested for SARS-CoV-2. **Persons meeting the enhanced testing criteria should be tested for SARS-CoV-2.** Where applicable, consult with your state/territory communicable diseases agency to seek advice on which laboratories can provide SARS-CoV-2 testing; appropriate specimen type, collection and transport; and also to facilitate contact management if indicated.

When collecting respiratory specimens, transmission-based precautions should be observed whether or not respiratory symptoms are present.

For most patients with mild illness in the community, collection of upper respiratory specimens (i.e. nasopharyngeal or oropharyngeal swabs) is a low risk procedure and can be performed using **contact and droplet precautions**:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield), and surgical mask.
- To collect combined nasopharyngeal/nasal and oropharyngeal swabs, stand slightly to the side of the patient to avoid exposure to respiratory secretions, should the patient cough or sneeze.
- At completion of consultation, remove personal protective equipment (PPE) and perform hand hygiene, wipe any contacted/contaminated surfaces with detergent/disinfectant.
- Note that, for droplet precautions, the room does not need to be left empty after sample collection.

If the patient has severe symptoms suggestive of pneumonia, e.g. fever and breathing difficulty, or frequent, severe or productive coughing episodes then **contact and airborne precautions** should be observed.

Patients with these symptoms should be managed in hospital, and sample collection conducted in a negative pressure room, if available. If referral to hospital for specimen collection is not possible, specimens should be collected in a room from which air does not circulate to other areas. The door should be closed during specimens collection and the room left vacant for at least 30 minutes afterwards (cleaning can be performed during this time by a person wearing PPE).

The following precautions should be observed:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield) and a **P2/N95 respirator – which should be fit checked**.
- At completion of consultation, remove gown and gloves, perform hand hygiene, remove eye protection and P2/N95 respirator. Do not touch the front of any item of PPE during removal; perform hand hygiene.
- The room surfaces should be wiped clean with disinfectant wipes by a person wearing gloves, gown and surgical mask.

For further information on circumstances requiring airborne precautions, see [aerosol generating procedures](#).

Routine tests for acute pneumonia/pneumonitis should be performed where indicated, including bacterial cultures, acute and convalescent serology, urinary antigen testing and nucleic acid tests for respiratory pathogens, according to local protocols.

Serology for SARS-CoV-2 is not yet available. Collection of serum for storage by the SARS-CoV-2 testing laboratory is recommended to facilitate retrospective testing, if this is relevant, once serology tests become available.

See [Appendix A](#) for additional SARS-CoV-2 laboratory testing information.

3. Case management

Response times

On the same day as notification of a confirmed, probable, or suspect case, begin follow up investigation and, where applicable, notify your central state or territory communicable diseases agency.

PHU staff should be available to contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners.

Response procedure

Case investigation

The response to a notification will normally be carried out in collaboration with the clinicians managing the case, and be guided by the COVID-19 public health unit checklist and the COVID-19 investigation form (currently pending).

Regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend that tests be done.
- Seek the treating doctor's permission to contact the case or relevant care-giver.
- Determine if the diagnosis has been discussed with the case or relevant care-giver before beginning the interview.
- Review case and contact management.
- Ensure appropriate infection control guidelines are followed in caring for the case.
- Identify the likely source of infection.

Note: If interviews with suspected cases are conducted face-to-face, the person conducting the interview must have a thorough understanding of infection control practices and be competent in using appropriate PPE.

Case treatment

In the absence of pathogen-specific interventions, patient management largely depends on supportive treatment, and vigilance for and treatment of complications.

[Further advice on clinical management is available from WHO:](https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2) (https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2)

Education

Provide a COVID-19 factsheet to cases and their close contacts.

Ensure that they are aware of the signs and symptoms of COVID-19, the requirements of quarantine and isolation, contact details of the PHU and the infection control practices that can prevent the transmission of COVID-19.

Isolation and restriction

Cases will generally be managed in hospital. If clinically indicated, cases may be managed at home only if it can be ensured that the case and household contacts are counselled about risk and that appropriate infection control measures are in place.

Healthcare workers and others who come into contact with confirmed, probable, and suspect cases must be protected according to recommended infection control guidelines. Visitors should be restricted to close family members.

A risk assessment should be undertaken for suspected cases who initially test negative for SARS-CoV-2. If there is no alternative diagnosis and a high index of suspicion remains that such cases may have COVID-19, consideration should be given to continued isolation and use of the recommended infection control precautions, pending further testing (see [Laboratory testing section](#) and [Appendix A](#)) and re-assessment.

While recommendations on isolation and PPE for management of confirmed, probable, and suspect cases initially took a deliberately cautious approach, emerging evidence and expert advice now supports requirements commensurate with the risk in particular clinical circumstances.

In addition to standard precautions, interim recommendations for the use of PPE during clinical care of people with possible COVID-19 are:

- **Contact and droplet precautions** are recommended for **routine care** of patients in quarantine or with confirmed, probable, or suspected COVID-19.
- **Contact and airborne precautions** are recommended when performing **aerosol-generating procedures**, including intubation and bronchoscopy, and for care of **critically ill patients** (see [Appendix B](#) for further information).

Other recommended infection control measures include:

- When a patient who meets the suspect case definition presents to a healthcare setting (GP, hospital ED, or pathology collection centre) and whether or not respiratory symptoms are present, the patient should immediately be:
 - given a surgical mask to put on, and
 - directed to a single room. If the patient has severe symptoms suggestive of pneumonia, they should be directed to a negative pressure room, if available, or a room from which the air does not circulate to other areas.
- If a patient with confirmed or probable COVID-19 needs to be transferred out of their isolation room, the patient should wear a “surgical” face mask and follow respiratory hygiene and cough etiquette.

Release from isolation

The following information details the circumstances under which confirmed and probable cases can be released from necessary isolation restrictions, as well as when cases are clear to go into high risk settings. Cases can be released from isolation if they meet the appropriate criteria in either point 1, 2, or 3 – whichever is applicable. Cases can go into a high risk setting if they meet the criteria in point 4.

1. Confirmed cases who are asymptomatic.

The case can be released from isolation if at least 10 days have passed since the first positive sample was taken and no symptoms have developed during this period.

2. Confirmed or probable cases with mild illness who did not require hospitalisation.

The case can be released from isolation if they meet all of the following criteria:

- at least 10 days have passed since the onset of symptoms; and
- there has been resolution of all symptoms of the acute illness for the previous 72 hours^{1,2}

3. Confirmed or probable cases with more severe illness who have been discharged from hospital.

If the case is ready clinically for hospital discharge, but has **not** had two consecutive swabs taken at least 24 hours apart which are negative for SARS-CoV-2 by PCR, then they **can** be discharged to home isolation.

The case can be released from **home** isolation if they meet all of the following criteria:

- at least 10 days have passed since hospital discharge; and
- there has been resolution of all symptoms of the acute illness for the previous 72 hours^{1,2}

If the case, at or prior to discharge, has had two consecutive swabs taken at least 24 hours apart which are negative for SARS-CoV-2 by PCR, then the case can simultaneously be discharged and released from isolation.

4. Laboratory Criteria

Cases returning to a higher risk setting (such as working in a health care setting, living in a residential age care setting or transferred to another ward in a hospital, see full list of [high risk settings below](#)) must meet a higher standard. These people need additional assessment prior to going into the higher risk setting.

Confirmed and probable cases who will be going into to a high-risk setting can go into that setting if they meet **all the following criteria:**

- be at least 10 days after the onset of the acute illness;
- the person has been afebrile for the previous 48 hours;
- resolution of the acute illness for the previous 24 hours¹;
- PCR negative on at least two consecutive respiratory specimens collected **at least** 24 hours apart **at least 7 days after symptom onset**^{3,4}

¹ Some people may have pre-existing illnesses with chronic respiratory signs or symptoms, such as chronic cough. For these people, the treating medical practitioner should make an assessment as to whether the signs and symptoms of COVID-19 have resolved. **If individuals have a persistent post-viral cough with negative test results, they are eligible for release from isolation.**

² If a case who meets these criteria is swabbed, then the case can be released from isolation irrespective of the swab test result.

³ If the patient has a productive cough due to a pre-existing respiratory illness or other ongoing lower respiratory tract disease, then the sputum or other lower respiratory tract specimens must be PCR negative for SARS-CoV-2. Otherwise upper respiratory tract specimens (nasopharyngeal or nose and throat swabs) must be PCR negative.

⁴ A small proportion of people may have an illness that has completely resolved but their respiratory specimens remain persistently PCR positive. In these circumstances, the decision around release to a high risk setting should be made on a case by case basis after discussion between the treating medical practitioner, the testing laboratory and public health. This may include laboratory interpretation of PCR cycle threshold (Ct) values and/or viral culture where available.

Routine PCR testing post-release from isolation is not recommended unless the person develops new clinical features consistent with COVID-19.

Persons who have been released from isolation should still adhere to social distancing measures, as the extent of acquired immunity is unknown.

If a recently recovered COVID-19 case becomes a close contact of a confirmed or probable case, they do not need to self-quarantine again. However, the recovered case should not attend high-risk settings (see suspect case definition) until 14 days after the last unprotected contact with the confirmed case and should vigilantly self-monitor for symptoms clinically consistent with COVID-19. If symptoms reappear, they should immediately self-isolate and be retested for SARS-CoV-2. If the recently recovered case is a household contact of a currently isolated case, particular care should be taken with regards to consistent hand hygiene. If the recently recovered case needs medical attention, they should follow the processes outlined in [Medical care for quarantined individuals](#). As further evidence becomes available on the duration of immunity, these recommendations may be amended.

Faecal sampling is not recommended as a standard test, however, it may be done for patients with gastrointestinal symptoms. For cases who do have faecal samples tested, and remain persistently PCR positive in these samples after all the release from isolation criteria (above) are met, further or extended precautions and exclusions should be implemented on a case-by-case basis:

- All cases with diarrhoea should be advised not to prepare food for others until 48 hours after symptoms have resolved.
- Cases who have employment that may pose an increased risk of onward transmission (e.g. healthcare workers, restaurant workers and food handlers), should be excluded from work until 48 hours after any symptoms of diarrhoea have resolved.
- Cases with ongoing diarrhoea or faecal incontinence who may have limited capacity to maintain standards of personal hygiene should continue to be isolated until 48 hours after the resolution of these symptoms.

Patients do not require repeat testing until they are PCR negative in faecal samples. It is recommended that people who remained persistently PCR positive in faecal samples use soap and water for hand hygiene. If this is unavailable, alcohol hand gel should be used. Education emphasising the importance of proper hand hygiene should be provided to **all** cases upon release from isolation.

High risk settings

In the context of the **release from isolation criteria and some aspects of testing outlined in the case definition, high-risk settings** are defined as:

- Aged care and other residential care facilities
- Healthcare settings
- Military – group residential and other closed settings, such as Navy ships or living in accommodation
- Boarding schools and other group residential settings
- Educational settings where students are present
- Childcare centres
- Correctional facilities
- Detention centres
- Workplaces where social distancing can't be readily practised
- Remote industrial sites with accommodation (e.g. mine sites)
- Aboriginal and Torres Strait Islander rural and remote communities, in consultation with the local PHU
- Settings where COVID-19 outbreaks are occurring, in consultation with the local PHU

Aerosol-generating procedures

Appropriate care should be taken during aerosol-generating procedures. Aerosol-generating procedures include: tracheal intubation, non-invasive ventilation, tracheostomy, cardiopulmonary resuscitation, manual ventilation before intubation, bronchoscopy, and high flow nasal oxygen. Collection of upper respiratory specimens is not generally regarded as aerosol generating, but airborne precautions should be used for collection of specimens from severely symptomatic patients (see [Laboratory testing section](#)).

P2/N95 respirators should be used only when required. Unless used correctly, i.e. with fit-checking, they are unlikely to protect against airborne pathogen spread.

Airborne precautions should be used routinely for aerosol-generating procedures, such as bronchoscopy, intubation, suctioning etc. in hospital settings. Nebuliser use should be discouraged and alternative administration devices (e.g. spacers) should be used.

The [Laboratory testing section](#) provides detailed information on sample collection for SARS-CoV-2.

Active case finding

Contacts (see [Contact management section](#)) should be identified and advised to immediately seek medical advice should they develop symptoms. Contacts or caregivers should be asked to also inform the public health agency if they develop symptoms.

4. Environmental evaluation

Where local transmission of COVID-19 is thought possible, a thorough review of contributing environmental factors should be done. This should include a review of infection control procedures, and opportunities for exposure to respiratory or faecal contamination.

If a case has had occupational exposure to animals it may be appropriate to consult with animal health authorities.

5. Infectious period

Infectious period of COVID-19 remains unknown, however there is some evidence to support the occurrence of pre-symptomatic or asymptomatic transmission (1). As a precautionary approach, cases are considered to be infectious 48-hours prior to onset of symptoms. Cases are considered to pose a risk of onward transmission and require isolation until criteria listed in the [release from isolation section](#) have been met.

6. Contact management

As there remain gaps in the understanding of infectivity of COVID-19 cases and transmission modes, the definition of contacts and their public health management is based on available information on COVID-19 together with observations from similar serious coronaviruses – SARS-CoV and MERS-CoV.

Identification of contacts

Persons categorised as close contacts (see definition of “close contacts” below) of a confirmed or probable case should be followed-up, provided with information, and self-quarantine at home for 14 days following the last contact with the case. Close contacts should be monitored for the development of symptoms for 14 days after the last exposure to the case (i.e. the maximum incubation period) where feasible to do so.

Contacts of suspect cases should also be considered for contact management if there is likely to be a delay in confirming or excluding COVID-19 in the suspect case, such as delayed testing.

Less frequent active follow-up together with passive surveillance may be necessary if there are large numbers of close contacts to monitor.

Close contact definition

A close contact is defined as requiring:

- face-to-face contact in any setting with a confirmed or probable case, for greater than 15 minutes cumulative over the course of a week, in the period extending from 48 hours before onset of symptoms in the confirmed or probable case, or
- sharing of a closed space with a confirmed or probable case for a prolonged period (e.g. more than 2 hours) in the period extending from 48 hours before onset of symptoms in the confirmed or probable case.

For the purposes of surveillance, a close contact includes a person meeting any of the following criteria:

- Living in the same household or household-like setting (e.g. in a boarding school or hostel) – referred to as ‘household contacts’.
- Direct contact with the body fluids or laboratory specimens of a case without recommended PPE or failure of PPE.
- A person who spent 2 hours or longer in the same room (such as a GP or ED waiting room; a school classroom; communal room in an aged care facility). See [Special situations](#) for further information specific to aged care facilities and schools.

- A person in the same hospital room when an aerosol generating procedure is undertaken on the case, without recommended PPE.
- Aircraft passengers who were seated in the same row as the case, or in the two rows in front or two rows behind a confirmed or probable COVID-19 case. Contact tracing of people who may have had close contact on long bus or train trips should also be attempted where possible, using similar seating/proximity criteria.
- For aircraft crew exposed to a confirmed or probable case, a case-by-case risk assessment should be conducted by the airline to identify which crew member(s) should be managed as close contacts. See [Special situations](#) for further information.
- If an aircraft crew member is the COVID-19 case, contact tracing efforts should concentrate on passengers seated in the area where the crew member was working during the flight and all of the other members of the crew.
- Close contacts on cruise ships can be difficult to identify, and a case-by-case risk assessment should be conducted to identify which passengers and crew should be managed as close contacts. See [Special situations](#) for further information.

Contact needs to have occurred within the period extending 48 hours before onset of symptoms in the case until the case is classified as no longer infectious by the treating team (usually 24 hours after the resolution of symptoms).

Note that:

- Healthcare workers and other contacts who have taken recommended infection control precautions, including the use of full PPE, while caring for a symptomatic confirmed or probable COVID-19 cases are not considered to be close contacts.
- Contact tracing is not required for close contacts arriving on international flights on or after 16 March 2020.

Returned Traveller definition

Returned travellers are defined as those who have undertaken international travel to any country outside Australia in the last 14 days.

Contact assessment

All persons identified as having had contact with a confirmed or probable case should be assessed to see if they should be classified as a close contact and have demographic and epidemiological data collected. Information on close contacts should be managed according to jurisdictional requirements.

Identification and assessment of the contacts of suspected cases may be deferred pending the results of initial laboratory testing.

Close contact testing

Routine laboratory screening for COVID-19 is not recommended for asymptomatic close contacts; however, in certain high risk outbreak settings (see [suspect case definition](#)), public health units may consider testing asymptomatic contacts to inform management of the outbreak.

Prophylaxis

No specific chemoprophylaxis is available for contacts.

Education

Close contacts should be counselled about their risk and the symptoms of COVID-19 and provided with a COVID-19 factsheet. They should be advised to self-quarantine.

Quarantine and restriction

Close contacts

Asymptomatic close contacts should be advised to self-quarantine at home for 14 days following the last contact with the case, and to monitor their health for 14 days after the last possible contact with a confirmed or probable COVID-19 case.

Where feasible to do so, public health units should conduct active daily monitoring of close contacts for symptoms for 14 days after the last possible contact with a confirmed or probable COVID-19 case.

Self-quarantined close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

For the purpose of contact management, swabs are **not** indicated during quarantine in well people. A medical clearance from a health care provider is not required for release from quarantine or for other purposes such as returning to work, school or university.

Returned travellers

All returned travellers who have undertaken international travel and returned on or after **16 March 2020** should self-quarantine at home for 14 days after arrival in Australia.

Returned travellers who have travelled in or transited through **mainland China or Iran** should self-quarantine at home for 14 days after leaving the higher risk country.

Returned travellers who have travelled in or transited through **Italy** on or after 11 March 2020 should self-quarantine at home for 14 days after leaving the higher risk country.

Returned travellers who have travelled in or transited through **South Korea** on or after 5 March 2020 should self-quarantine at home for 14 days after leaving the higher risk country.

Self-quarantined returned travellers should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

All returned travellers who have undertaken international travel prior to 16 March 2020, and are not required to self-quarantine as per the advice above, should self-monitor for symptoms, practise social distancing when outside the workplace and [immediately isolate themselves if they become unwell](#). This advice should be followed for 14 days after returning to Australia.

Social distancing is an effective measure, but it is recognised that it cannot be practised in all situations and the aim is to generally reduce the potential for transmission. Whilst practising social distancing, people can travel to work (including by public transport) and carry out normal duties. Social distancing outside the workplace is aimed at nonessential activities and includes:

- Avoiding crowds and mass gatherings.
- Avoiding small gatherings in enclosed spaces, for example family celebrations.
- Attempting to keep a distance of 1.5 metres between themselves and other people where possible, for example when out and about in public spaces.

All returned travellers who have undertaken international travel in the last 14 days **who are unwell** with fever, or with respiratory symptoms (with or without fever) or other symptoms consistent with COVID-19 should be isolated and managed as per the current recommendations for suspected cases.

Special risk settings

Healthcare workers

All healthcare workers should observe usual infection prevention and control practices in the workplace. This includes healthcare workers and other staff in any setting who have direct patient contact.

Healthcare workers with influenza like illness should not work while they are symptomatic. They should undergo isolation and additionally be tested for SARS-CoV-2 if they meet the suspect case definition (fever OR acute respiratory illness).

Healthcare workers who are defined as close contacts should be treated as such (see section [6. Contact Management](#)).

In settings where the loss of the healthcare worker will have a significant impact on health services an individual risk assessment should be conducted in collaboration with the PHU.

Self-quarantined healthcare worker close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

Public health units may assist infection control units of health facilities to identify and monitor healthcare worker close contacts.

It is recognised that clinical work restrictions on healthcare worker close contacts may place strain on individuals and on health services. This underlines the importance of ensuring healthcare workers implement appropriate infection control precautions when assessing and managing confirmed, probable, and suspect COVID-19 cases.

Staff (including Healthcare workers) who have direct patient contact in a hospital or residential/aged care facility.

Healthcare workers and other staff with close patient contact who work in hospitals or residential/aged care facilities should take additional precautions given they come into contact with a high case load of potentially vulnerable patients.

All healthcare workers and staff who have close patient contact in hospitals and/or residential/aged care facilities **who have returned from any higher risk country** should be advised not to undertake work in a health care or residential/aged care facility for 14 days since leaving the higher risk country. They should otherwise follow advice provided to other well returned travellers as above.

Aboriginal and Torres Strait Islander Communities

CDNA will continue to monitor the emerging evidence around COVID-19 transmission risks in healthcare settings and Aboriginal and Torres Strait Islander communities and revise these recommendations as needed. For further information, see section [7. Special situations – Aboriginal and Torres Strait Islander Communities](#).

Medical care for quarantined individuals

If individuals under self-quarantine need to see a doctor for any reason (e.g. fever and respiratory symptoms or other illness/injury), they should **telephone their GP or hospital Emergency Department before presenting. Patients with severe symptoms should call 000 and make it clear they are in self-quarantine or isolation because of COVID-19.** If the patient has **symptoms consistent with the COVID-19 [case definition](#)**, the local public health unit should be consulted about the most suitable venue for clinical assessment and specimen collection.

Management of symptomatic contacts

If fever or respiratory symptoms, with or without fever, or other symptoms consistent with COVID-19 develop within the first 14 days following the last contact, PHU staff should arrange for the individual to be immediately isolated and managed as per the current recommendations for suspected COVID-19 cases, with urgent testing for COVID-19 undertaken in an environment which minimises the exposure of others.

Ill contacts who are being evaluated for COVID-19 can be appropriately isolated and managed at home, unless their condition is severe enough to require hospitalisation.

Symptomatic contacts who test negative for SARS-CoV-2 by PCR will still need to be monitored for 14 days after their last contact with a confirmed or probable COVID-19 case and may require re-testing.

7. Special situations

Cruise ships

Risk assessment and identification of contacts

Classification of contacts on cruise ships with one or more confirmed or probable cases of COVID-19 should be made on a case-by-case basis.

Hospital transfer of confirmed, probable or suspect cases

If confirmed, probable or suspect cases on board require transfer to a hospital, the Commonwealth Biosecurity Officer will notify the port authority to provide access for medical transport. The jurisdictional Human Biosecurity Officer will then coordinate transfer of the person to an appropriate medical facility for further management, via the most appropriate means that adheres to necessary precautions.

Quarantine for passengers and crew after arrival at a port

Close contacts arriving prior to 16 March 2020, and any returned travellers arriving on or after 16 March 2020, should self-quarantine. Where feasible, self-quarantine at home should be recommended, (e.g. persons with a residence nearby) ensuring appropriate PPE precautions are employed during travel. For those for whom this is not possible, matters of self-quarantine should be addressed jurisdictionally.

Disembarking and embarking

After all confirmed, probable and suspect cases have been managed appropriately and the Human Biosecurity Officer has determined that no other passengers or crew have symptoms consistent with COVID-19, remaining passengers and crew will be allowed to disembark. The vessel may be permitted to commence embarking once it is certain there is no risk of ongoing transmission.

Air crew

Risk assessment and identification of contacts

Decisions regarding the contact classification of cabin crews can be difficult to determine. On an aircraft with one or more confirmed or probable cases of COVID-19, a case-by-case risk assessment should be conducted by the airline to identify which crew should be managed as close contacts.

Considerations for conducting a risk assessment should include:

- Proximity of crew to confirmed or probable case
- Duration of exposure to confirmed or probable case
- Size of the compartment in which the crew member and confirmed or probable case interacted
- Precautions taken, including PPE worn, when in close proximity to the confirmed or probable case

Where it has been determined that a crew member is a close contact, the airline is responsible for notifying the relevant state/territory public health authority to facilitate management of the close contact.

Aboriginal and Torres Strait Islander communities

Key drivers of increased risk of transmission and severity

- **Mobility:** Aboriginal and Torres Strait Islander peoples are highly mobile, with frequent travel often linked to family and cultural connections and community events involving long distances between cities, towns, and communities. In addition, remote communities have a high flow of visitors (e.g. tourists, fly-in fly-out clinicians and other workers). This increases the risk of transmission even in generally isolated communities.
- **Remoteness:** A fifth of the Aboriginal and Torres Strait Islander population lives in remote and very remote areas. There is often reduced access health services, these are usually at capacity in normal circumstances and are often reliant on temporary staff. Limited transport options may further inhibit presentations and delay laboratory testing.
- **Barriers to access:** Unwell people may present late in disease progression for many reasons including lack of availability of services, institutional racism, and mistrust of mainstream health services.
- **Overcrowding:** Many Aboriginal and Torres Strait Islander communities have insufficient housing infrastructure, which results in people living in overcrowded conditions. This facilitates disease transmission and makes it difficult for cases and contacts to maintain social distance measures and self-quarantine.
- **Burden of disease:** Aboriginal and Torres Strait Islander people experience a burden of disease 2.3 times the rate of other Australians. This may increase the risk of severe disease from SARS-CoV-2.

Key response strategies

- **Shared decision-making and governance:** Throughout all phases, COVID-19 response work should be collaborative to ensure local community leaders are central to the response. Further risk reduction strategies and public health responses should be co-developed, and co-designed, enabling Aboriginal and Torres Strait Islander people to contribute and fully participate in shared decision-making.
- **Social and cultural determinants of health:** Public health strategies should be considered within the context of a holistic approach that prioritises the safety and well-being of individuals, families and communities while acknowledging the centrality of culture, and the addressing racism, intergenerational trauma and other social determinants of health.
- **Community control:** The Aboriginal Community Controlled Health Services (ACCHS) sector provides a comprehensive model of culturally safe care with structured support and governance systems. The network of ACCHS and peak bodies should be included in the response as a fundamental mechanism of engagement and communication.
- **Appropriate communication:** Messages should be strengths-based and encompass Aboriginal ways of living, including family-centred approaches during both prevention and control phases. They should address factors that may contribute to risk such as social determinants of health, including living arrangements and accessibility to services.
- **Flexible and responsive models of care:** Consider flexible health service delivery and healthcare models (e.g. pandemic assessment centres, flexible ACCHSs clinic hours/location with additional staffing, and home visits). Consider employing the use of point of care influenza tests, where available, to help determine whether influenza is implicated in presentations in the community.
- **Isolation and quarantine:** Families should feel empowered and be part of decision-making around quarantine. This can be achieved through exploring with families what quarantine looks like, working through how it might impact on the family and their way of living, and identifying ways around it. Family members will want to visit unwell people in hospital. It should be made clear that there are other ways to be with sick family members in hospital, maintain communication with families and communities in lieu of gatherings (e.g. staying socially connected through the internet and video calling).

Aged care facilities

Aged care facilities are high-risk settings for infectious disease outbreaks. This is due to the fact that there is often high density living with extensive close physical contact between staff and residents during the provision of care. Residents are at increased risk of severe illness and death due to their age and presence of co-morbid conditions. There are often many visitors, volunteers and staff moving between the community and facilities, which can promote the spread of infectious diseases.

Preventative measures

In addition to usual preventative protocols, aged care facilities should ensure that high rates of influenza vaccination are maintained amongst all occupants and staff. Messaging to discourage unwell visitors from visiting facilities and occupants should be reinforced, and care should be taken to ensure unwell staff and volunteers know not to present to work while symptomatic with any infectious condition. Visitors, residents and staff should be encouraged to increase their frequency of hand hygiene (with soap and water or using alcohol hand rub), surface cleaning, and to use correct cough/sneeze etiquette.

Outbreaks

The vast majority of aged care facilities should be primed and already have frameworks and protocols for testing and isolation in the event of respiratory disease outbreaks.

Outbreaks of COVID-19 in residential care facilities should be managed with close reference to the [Coronavirus \(COVID-19\) guidelines for outbreaks in residential care facilities](https://www.health.gov.au/resources/publications/coronavirus-covid-19-guidelines-for-outbreaks-in-residential-care-facilities) (available at: <https://www.health.gov.au/resources/publications/coronavirus-covid-19-guidelines-for-outbreaks-in-residential-care-facilities>). The guidelines provide specific advice on the prevention, control and public health management of COVID-19 outbreaks in residential care facilities in Australia.

Schools

The best way to prevent transmission of COVID-19 in schools is through the promotion of correct hand hygiene habits and cough/sneeze etiquette. Children or staff with upper respiratory tract illness should not attend school while symptomatic. If a child or staff member becomes ill with upper respiratory tract symptoms, they should be isolated from other students and sent home as soon as possible.

Contact tracing or management of school outbreaks may require temporary full or partial school closures; however, closures are not generally recommended as a reactive measure on public health grounds.

8. References

1. Chang D, Xu H, Rebaza A, Sharma L, Dela Cruz CS. Protecting health-care workers from subclinical coronavirus infection. *Lancet Respir Med*. 2020.

9. Appendices

Appendix A: SARS-CoV-2 Laboratory testing information

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

Appendix A: SARS-CoV-2 Laboratory testing information

Laboratory testing for SARS-CoV-2 continues to evolve rapidly with the accumulation of clinical data, and as reagents and protocols are refined.

The aim of testing is to, if clinically appropriate, exclude common respiratory viruses using local hospital and community nucleic acid testing capacity, and to simultaneously refer onward to a laboratory with capacity to test for SARS-CoV-2. As co-infection is possible, initial testing protocols should include testing for SARS-CoV-2 in patients with epidemiological risk, even where another infection is shown to be present.

Samples for testing

- (i) upper respiratory tract samples
- (ii) lower respiratory tract sample if the lower tract is involved
- (iii) serum (to be stored pending serology availability)

Upper respiratory tract samples

1. Nasopharyngeal and oropharyngeal swab: may be dacron or rayon, although flocked preferred
 - oropharyngeal (throat): swab the tonsillar beds and the back of the throat, avoiding the tongue
 - nasopharyngeal: swab the right or left nasopharynx by gently inserting the swab along the floor of the nasal cavity parallel to the palate until resistance is encountered, and rotate gently for 10-15 seconds; then withdraw and repeat the process in the other nostril. **To conserve swabs** the same swab that has been used to sample the oropharynx should be utilised for nasopharynx sampling
 - place the swab(s) back into the accompanying transport medium

Sampling both sites, oropharynx and also the nasopharynx, is recommended to optimise the chances of virus detection. The swab(s) should be placed in transport medium, which may be viral transport medium (VTM) or Liquid Amies. Dry swabs are not recommended.

If SARS-CoV-2 testing is to be undertaken in a different laboratory to testing for other respiratory viruses, then the original swab and remaining eluate should be forwarded for SARS-CoV-2 testing.

2. Nasal wash/aspirates

- collect 2-3 mL into a sterile, leak-proof, screw-top dry sterile container

A nasal wash or aspirate if available, may be substituted for the nasopharyngeal swab sample described above.

Lower respiratory tract samples**1. Sputum**

- patient should rinse his/her mouth with water before collection
- expectorate deep cough sputum directly into a sterile, leak-proof, screw-top dry sterile container

2. Bronchoalveolar lavage, tracheal aspirate, pleural fluid

- collect 2-3 mL into a sterile, leak-proof, screw-top sputum collection cup or dry sterile container

As lower respiratory tract specimens contain the highest viral loads in SARS-CoV and MERS-CoV, it is advised that lower respiratory tract specimens should be collected for SARS-CoV-2 testing where possible. Initial experience in testing for SARS-CoV-2 seems to be consistent with this prior experience. Repeat testing (especially of lower respiratory tract specimens) in clinically compatible cases should be performed if initial results are negative and there remains a high index of suspicion of infection.

Serology

Serum should be collected during the acute phase of the illness (preferably within the first 7 days of symptom onset), stored, and when serology testing becomes available tested in parallel with convalescent sera collected 3 or more weeks after acute infection. If no acute sample was collected, sera collected 14 or more days after symptom onset may be tested.

Specimen handling in the laboratory***Microbiology Laboratory***

Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS 2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment. Specimens should be transported in accordance with current regulatory requirements as diagnostic samples for testing.

Clinical Pathology

Non-respiratory specimens (blood, urine, stool) are known to contain virus. Standard precautions should be used for non-microbial pathology testing (such as routine biochemistry and haematology). Where possible auto-analysers should be used according to standard practices and/or local protocols. There is evidence that capping and uncapping of samples is not a high risk aerosol generating procedure.

Respiratory Virus Diagnostic Testing

Nucleic acid testing of the upper or lower respiratory tract samples is performed for influenza and other common respiratory viruses using standard protocols and methods of the hospital or community laboratory.

Standard protocols of the testing laboratory for respiratory sample processing should be used. This is expected to consist of PC2 laboratory practices, and use of a Class II Biosafety cabinet for aerosol generating procedures (such as centrifuging without sealed carriers, vortexing). Viral culture can only be undertaken in an accredited laboratory that has a PC3 facility.

The residue (original swab and remaining eluate) of the upper tract sample is forwarded together with the lower tract sample and the serum to the reference laboratory with SARS-CoV-2 testing capacity requesting SARS-CoV-2 testing.

Clinical liaison with jurisdictional public health officers is essential to coordinate referral and testing.

Standard protocols should be used for sample packaging and transport as diagnostic samples for testing (i.e. Category B).

SARS-CoV-2 specific testing

Nucleic acid testing (NAT) using real time polymerase chain reaction (RT-PCR) is the method of choice for detection of SARS-CoV-2. Specific diagnostic test approaches for SARS-CoV-2 will be described here only in broad terms. There is significant variation in PCR assays employed by different PHLN member laboratories, and test algorithms are likely to be further refined over time. Commercial assays are becoming available from March 2020 and evaluation of these, or reference to another laboratory evaluation, needs to be performed prior to introduction.

[Specific Real Time PCR primer sets to detect SARS-CoV-2 are available](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance). Some PHLN member laboratories have designed their own, and some have implemented primer sets recommended to the World Health Organization (WHO) by leading international coronavirus reference laboratories (available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance>). The majority of PHLN testing capacity now employs relatively swift RT-PCR assays for screening, with a laboratory turnaround time of several hours. Confirmation of positives is being done either with RT-PCR assays detecting a different target gene, or broadly reactive PCR tests with sequencing of amplicons (see below).

Well pedigreed PCR primer sets, probes and protocols are available from the WHO/ European Viral Archive (EVAg) (available at: https://www.who.int/docs/default-source/coronaviruse/protocol-v2-1.pdf?sfvrsn=a9ef618c_2).

Many PCR assays, including those available through WHO will also detect other zoonotic coronaviruses such as SARS-CoV, sometimes with a recognisable shift in the cycle threshold value (Ct) compared to the SARS-CoV-2 target, but not commonly circulating coronaviruses usually detected by commercial assays (e.g. NL63, 229E strains).

Several Australian PHLN reference laboratories began diagnostic testing for the current outbreak using PCR assays capable of detecting a wide range of coronaviruses, including zoonotic and novel pathogens. A number of these were mapped against the promulgated nucleic acid sequence of SARS-CoV-2 from Wuhan, China (GenBank accession MN908947, December 2019) early in the course of the outbreak. Nucleic acid sequencing of amplicons from positive tests is used to identify the coronavirus in this approach. These assays have relatively long turnaround times and have largely been replaced by RT-PCR other than as a confirmatory test in some laboratories.

Complementary DNA (cDNA) synthesized from the VIDRL SARS-CoV-2 has now been made available to all PHLN member laboratories as a test positive control. Synthetic positive control material in the form of nucleic acid templates is also available through WHO/ European Viral Archive (EVAg).

There is variable use of one or two viral targets for SARS-CoV-2 testing. Confirmatory testing using an alternative target, at least in the early stages, for positive samples, is recommended if using a single target.

Testing algorithms are likely to be revised pending further information about the virus, and the number of specimens received in the laboratory for testing.

Viral culture should not be performed for routine diagnosis, and should only be attempted in reference laboratories with appropriate experience and containment facilities. Currently where attempted this is being done at Physical Containment Level 3 (PC3), consistent with current recommendations for SARS-CoV, pending specific SARS-CoV-2 international recommendations.

The Royal College of Pathologists of Australasia Quality Assurance Program (RCPAQAP) with Australian Government support, performed the first SARS-CoV-2 specific QAP, which closed on 11th March 2020, and involved 16 public and private laboratories in all Australian states and in New Zealand. This proficiency testing program (PTP) supplemented previous SARS-CoV, MERS-CoV and other coronaviruses PTP. A second, more detailed PTP is planned to be performed by the RCPA QAP in mid 2020. The second PTP is planned for distribution to a wider range of laboratories, once testing has been extended to more laboratories.

Randox Laboratories and Quality Control for Molecular Diagnostics (QCMD) have announced a pilot EQA scheme for coronaviruses which will include inactivated SARS-CoV-2.

Further Information

The [Department of Health has produced a series of resources on COVID-19 for health professionals, including pathology providers and healthcare managers, these may be accessed here](#).

Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19).

These recommendations are intended for hospital personnel who enter a clinical space with COVID-19 patients, including wardspersons, food deliverers, cleaners, and clinical personnel.

Background:

Although Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) which causes COVID-19 has spread rapidly and widely in mainland China, there has been limited transmission elsewhere, i.e. containment precautions have been mostly successful to date. At the time of writing, the crude mortality (~2%) in China is based on laboratory confirmed cases; many milder cases are almost certainly not being tested and the mortality is likely to be lower. Most cases in Australia have been relatively mild but a small number of deaths has been reported outside of mainland China. While a number of healthcare-associated infections have been reported with COVID-19 (in healthcare workers and patients)—as occurred with SARS and MERS—the risk for COVID-19 is likely to be very low, when infection control precautions are adhered to correctly.

General principles:

- **Standard precautions, including hand hygiene (5 Moments)** for all patients with respiratory infections. Patients and staff should observe cough etiquette and respiratory hygiene,
- **Transmission-based precautions** for patients with confirmed, probable, or suspected COVID-19:
 - **Contact and droplet precautions** for **routine care** of patients.
 - **Contact and airborne precautions** for **aerosol generating procedures (AGPs)**.

Contact and droplet precautions:

Contact and droplet precautions can be safely used for routine patient care of inpatients with confirmed, probable or suspected COVID-19 (see Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units for case definition)

- On presentation or admission to hospital the patient should be:
 - given a surgical mask to put on, and
 - placed in a single room (ensuring air does not circulate to other areas)
 - placed in a negative pressure room (in the event of AGPs being performed).
- If transfer outside the room is essential, the patient should wear a surgical mask during transfer and follow respiratory hygiene and cough etiquette.
- For most inpatient contacts between healthcare staff and patients the following PPE is safe and appropriate and should be put on before entering the patient's room:
 - long-sleeved gown
 - surgical mask
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- For hospitalised patients requiring frequent attendance by medical and nursing staff, a P2/N95 respirator should be considered for prolonged or very close contact.

Contact and airborne precautions for aerosol-generating procedures (AGPs) and care of clinically ill patients requiring high level/high volume hands-on contact outside of ICU:

- **Contact and airborne precautions should be used routinely for AGPs**, which include:
 - tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy (and bronchoalveolar lavage), high flow nasal oxygen
 - The use of nebulisers should be avoided and alternative medication administration devices (e.g. spacers) used.
- PPE for contact and airborne procedures should be put on before entering patients room:
 - long-sleeved gown
 - P2/N95 respirator (mask) – should be fit-checked with each use
 - face shield or goggles
 - disposable nonsterile gloves when in contact with patient (hand hygiene before donning and after removing gloves)
- P2/N95 respirators (mask) should be used only when required.
- Unless used correctly, i.e. with fit-checking, a P2/N95 respirator (mask) is unlikely to protect against airborne pathogen spread.
 - An air-tight seal may be difficult to achieve for people with facial hair. Fit checking with a range of P2/N95 respirators must occur to assess the most suitable one to achieve a protective seal. If a tight seal cannot be achieved, facial hair should be removed.

Care of critically ill patients in ICU

- Patients who require admission to ICU with severe COVID-19 are likely to have a high viral load, particularly in the lower respiratory tract
- **Contact and airborne precautions** (as above) are required for patient care and are adequate for most AGPs.
 - The risk of aerosol transmission is reduced once the patient is intubated with a closed ventilator circuit but there is a potential, but unknown, risk of transmission from other body fluids such as diarrhoeal stool or vomitus or inadvertent circuit disconnection
- If a health care professional is required to remain in the patient's room continuously for a long period (e.g. more than one hour), because of the need to perform multiple procedures, the use of a powered air purifying respirator (PAPR) may be considered for additional comfort and visibility. A number of different types of relatively lightweight, comfortable PAPRs are now available and should be used according to manufacturer's instructions. Only **PPE marked as reusable** should be reused, following **reprocessing** according to manufacturer's instructions, All other PPE must be disposed of after use.

ICU staff caring for patients with COVID-19 (or any other potentially serious infectious disease) should be trained in the correct use of PPE, including by an infection control professional. This also applies particularly to the use of PAPRs, if required. Particular care should be taken on removal of PAPR, which is associated with a risk of contamination.

Additional precautions:**Staff**

- A staff log for each room entry should be maintained, to allow monitoring of potential breaches of infection control and follow-up contacts, if necessary.

Disposal of PPE and other waste

- Waste should be disposed in the normal way for clinical waste
- All non-clinical waste is disposed of into general waste

Handling of linen

- Routine procedures for handling of infectious linen should be followed
- Visibly soiled linen should be placed in a (soluble) plastic bag inside a linen skip

Environmental cleaning of patient care areas

- Cleaners should observe contact and droplet precautions (as above).
- Frequently touched surfaces (such as doorknobs, bedrails, tabletops, light switches, patient handsets) in the patient's room should be cleaned daily.
- Terminal cleaning of all surfaces in the room (as above plus floor, ceiling, walls, blinds) should be performed after the patient is discharged.
- A combined cleaning and disinfection procedure should be used, either 2-step— detergent clean, followed by disinfectant; or 2-in-1 step— using a product that has both cleaning and disinfectant properties. Any hospital-grade, TGA-listed disinfectant that is commonly against norovirus is suitable, if used according to manufacturer's instructions.



Coronavirus Disease 2019 (COVID-19)

CDNA National Guidelines for Public Health Units

Revision history			
Version	Date	Revised by	Changes
2.8	01 May 2020	Communicable Diseases Network Australia	Inclusion of new sections: Summary, The disease, Surveillance, Communications, and Data management. Revised: Case definition, Laboratory testing Case management, Contact management, Special risk settings, Special situations, Appendix A, and Appendix B
2.7	24 April 2020	Communicable Diseases Network Australia	Revised: Case definition, Case management
2.6	17 April 2020	Communicable Diseases Network Australia	Revised: Case management, Contact management – Close contact definition
2.5	06 April 2020	Communicable Diseases Network Australia	Revised: Case definition.
2.4	26 March 2020	Communicable Diseases Network Australia	Inclusion of advice for probable cases throughout.
2.3	24 March 2020	Communicable Diseases Network Australia	Revised: Case definition.
2.2	21 March 2020	Communicable Diseases Network Australia	Revised: Case management – Release from isolation.

2.1	20 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management, Special situations.
2.0	13 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management, Laboratory testing, Appendix A.
1.18	10 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Case management, Contact management. Inclusion of Aircrew and Schools advice in Special situations section.
1.17	05 March 2020	Communicable Diseases Network Australia	Inclusion of self-quarantine advice for returned travellers from South Korea, revised Case management, inclusion of table of contents.
1.16	04 March 2020	Communicable Diseases Network Australia	Inclusion of Aboriginal and Torres Strait Islander community advice in Special situations section.
1.15	03 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management.
1.14	02 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Risk stratification of countries, Contact management.
1.13	28 February 2020	Communicable Diseases Network Australia	Revised: Laboratory testing, isolation and restriction and Appendix A: laboratory testing information.
1.12	27 February 2020	Communicable Diseases Network Australia	Inclusion of Cambodia in the list of countries in the Person under investigation section.
1.11	26 February 2020	Communicable Diseases Network Australia	Inclusion of Italy in the list of countries in the Person Under Investigation section.
1.10	23 February 2020	Communicable Diseases Network Australia	Inclusion of South Korea and Iran in the list of countries in the Person Under Investigation section.
1.9	21 February 2020	Communicable Diseases Network Australia	Revised: case definition, infectious period, contact management, special situation (cruise ship). Specific changes are highlighted.
1.8	17 February 2020	Communicable Diseases Network Australia	Inclusion of statement reflecting that passengers of the Diamond Princess cruise meet the criteria for close contact.
1.7	15 February 2020	Communicable Diseases Network Australia	Revised case definition.

1.6	14 February 2020	Communicable Diseases Network Australia	Addition of Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19). Updated nomenclature.
1.5	7 February 2020	Communicable Diseases Network Australia	Inclusion of advice on release from isolation.
1.4	6 February 2020	Communicable Diseases Network Australia	Revised case definition and added rationale. Updated infection control advice throughout.
1.3	4 February 2020	Communicable Diseases Network Australia	Revised the case definition and use of the terms 'quarantine' and 'isolation'.
1.2	2 February 2020	Communicable Diseases Network Australia	Revised the case definition, close and casual contact definitions and added self-isolation guidance.
1.1	27 January 2020	Communicable Diseases Network Australia	Removed references to Wuhan and revised the case definition.
1.0	23 January 2020	Communicable Diseases Network Australia	Developed by the 2019-nCoV Working Group.

This document summarises recommendations for surveillance, infection control, laboratory testing and contact management for coronavirus disease 2019 (COVID-19). CDNA will review and update these recommendations as required as new information becomes available on COVID-19 and the situation in Australia. These Guidelines will be updated regularly.

Readers should not rely solely on the information contained within these Guidelines. Guideline information is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a public health specialist or other health professional. Clinical judgement and discretion may be required in the interpretation and application of these guidelines.

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Abbreviations and definitions

COVID-19:	Coronavirus disease 2019. The name of the disease caused by the virus SARS-CoV-2, as agreed by the World Health Organization, the World Organisation for Animal Health and the Food and Agriculture Organization of the United Nations. For more information, see the World Health Organization Director-General's remarks : (https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020)
SARS-CoV-2:	Severe acute respiratory syndrome coronavirus 2. The formal name of the coronavirus that causes COVID-19, as determined by the International Committee on Taxonomy of Viruses. Previously, this coronavirus was commonly known as 'novel coronavirus 2019 (2019-nCoV)'. For more information, see the International Committee on Taxonomy of Viruses manuscript : (https://www.biorxiv.org/content/10.1101/2020.02.07.937862v1.full.pdf)

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1. Summary

Public health priority

Urgent – public health responses should be initiated as soon as possible.

Case management

All confirmed and probable cases must be isolated until they meet the appropriate [release from isolation criteria](#). Cases should only be managed at home or in other community settings if the home environment permits separation of the case from other household members and following implementation of appropriate infection control measures and risk counselling.

Hospitalised patients should be isolated in a single room, a designated COVID-19 ward or, if symptoms are severe and, where available, in a negative pressure room. Clinical staff should use contact and droplet precautions for routine care of patients with confirmed, probable or suspected COVID-19. Where staff are performing [aerosol-generating procedures](#), they should use contact and airborne precautions.

Contact management

Close contacts of confirmed and probable cases should be advised to self-quarantine for 14 days following last close contact with the case during the case's infectious period. Close contacts should be actively monitored for development of fever or respiratory symptoms during this period, where feasible.

2. The disease

Infectious agents

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is the infective agent that causes coronavirus disease 2019 (COVID-19). SARS-CoV-2 is a novel coronavirus that was first identified in humans in Wuhan, China, in December 2019. SARS-CoV-2 shares 79.6% sequence identity to SARS-CoV-1 (1).

Coronaviruses are a large family of viruses, some causing illness in people and others that circulate among animals, including camels, cats and bats. Rarely, animal coronaviruses can evolve and infect people and then spread between people. Adaption has led to outbreaks of severe acute respiratory disease due to MERS-CoV and SARS-CoV, but there are also human coronaviruses that cause more mild illness in humans, such as the coronaviruses that cause the common cold.

Reservoir

It is highly likely that the virus has come from an animal source. Genomic analysis suggests that bats appear to be the reservoir of SARS-CoV-2 virus (2), but the intermediate host has not yet been identified (3).

Mode of transmission

Human-to-human transmission of SARS-CoV-2 is via droplets and fomites from an infected person to a close contact (3).

There is some evidence that COVID-19 infection may lead to intestinal infection and virus can be present in the faeces of infected persons (4). Additionally, airborne transmission of COVID-19 may occur during aerosol-generating procedures. Despite this, current evidence does not support faecal-oral or airborne spread as major drivers in transmission; however, aerosol-generating procedures should be undertaken with appropriate precautions (see [Aerosol-generating procedures](#)).

Estimates for the basic reproductive number (R_0) of SARS-CoV-2 range from 2–4, with R_0 for confined settings, e.g. cruise ships, at the higher end of this range. Estimates of the effective reproductive number (R_{eff}) vary from between settings and at different time points are dependent on a range of factors, including, public health interventions such as isolation, quarantine and physical distancing to limit close contact between people (5, 6).

Incubation period

Current estimates suggest a median incubation period of 5 to 6 days, with a range of 1 to 14 days (7). The advice in this guideline uses an upper range of 14 days based upon what is currently known about the incubation period for COVID-19. This advice is supported by the literature (8-10), which is informing reviews of this guideline.

Infectious period

The infectious period of COVID-19 is still being determined; however, there are multiple studies suggesting that pre-symptomatic, and possibly asymptomatic, transmission occurs (11, 12). For example, a Singaporean study of multiple case clusters identified pre-symptomatic transmission occurring 1-3 days before symptom onset (13). A recent study also found that viral loads of throat swabs were highest at the time of symptom onset and decreased quickly within 7 days. The study suggested that viral shedding may occur 2 to 3 days before symptom onset with infectiousness peaking at 0.7 days (95% CI, -0.2–2.0 days) prior to initial symptoms (14). Additionally, a Chinese study found that the viral load in an asymptomatic patient was similar to that of symptomatic patients, suggesting transmission potential of asymptomatic, or minimally symptomatic patients (15). The risk of transmission from symptomatic or pre-symptomatic cases is considered to be higher than from asymptomatic cases (16), as viral RNA shedding is higher at symptom onset (17).

As a precautionary approach, for the purposes of contact tracing, cases are considered to be infectious from 48 hours prior to onset of symptoms. Confirmed and probable cases are considered to pose a risk of onward transmission and require isolation until criteria listed in the [release from isolation section](#) have been met.

Clinical presentation and outcome

COVID-19 presents as a mild illness for approximately 80% of cases, with fever and cough being the most commonly reported symptoms. Other symptoms include headache, sore throat, fatigue, shortness of breath, myalgia, anosmia (18), dysgeusia, chills and vomiting. Preliminary evidence suggests that children experience milder clinical symptoms than adults (similar to SARS-CoV and MERS-CoV infections) (19-21). Severe or fatal outcomes occur more frequently in the elderly and those with comorbid conditions (3).

Some individuals remain asymptomatic (21, 22). Asymptomatic case rates are difficult to determine because there is no reason for asymptomatic people to seek medical attention. Some studies estimate that the asymptomatic proportion of cases ranges from 18% to 42% (23, 24).

For confirmed cases reported globally, the case fatality rate is approximately 7% (25); however, this is likely an overestimate for the Australian health setting (26). The true case fatality rate for COVID-19 is difficult to estimate due to variable case ascertainment, especially in regards to mild cases, and the impact of health systems on patient outcomes. Mortality of cases is, to a significant extent, determined by individual risk factors and healthcare quality and access. Based on surveillance data notified in Australia as of 29 April 2020, the national case fatality rate is 1.3% (6,738 confirmed cases/88 deaths).

Disease occurrence and public health significance

Cases of COVID-19 were initially associated with exposure to an animal wet market—located in Wuhan, Hubei Province, China - indicating a probable zoonotic source. Human-to-human transmission is well established. As of 29 April 2020, 185 countries/regions have reported cases, numerous countries/regions have reported broader community transmission, and globally there has been over 3,100,000 confirmed cases and 215,000 deaths (27). The situation is rapidly evolving.

The World Health Organization (WHO) declared the outbreak of COVID-19 a Public Health Emergency of International Concern (PHEIC) on 30 January 2020 (28), and declared a pandemic on 12 March 2020 (29).

Australia has implemented measures aimed at slowing the spread of COVID-19 into and within the country, and to prepare healthcare services and laboratories for a targeted response. The [Australian Health Sector Emergency Response Plan for Novel Coronavirus \(COVID-19\)](#) provides an overview of the national approach, the operational plan and guidance for the health sector response.

'Human coronavirus with pandemic potential' was added to the [Biosecurity \(Listed Human Diseases\) Determination 2016](#) as a listed human disease on 21 January 2020, and has been listed temporarily on the National Notifiable Diseases List (NNDL) since 10 February 2020. Processes for permanent listing of COVID-19 on the NNDL are currently underway.

On 18 March 2020, the Australian Government declared a "human biosecurity emergency" under the *Biosecurity Act 2015*, given the risks COVID-19 poses to human health and the need to control its spread in Australia. The declaration was recommended by the Chief Medical Officer in his capacity as the Director of Human Biosecurity and allows the state and territory Health Ministers to issue targeted, legally enforceable directions and requirements to combat the virus as required.

3. Surveillance

There are three main objectives of surveillance for COVID-19:

1. To rapidly identify, isolate and manage cases.
2. To identify, quarantine and provide information to contacts.
3. To rapidly identify and manage clusters and outbreaks.
4. To describe the epidemiology of COVID-19 in Australia to inform public health response including:
 - o the progression of the epidemic in time, person and place,
 - o transmission dynamics,
 - o special risk groups.

4. Communications

Public Health Units (PHU) should, within one working day, notify the central state/territory communicable diseases unit of confirmed cases upon receipt of a notification/report.

As much information regarding the case's age, sex, place of residence, Indigenous status, date of onset, travel history, laboratory results, clinical status, likely place of acquisition, identification of close contacts and follow-up action taken should be included in the initial report, with additional information being followed up as soon as possible.

Central state/territory communicable diseases units will notify confirmed COVID-19 cases as soon as practicable to the Australian Government Department of Health via both transmission of data to the National Notifiable Diseases Surveillance System (NNDSS) and via email or telephone notification to the National Incident Room.

5. Data management

Initial information on confirmed and probable cases of COVID-19 should be entered onto the jurisdictional notifiable diseases database, for transmission to the NNDSS, within one working day of the notification/report. Enhanced surveillance data should be entered shortly after case follow-up

6. Case definition

The case definition is based on what is currently known about the clinical and epidemiological profile of cases of COVID-19 presenting in Australia and internationally. Health authorities are constantly monitoring the spectrum of clinical symptoms and nature of illness. Using a 14 day exposure period will cover the duration of the incubation period in the vast majority of cases.

Confirmed case

A person who tests positive to a validated specific SARS-CoV-2 nucleic acid test or has the virus identified by electron microscopy or viral culture.

Probable case

A person, who has not been tested, with fever ($\geq 38^{\circ}\text{C}$)¹ or history of fever (e.g. night sweats, chills) **OR** acute respiratory infection (e.g. cough, shortness of breath, sore throat) **AND** who is a household contact (see [Contact definition](#) below) of a confirmed or probable case of COVID-19.

Suspect case

Clinical and public health judgement should be used to determine the need for testing in hospitalised patients and patients who do not meet the clinical or epidemiological criteria.

A person who meets the following clinical **AND** epidemiological criteria:

Clinical Criteria:

Fever ($\geq 38^{\circ}\text{C}$)¹ or history of fever (e.g. night sweats, chills) **OR** acute respiratory infection (e.g. cough, shortness of breath, sore throat).

Epidemiological criteria:

- i. In the 14 days prior to illness onset:
 - Close contact^{2,3} (see [Contact definition](#) below) with a confirmed or probable case
 - International or interstate travel
 - Passengers and crew who have travelled on a cruise ship
 - Healthcare, aged or residential care workers and staff with direct patient contact
 - People who have lived in or travelled through a geographically localised area with elevated risk of community transmission, as defined by public health authorities⁴
- ii. Hospitalised patients, where no other clinical focus of infection or alternate explanation of the patient's illness is evident.

Footnotes:

¹ It is recommended that temperature is measured using a tympanic, oral or other thermometer proven to consistently and accurately represent **peripheral** body temperature.

² Testing household contacts of confirmed or probable cases of COVID-19 may not be indicated where resources are constrained. These cases would be considered 'probable cases' (see definition above).

³ In certain high risk outbreak settings, **PHU** may consider testing asymptomatic contacts to inform management of the outbreak. For a list of settings, see [high risk settings](#).

⁴ For further information on geographically localised areas with elevated risk of community transmission, refer to the [Department of Health website](#):
(<https://www1.health.gov.au/internet/main/publishing.nsf/Content/cdna-song-novel-coronavirus.htm>)

Enhanced testing

The information in this section reflects the current national recommendations for SARS-CoV-2 testing **beyond the suspect case definition**. These recommendations will change over time based on a variety of factors, including current epidemiology and testing capacity. It is important to check relevant state and territory health department case definitions and criteria for who should be tested, as these vary according to local epidemiology and circumstances.

Testing beyond the suspect case definition should be undertaken on **persons** with: fever ($\geq 38^{\circ}\text{C}$)¹ or history of fever (e.g. night sweats, chills) **OR** acute respiratory infection (e.g. cough, shortness of breath, sore throat), where no other clinical focus of infection or alternate explanation of the patient's illness is evident.

¹ It is recommended that temperature is measured using a tympanic, oral or other thermometer proven to consistently and accurately represent **peripheral** body temperature.

It is recognised that without any other epidemiological risk factors, the risk of persons having COVID-19 is low. Any symptomatic persons should stay home until their symptoms have resolved. **If symptoms have resolved, persons tested as part of enhanced testing do not need to continue to stay home until their test result is returned. If a person receives a PCR positive test result, they are a confirmed case and must isolate until they meet the appropriate release from isolation criteria.** Respiratory specimens should be collected in accordance with the appropriate guidelines, refer to [Revised advice on non-inpatient care of people with suspected or confirmed COVID-19, including use of personal protective equipment \(PPE\)](#):
(<https://www.health.gov.au/resources/publications/revised-advice-on-non-inpatient-care-of-people-with-suspected-or-confirmed-covid-19-including-use-of-personal-protective-equipment-ppe>)

7. Laboratory testing

Persons meeting the suspect case definition should be tested for SARS-CoV-2. Persons meeting the enhanced testing criteria should be tested for SARS-CoV-2. **State and territory communicable diseases units can advise** on which laboratories can provide SARS-CoV-2 testing; appropriate specimen type, collection and transport; and also facilitate contact management if indicated.

When collecting respiratory specimens, transmission-based precautions should be observed whether or not respiratory symptoms are present.

For most patients with mild illness in the community, collection of upper respiratory specimens (i.e. **deep nasal and** oropharyngeal swabs) is a low risk procedure and can be performed using **contact and droplet precautions**:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield), and surgical mask.
- To collect **a** combined **deep nasal** and oropharyngeal swab, stand slightly to the side of the patient to avoid exposure to respiratory secretions, should the patient cough or sneeze.
- At completion of consultation, remove personal protective equipment (PPE) and perform hand hygiene, wipe any contacted/contaminated surfaces with detergent /disinfectant.
- Note that, for droplet precautions, the room does not need to be left empty after sample collection.

If the patient has severe symptoms suggestive of pneumonia, e.g., fever and breathing difficulty, or frequent, severe or productive coughing episodes then **contact and airborne precautions** should be observed.

Patients with these symptoms should be managed in hospital, and sample collection conducted in a negative pressure room, if available. If referral to hospital for specimen collection is not possible, specimens should be collected in a room from which air does not circulate to other areas. The door should be closed during specimens collection and the room left vacant for at least 30 minutes afterwards (cleaning can be performed during this time by a person wearing PPE).

The following precautions should be observed:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield) and a **P2/N95 respirator – which should be fit checked**.
- At completion of consultation, remove gown and gloves, perform hand hygiene, remove eye protection and P2/N95 respirator. Do not touch the front of any item of PPE during removal; perform hand hygiene.
- The room surfaces should be wiped clean with disinfectant wipes by a person wearing gloves, gown and surgical mask.

For further information on circumstances requiring airborne precautions, see [aerosol-generating procedures](#).

Routine tests for acute pneumonia/pneumonitis should be performed where indicated, including bacterial cultures, acute and convalescent serology, urinary antigen testing and nucleic acid tests for respiratory pathogens, according to local protocols.

Serology for SARS-CoV-2 is not **routinely** available.

See [Appendix A](#) for additional SARS-CoV-2 laboratory testing information.

8. Case management

Response times

On the same day as notification of a confirmed, probable, or suspect case, begin follow up investigation and, where applicable, notify your central state or territory communicable diseases unit.

PHU staff should be available to contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners.

Response procedure

Case investigation

The response to a notification will normally be carried out in collaboration with the clinicians managing the case, and be guided by the COVID-19 PHU checklist and the COVID-19 investigation form (currently pending).

Regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend that tests be done, including repeat tests where relevant.
- Determine if the diagnosis has been discussed with the case or relevant caregiver before beginning the interview).
- Review both case and contact management.
- Commence or complete contact tracing and determine if the case has attended settings that are at higher risk for infection.
- Ensure appropriate infection control guidelines are followed in caring for the case.
- Identify the likely source of infection

Note: If interviews with suspect cases are conducted face-to-face, the person conducting the interview must have a thorough understanding of infection control practices and be competent in using appropriate PPE.

Clinical management

In the absence of pathogen-specific interventions, patient management largely depends on supportive treatment, and vigilance for and treatment of complications.

Further advice on clinical management is available from:

- WHO: <https://bit.ly/3eKZQs3>
- National COVID-19 Clinical Evidence Taskforce: (<https://covid19evidence.net.au/>)
- Cochrane Library: Coronavirus (COVID-19): (<https://www.cochranelibrary.com/covid-19>)

Education

Cases should be educated about the nature of the illness, importance of isolation and infection control measures that prevent the transmission of COVID-19. PHU staff should provide a COVID-19 factsheet to cases and their household contacts.

Isolation and restriction

Depending on clinical indication, cases should either be managed in hospital, at home, or other community settings identified by the PHU. Cases may be managed at home or in a community setting only if:

- a risk assessment is conducted regarding the suitability of the accommodation and living arrangements, including who else is in the home and their vulnerability to severe disease; and
- If it can be assured that the home environment permits separation of the case from other household members; the case and household contacts are counselled about risk, and; appropriate infection control measures are in place.

Healthcare workers and others who come into contact with confirmed, probable, and suspect cases must be protected according to recommended infection control guidelines. Visitors should be restricted to close family members.

A risk assessment should be undertaken for suspect cases who initially test negative for SARS-CoV-2. If there is no alternative diagnosis and a high index of suspicion remains that such cases may have COVID-19, consideration should be given to continued isolation and use of the recommended infection control precautions, pending further testing (see [Laboratory testing section](#) and [Appendix A](#)) and re-assessment. Suspect cases can otherwise discontinue isolation upon receipt of a negative test result, though should stay home until symptoms have resolved. Suspect cases who are close contacts or are required to quarantine for other purposes (e.g. international travel) must continue quarantine for the remainder of the 14 day period, regardless of any negative test results. See [Contact management](#) for further information.

In addition to standard precautions, including hand hygiene (5 Moments), recommendations for the use of PPE during clinical care of people with confirmed, probable, or suspected COVID-19 are:

- **Contact and droplet precautions** are recommended for **routine care** of patients with confirmed, probable, or suspected COVID-19.
- **Contact and airborne precautions** are recommended when performing **aerosol-generating procedures**. See [Appendix B](#) for further information.

Other recommended infection control measures include:

- When a patient with acute respiratory symptoms, and/or who meets the suspect, probable, or confirmed case definition, presents to a healthcare setting (GP, hospital ED, or pathology collection centre), the patient should immediately be:
 - given a surgical mask to put on if acute respiratory symptoms are present, AND
 - placed in a single room with the door closed or in a physically separated closed area designated for suspected COVID-19 cases OR
 - directed to a negative pressure room if an aerosol-generating procedure is to be performed (or an isolation room with the door closed if a negative pressure room is not available).
- If a patient with confirmed or probable COVID-19 needs to be transferred out of their isolation room, the patient should wear a “surgical” mask, follow respiratory hygiene, and cough etiquette.

For more detailed guidance on the use of PPE in hospitals during the COVID-19 outbreak, see [Appendix B](#).

Release from isolation

The following information details the circumstances under which confirmed and probable cases can be released from necessary isolation restrictions, as well as when cases are clear to go into high risk settings. Cases can be released from isolation if they meet the appropriate criteria in either point 1, 2, or 3 – whichever is applicable. Cases can go into a high risk setting if they meet the criteria in point 4.

1. Confirmed cases who are asymptomatic.

The case can be released from isolation if at least 10 days have passed since the first positive sample was taken and no symptoms have developed during this period.

2. Confirmed or probable cases with mild illness who did not require hospitalisation.

The case can be released from isolation if they meet all of the following criteria:

- at least 10 days have passed since the onset of symptoms; and
- there has been resolution of all symptoms of the acute illness for the previous 72 hours^{1,2}

3. Confirmed or probable cases with more severe illness who have been discharged from hospital.

If the case is ready clinically for hospital discharge, but has **not** had two consecutive swabs taken at least 24 hours apart which are negative for SARS-CoV-2 by PCR, then they can be discharged to home isolation.

The case can be released from home isolation if they meet all of the following criteria:

- at least 10 days have passed since hospital discharge; and
- there has been resolution of all symptoms of the acute illness for the previous 72 hours^{1,2}

If the case, at or prior to discharge, has had two consecutive swabs taken at least 24 hours apart which are negative for SARS-CoV-2 by PCR, then the case can simultaneously be discharged and released from isolation.

4. Clinical and laboratory Criteria

Cases returning to a **high** risk setting (such as working in a health care setting, living in a residential age care setting or **being** transferred to another ward in a hospital, see [below for a list of high risk settings](#)) can be released from isolation based on the clinical criteria above but must meet a higher standard and need additional assessment before going into the high risk setting.

Confirmed and probable cases who will be going into to a high-risk setting can go into that setting if they meet **all** the following criteria:

- be at least 10 days after the onset of the acute illness;
- the person has been afebrile for the previous 48 hours;
- resolution of the acute illness for the previous 24 hours¹;
- PCR negative on at least two consecutive respiratory specimens collected at least 24 hours apart at least 7 days after symptom onset^{3,4}

¹ Some people may have pre-existing illnesses with chronic respiratory signs or symptoms, such as chronic cough. For these people, the treating medical practitioner should make an assessment as to whether the signs and symptoms of COVID-19 have resolved. If individuals have a persistent post-viral cough with negative test results, they are eligible for release from isolation.

² If a case who meets these criteria is swabbed, then the case be released from isolation regardless of the swab test result. The current evidence from the literature and Australian public health experience suggests that these people are unlikely to be infectious.

³ If the patient has a productive cough due to a pre-existing respiratory illness or other ongoing lower respiratory tract disease, then the sputum or other lower respiratory tract specimens must be PCR negative for SARS-CoV-2. Otherwise upper respiratory tract specimens (deep nasal and oropharyngeal swabs) must be PCR negative.

⁴ A small proportion of people may have an illness that has completely resolved but their respiratory specimens remain persistently PCR positive. In these circumstances, the decision around release to a high risk setting should be made on a case by case basis after discussion between the treating medical practitioner, the testing laboratory and public health. This may include laboratory interpretation of PCR cycle threshold (Ct) values and/or viral culture where available.

Routine PCR testing post-release from isolation is not recommended unless the person develops new clinical features consistent with COVID-19.

Persons who have been released from isolation should still adhere to social distancing measures, as the extent of acquired immunity is unknown.

If a recently recovered COVID-19 case becomes a close contact of a confirmed or probable case, they do not need to self-quarantine again. However, the recovered case should not attend high-risk settings (see suspect case definition) until 14 days after the last unprotected contact with the confirmed case and should vigilantly self-monitor for symptoms clinically consistent with COVID-19. If symptoms reappear, they should immediately self-isolate and be retested for SARS-CoV-2. If the recently recovered case is a household contact of a currently isolated case, particular care should be taken with regards to consistent hand hygiene. If the recently recovered case needs medical attention, they should follow the processes outlined in [Medical care for quarantined individuals](#). As further evidence becomes available on the duration of immunity, these recommendations may be amended.

Faecal sampling is not recommended as a standard test, however, it may be done for patients with gastrointestinal symptoms. For cases who do have faecal samples tested, and remain persistently PCR positive in these samples after all the release from isolation criteria (above) are met, further or extended precautions and exclusions should be implemented on a case-by-case basis:

- All cases with diarrhoea should be advised not to prepare food for others until 48 hours after symptoms have resolved.
- Cases who have employment that may pose an increased risk of onward transmission (e.g. healthcare workers, restaurant workers and food handlers), should be excluded from work until 48 hours after any symptoms of diarrhoea have resolved.
- Cases with ongoing diarrhoea or faecal incontinence who may have limited capacity to maintain standards of personal hygiene should continue to be isolated until 48 hours after the resolution of these symptoms.

Patients do not require repeat testing until they are PCR negative in faecal samples. It is recommended that people who remained persistently PCR positive in faecal samples use soap and water for hand hygiene. If this is unavailable, alcohol hand gel should be used. Education emphasising the importance of proper hand hygiene should be provided to **all** cases upon release from isolation.

High risk settings

In the context of the ***release from isolation criteria and some aspects of testing outlined in the case definition, high-risk settings*** are defined as:

- Aged care and other residential care facilities
- Healthcare settings*
- Military – group residential and other closed settings, such as Navy ships or living in accommodation
- Boarding schools and other group residential settings
- Educational settings where students are present
- Childcare centres
- Correctional facilities
- Detention centres
- Remote industrial sites with accommodation (e.g. mine sites)
- Aboriginal and Torres Strait Islander rural and remote communities, in consultation with the local PHU
- Settings where COVID-19 outbreaks are occurring, in consultation with the local PHU

* In relation to persons going into high risk settings, this includes: persons returning to work in healthcare settings; patients who will be remaining in hospital after release from isolation; and those regularly attending healthcare settings for any other purpose. Persons who need to present to an emergency department or general practice for medical consultations and treatment can do so without meeting these criteria, but should, where feasible, inform staff before arrival if they have recently been released from isolation.

Aerosol-generating procedures

Appropriate care should be taken during aerosol-generating procedures. [Listed examples of aerosol-generating procedures](#) are available in [Appendix B](#). Collection of upper respiratory specimens is not generally regarded as aerosol-generating, but airborne precautions should be used for collection of specimens from severely symptomatic patients (see [Laboratory testing section](#)).

P2/N95 respirators should be used only when required. Unless used correctly, i.e. with fit-checking, they are unlikely to protect against airborne pathogen spread.

Airborne precautions should be used routinely for aerosol-generating procedures, such as bronchoscopy, intubation, suctioning etc. in hospital settings. Nebuliser use should be discouraged and alternative administration devices (e.g. spacers) should be used.

The [Laboratory testing section](#) provides detailed information on sample collection for SARS-CoV-2.

Active case finding

Contacts (see [Contact management section](#)) should be identified and advised to immediately seek medical advice should they develop symptoms. Contacts or caregivers should be asked to also inform the public health agency if they develop symptoms.

9. Environmental evaluation

Where local transmission of COVID-19 is thought possible, a thorough review of contributing environmental factors should be done. This should include a review of infection control procedures, and opportunities for exposure to respiratory or faecal contamination.

If a case has had occupational exposure to animals it may be appropriate to consult with animal health authorities.

10. Contact management

Identification of contacts

Persons categorised as close contacts (see definition of “close contacts” below) of a confirmed or probable case should be followed-up, provided with information, and self-quarantine at home for 14 days following the last **close** contact with the case **whilst infectious**. Close contacts should be monitored for the development of symptoms for 14 days after the last exposure to the **infectious** case (i.e. the maximum incubation period) where feasible to do so.

Contacts of suspect cases should also be considered for contact management if there is likely to be a delay in confirming or excluding COVID-19 in the suspect case, such as delayed testing.

Less frequent active follow-up together with passive surveillance may be necessary if there are large numbers of close contacts to monitor.

Contacts who do not meet the close contact definition but may have had some exposure to the infectious case (e.g. workplaces) should be identified and provided information (see [Education](#) below), where feasible.

Close contact definition

A close contact is defined as requiring:

- face-to-face contact in any setting with a confirmed or probable case, for greater than 15 minutes cumulative over the course of a week, in the period extending from 48 hours before onset of symptoms in the confirmed or probable case, or
- sharing of a closed space with a confirmed or probable case for a prolonged period (e.g. more than 2 hours) in the period extending from 48 hours before onset of symptoms in the confirmed or probable case.

For the purposes of surveillance, a close contact includes a person meeting any of the following criteria:

- Living in the same household or household-like setting (e.g. in a boarding school or hostel) – referred to as ‘household contacts’.
- Direct contact with the body fluids or laboratory specimens of a case without recommended PPE or failure of PPE.
- A person who spent 2 hours or longer in the same room (such as a GP or ED waiting room; a school classroom; communal room in an aged care facility). See [Special situations](#) for further information specific to aged care facilities and schools.
- A person in the same hospital room when an aerosol-generating procedure is undertaken on the case, without recommended PPE.
- Aircraft passengers who were seated in the same row as the case, or in the two rows in front or two rows behind a confirmed or probable COVID-19 case. Contact tracing of people who may have had close contact on long bus or train trips should also be attempted where possible, using similar seating/proximity criteria.
- For aircraft crew exposed to a confirmed or probable case, a case-by-case risk assessment should be conducted by the airline to identify which crew member(s) should be managed as close contacts. See [Special situations](#) for further information.
- If an aircraft crewmember is the COVID-19 case, contact tracing efforts should concentrate on passengers seated in the area where the crewmember was working during the flight and all of the other members of the crew.
- Close contacts on cruise ships can be difficult to identify, and a case-by-case risk assessment should be conducted to identify which passengers and crew should be managed as close contacts. See [Special situations](#) for further information.

Contact needs to have occurred within the period extending 48 hours before onset of symptoms in the case until the case is classified as no longer infectious ([.see Release from isolation](#)).

Note that:

- Healthcare workers and other contacts who have taken recommended infection control precautions, including the use of full PPE, while caring for a symptomatic confirmed or probable COVID-19 cases are not considered to be close contacts.
- Contact tracing is not required for close contacts arriving on international flights on or after 16 March 2020.

Returned traveller definition

Returned travellers are defined as those who have undertaken international travel to any country outside Australia in the last 14 days.

Contact assessment

All persons identified as having had contact with a confirmed or probable case should be assessed to see if they should be classified as a close contact and **should** have demographic and epidemiological data collected. Information on close contacts should be managed according to jurisdictional requirements.

All identified contacts who do not meet the close contact definition should be provided with information on their risk (see [Education](#) below), where feasible.

Identification and assessment of the contacts of suspect cases may be deferred pending the results of initial laboratory testing.

Close contact testing

Routine laboratory screening for COVID-19 is not recommended for asymptomatic close contacts; however, in certain high risk outbreak settings, **PHU** may consider testing asymptomatic contacts to inform management of the outbreak.

Prophylaxis

No specific chemoprophylaxis is available for contacts.

Education

Close contacts should be counselled about their risk and the symptoms of COVID-19 and provided with a COVID-19 factsheet. They should be advised to self-quarantine. **Other contacts not defined as close contacts are not required to quarantine, but may similarly, where feasible, be counselled about their risk and the symptoms of COVID-19 and provided with a COVID-19 factsheet.**

Quarantine and restriction

Close contacts

Asymptomatic close contacts should be advised to self-quarantine at home for 14 days following the last contact with the **infectious** case, and to monitor their health for 14 days after the last possible contact with a confirmed or probable COVID-19 case.

Where feasible to do so, **PHU** should conduct active daily monitoring of close contacts for symptoms for 14 days after the last possible contact with a confirmed or probable COVID-19 case.

Self-quarantined close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

For the purpose of contact management, swabs are **not** indicated during quarantine in well people. A medical clearance from a health care provider is not required for release from quarantine or for other purposes such as returning to work, school or university.

Returned travellers

All travellers who have returned from international travel are required to be in mandatory quarantine for 14 days after arrival in Australia. This advice for all travellers to quarantine supersedes advice for returning travellers and people transiting through various destinations early in the outbreak.

In addition, some state and territory governments have travel restrictions for persons arriving from other domestic jurisdictions. Persons may be required to quarantine for 14 days following travel to another state or territory and should check local requirements before travelling.

Quarantined returned travellers should be advised on the processes for seeking medical care, see [Medical care for quarantined individuals](#). All returned travellers undertaking quarantine should self-monitor for symptoms and [immediately isolate themselves from others if they become unwell](#). This advice should be followed for 14 days after returning to Australia/[from interstate](#).

All returned travellers who have undertaken international travel in the last 14 days **who are unwell** with fever, or with respiratory symptoms (with or without fever) or other symptoms consistent with COVID-19 should be isolated and managed as per the current recommendations for suspect cases.

Social distancing

Social distancing is an effective measure, but it is recognised that it cannot be practised in all situations. The aim is to generally reduce the potential for transmission. Whilst practising social distancing, people can travel to work (including by public transport) and carry out normal duties. Social distancing outside the workplace is aimed at nonessential activities and includes:

- Avoiding crowds and mass gatherings.
- Avoiding small gatherings in enclosed spaces, for example family celebrations.
- Attempting to keep a distance of 1.5 metres between themselves and other people where possible, for example when out and about in public spaces.

Jurisdictions may have public health directions in place to ensure social distancing is occurring to further support prevention of transmission, depending on the nature of the outbreak at a point in time.

Quarantine and essential workers

Quarantined individuals who are regarded as essential workers in a [critical infrastructure industry](#) should work from their quarantine space (e.g. home, hotel) and/or implement alternate staffing arrangements wherever possible. Where this is not feasible, an individual risk assessment should be conducted in collaboration with the PHU to identify essential workers who **may** be permitted to maintain normal work patterns while in quarantine. This should only be considered in circumstances where there is risk of grave damage to Australian national interests and security if the worker is unable to work. If normal work patterns are maintained, the essential worker should vigilantly practise social distancing, hand and respiratory hygiene, and wear a mask whilst around others at work. Normal quarantine restrictions should be adhered to outside of essential work activities.

Medical care for quarantined individuals

If individuals under self-quarantine need to see a doctor for any reason (e.g. fever and respiratory symptoms or other illness/injury), they should **telephone their GP or hospital Emergency Department before presenting**. Patients with severe symptoms should call 000 and make it clear they are in quarantine or isolation (or otherwise) because of COVID-19. If the patient has symptoms consistent with the COVID-19 [case definition](#), the local PHU should be consulted about the most suitable venue for clinical assessment and specimen collection. Where feasible, patients should don a surgical mask before presenting to any healthcare setting. Contact and droplet precautions are recommended for routine care of patients in quarantine.

Management of symptomatic contacts

If fever or respiratory symptoms consistent with the clinical criteria in the [suspect case definition](#) develop within the first 14 days following the last contact, the individual should be immediately isolated and managed as per the current recommendations for suspected COVID-19 cases, with urgent testing for COVID-19 undertaken in an environment that minimises the exposure of others.

Ill contacts who are being evaluated for COVID-19 can be appropriately isolated and managed at home or in other community settings identified by PHU, unless their condition is severe enough to require hospitalisation.

Symptomatic household contacts who test negative for SARS-CoV-2 by PCR should be re-tested, given the pre-test probability for COVID-19. Re-testing should occur as soon as possible after a negative result is received, and if still negative, another test may be conducted on day 14 of the quarantine period. They will still need to be monitored for 14 days after their last contact with a confirmed or probable COVID-19 case.

11. Special risk settings

Healthcare workers

All healthcare workers should observe usual infection prevention and control practices in the workplace. This includes healthcare workers and other staff in any setting who have direct patient contact.

Healthcare workers with influenza-like illness should not work while they are symptomatic. They should undergo isolation and additionally be tested for SARS-CoV-2 if they meet the suspect case definition (fever OR acute respiratory illness).

Healthcare workers who are defined as close contacts should be treated as such (see section [6. Contact Management](#)).

In settings where the loss of the healthcare worker will have a significant impact on health services, an individual risk assessment should be conducted in collaboration with the PHU.

Quarantined healthcare worker close contacts should be advised on the processes for seeking medical care. See [Medical care for quarantined individuals](#).

PHU may assist infection control units of health facilities to identify and monitor healthcare worker close contacts.

It is recognised that clinical work restrictions on close contacts who are healthcare workers may place strain on individuals and on the delivery of health services. This underlines the importance of ensuring healthcare workers implement appropriate infection control precautions when assessing and managing confirmed, probable, and suspect COVID-19 cases.

Staff (including Healthcare workers) who have direct patient contact in a hospital or residential/aged care facility.

Healthcare workers and other staff with close patient contact who work in hospitals or residential/aged care facilities should take additional precautions because they come into contact with a high caseload of potentially vulnerable patients.

Aboriginal and Torres Strait Islander Communities

CDNA will continue to monitor the emerging evidence around COVID-19 transmission risks in healthcare settings and Aboriginal and Torres Strait Islander communities and revise these recommendations as needed. For further information, see the [CDNA Interim National Guidance for remote Aboriginal and Torres Strait Islander communities for COVID-19](https://www.health.gov.au/resources/publications/cdna-interim-national-guidance-for-remote-aboriginal-and-torres-strait-islander-communities-for-covid-19) (<https://www.health.gov.au/resources/publications/cdna-interim-national-guidance-for-remote-aboriginal-and-torres-strait-islander-communities-for-covid-19>).

Key drivers of increased risk of transmission and severity

- **Mobility:** Aboriginal and Torres Strait Islander peoples are highly mobile, with frequent travel often linked to family and cultural connections and community events involving long distances between cities, towns, and communities. In addition, remote communities have a high flow of visitors (e.g. tourists, fly-in fly-out clinicians and other workers). This increases the risk of transmission even in generally isolated communities.
- **Remoteness:** A fifth of the Aboriginal and Torres Strait Islander population lives in remote and very remote areas. There is often reduced access health services, these are usually at capacity in normal circumstances and are often reliant on temporary staff. Limited transport options may further inhibit presentations and delay laboratory testing.
- **Barriers to access:** Unwell people may present late in disease progression for many reasons including lack of availability of services, institutional racism, and mistrust of mainstream health services.
- **Overcrowding:** Many Aboriginal and Torres Strait Islander communities have insufficient housing infrastructure, which results in people living in overcrowded conditions. This facilitates disease transmission and makes it difficult for cases and contacts to maintain social distance measures and self-quarantine.
- **Burden of disease:** Aboriginal and Torres Strait Islander people experience a burden of disease 2.3 times the rate of other Australians. This may increase the risk of severe disease from SARS-CoV-2.

Key response strategies

- **Shared decision-making and governance:** Throughout all phases, COVID-19 response work should be collaborative to ensure local community leaders are central to the response. Further risk reduction strategies and public health responses should be co-developed, and co-designed, enabling Aboriginal and Torres Strait Islander people to contribute and fully participate in shared decision-making.
- **Social and cultural determinants of health:** Public health strategies should be considered within the context of a holistic approach that prioritises the safety and well-being of individuals, families and communities while acknowledging the centrality of culture, and the addressing racism, intergenerational trauma and other social determinants of health.

- **Community control:** The Aboriginal Community Controlled Health Services (ACCHS) sector provides a comprehensive model of culturally safe care with structured support and governance systems. The network of ACCHS and peak bodies should be included in the response as a fundamental mechanism of engagement and communication.
- **Appropriate communication with the community:** Each community action plan should contain recommendations for communication within the community. These should be implemented as agreed by community-controlled organisations. Messages should be strengths-based and encompass Aboriginal ways of living, including family-centred approaches during both prevention and control phases. They should address factors that may contribute to risk such as social determinants of health, including living arrangements and accessibility to services.
- **Clinical Communication:** Public health officers should immediately alert other health services in the region and the regional town that there is a suspect case (if this is thought likely to be confirmed) or if there is a confirmed case. This should include services in other jurisdictions if there is regular travel between these communities.
- **Education of confirmed and suspect cases:** Suspect cases should be offered education on why isolation is required to protect others and how this can be done within a household as well as social and cultural support. This should be ongoing if the case is confirmed. All contacts should be provided with an explanation of COVID-19, ample opportunity to ask questions; informed about the community response plan including quarantine options and why it is important that they quarantine themselves to protect others.
- **Flexible and responsive models of care:** Consider flexible health service delivery and healthcare models (e.g. pandemic assessment centres, flexible ACCHSs clinic hours/location with additional staffing, and home visits). Consider employing the use of point of care influenza tests, where available, to help determine whether influenza is implicated in presentations in the community.
- **Isolation and quarantine:** Families should feel empowered and be part of decision-making around quarantine. This can be achieved through exploring with families what quarantine looks like, working through how it might impact on the family and their way of living, and identifying ways around it. Family members will want to visit unwell people in hospital. It should be made clear that there are other ways to be with sick family members in hospital, maintain communication with families and communities in lieu of gatherings (e.g. staying socially connected through the internet and video calling).

Aged care facilities

Aged care facilities are high-risk settings for infectious disease outbreaks. This is because there is often high density living with extensive close physical contact between staff and residents during the provision of care. Residents are at increased risk of severe illness and death due to their age and presence of co-morbid conditions. There are often many visitors, volunteers and staff moving between the community and facilities, which can promote the spread of infectious diseases.

Residents of aged care facilities who require testing for SARS-CoV-2 should be tested on site, where feasible.

Preventative measures

In addition to usual preventative protocols, aged care facilities should ensure that high rates of influenza vaccination are maintained amongst all occupants and staff. Messaging to discourage unwell visitors from visiting facilities and occupants should be reinforced, and care should be taken to ensure unwell staff and volunteers know not to present to work while symptomatic with any infectious condition. Visitors, residents and staff should be encouraged to increase their frequency of hand hygiene (with soap and water or using alcohol hand rub), surface cleaning, and to use correct cough/sneeze etiquette.

Outbreaks

The vast majority of aged care facilities should have frameworks and protocols for testing and isolation in the event of respiratory disease outbreaks.

Outbreaks of COVID-19 in residential care facilities should be managed with close reference to the [Coronavirus \(COVID-19\) guidelines for outbreaks in residential care facilities](https://www.health.gov.au/resources/publications/coronavirus-covid-19-guidelines-for-outbreaks-in-residential-care-facilities) (available at: <https://www.health.gov.au/resources/publications/coronavirus-covid-19-guidelines-for-outbreaks-in-residential-care-facilities>). The guidelines provide specific advice on the prevention, control and public health management of COVID-19 outbreaks in residential care facilities in Australia.

12. Special situations

Cruise ships

Risk assessment and identification of contacts

Cruise ships represent a high-risk setting for outbreaks of COVID-19. All persons travelling on cruise ships, regardless of whether cases of COVID-19 have occurred, should be quarantined for 14 days following disembarkation.

Hospital transfer of confirmed, probable or suspect cases

If confirmed, probable or suspect cases on board require transfer to a hospital, the Commonwealth Biosecurity Officer will notify the port authority to provide access for medical transport. The jurisdictional Human Biosecurity Officer will then coordinate transfer of the person to an appropriate medical facility for further management, via the most appropriate means that adheres to necessary precautions.

Quarantine for passengers and crew after arrival at a seaport

Any returned travellers should quarantine. Although a variety of quarantine arrangements have occurred, hotel-based quarantine is now the standard for returned international travellers, including for cruise-ship passengers and crew. It is important that appropriate PPE precautions are employed during any travel following disembarkation. Matters of quarantine should be addressed jurisdictionally.

Disembarking and embarking

After all confirmed, probable and suspect cases have been managed appropriately and the Human Biosecurity Officer has determined that no other passengers or crew have symptoms consistent with COVID-19, remaining passengers and crew will be allowed to disembark. The vessel may be permitted to commence embarking once it is certain there is no risk of ongoing transmission.

Air crew

Risk assessment and identification of contacts

Decisions regarding the contact classification of cabin crews can be difficult to determine. On an aircraft with one or more confirmed or probable cases of COVID-19, a case-by-case risk assessment should be conducted by the airline in conjunction with the PHU to identify which crew should be managed as close contacts.

Considerations for conducting a risk assessment should include:

- Proximity of crew to confirmed or probable case
- Duration of exposure to confirmed or probable case
- Size of the compartment in which the crew member and confirmed or probable case interacted
- Precautions taken, including PPE worn, when in close proximity to the confirmed or probable case

Where it has been determined that a crewmember is a close contact, the airline is responsible for notifying the relevant state/territory public health authority to facilitate management of the close contact.

Schools

The best way to prevent transmission of COVID-19 in schools is through the promotion of correct hand hygiene habits and cough/sneeze etiquette. Children or staff with respiratory symptoms should not attend school while symptomatic. If a child or staff member becomes ill with respiratory symptoms, they should be isolated from other students and sent home as soon as possible.

Contact tracing or management of school outbreaks may require temporary full or partial school closures; however, closures are not generally recommended as a reactive measure on public health grounds.

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14. Appendices

Appendix A: PHLN guidance on laboratory testing for SARS-CoV-2

Appendix B: Guidance on the use of personal protective equipment (PPE) in hospitals during the COVID-19 outbreak

Appendix A: SARS-CoV-2 Laboratory testing information

Laboratory testing for SARS-CoV-2 continues to evolve rapidly with the accumulation of clinical data, and as reagents and protocols are refined.

The aim of testing is to, if clinically appropriate, exclude common respiratory viruses using local hospital and community nucleic acid testing capacity, and to simultaneously refer onward to a laboratory with capacity to test for SARS-CoV-2. As co-infection is possible, initial testing protocols should include testing for SARS-CoV-2 in patients with epidemiological risk, even where another infection is shown to be present.

Samples for testing

- (i) upper respiratory tract samples
- (ii) lower respiratory tract sample if the lower tract is involved
- (iii) serum (to be stored pending serology availability)

Upper respiratory tract samples

1. **Deep nasal** and oropharyngeal swab: may be dacron or rayon, although flocked **is** preferred
 - oropharyngeal (throat): swab the tonsillar beds and the back of the throat, avoiding the tongue
 - **deep nasal: swab the right or left nostril by gently inserting the swab along the floor of the nasal cavity parallel to the palate until resistance is encountered, and rotate gently for 10-15 seconds; then withdraw and repeat the process in the other nostril. To conserve swabs the same swab that has been used to sample the oropharynx should be utilised for deep nasal sampling**
 - place the swab(s) back into the accompanying transport medium

Sampling both sites, **deep nasal and oropharynx**, is recommended to optimise the chances of virus detection. The swab(s) should be placed in transport medium, which may be viral transport medium (VTM) or Liquid Amies.

If SARS-CoV-2 testing is to be undertaken in a different laboratory to testing for other respiratory viruses, then the original swab and remaining eluate should be forwarded for SARS-CoV-2 testing.

2. Nasal wash/aspirates

- collect 2-3 mL into a sterile, leak-proof, screw-top dry sterile container

A nasal wash or aspirate, if available, may be substituted for the **deep nasal** swab sample described above.

3. Self-collected deep nasal and oropharyngeal swab using a single swab

- Clear instructions should be provided to the patient. A self-collected combined deep nasal, oropharyngeal swab can be used that accesses the throat, and then a deep nasal swab inserted as far as comfortably possible into the depth of the nasal cavity. The process is then repeated in the second nostril. The swab is then placed into viral transport medium (VTM) or Liquid Amies.

- This broadens the use of swabs available, reduces infection risk to the health care worker providing the collection and also reduces the requirements for Personal Protective Equipment. PHLN has reviewed data that suggests this has been determined to be equivalent to combined nasal/nasopharyngeal and throat swabs in detecting coronavirus.
- To maximise control of the collection process, it is recommended that the self-collect process be undertaken with medical oversight.
- It is recommended that laboratories validate their ability to obtain equivalent viral loads and monitor positivity rates using these self-collection kits compared to other methods of collection.
- A self-collected sample should be clearly identified as such on the report.

Lower respiratory tract samples

1. Sputum

- patient should rinse his/her mouth with water before collection
- expectorate deep cough sputum directly into a sterile, leak-proof, screw-top dry sterile container

2. Bronchoalveolar lavage, tracheal aspirate, pleural fluid

- collect 2-3 mL into a sterile, leak-proof, screw-top sputum collection cup or dry sterile container

As lower respiratory tract specimens contain the highest viral loads in SARS-CoV and MERS-CoV, it is advised that lower respiratory tract specimens should be collected for SARS-CoV-2 testing where possible. Initial experience in testing for SARS-CoV-2 seems to be consistent with this prior experience. Repeat testing (especially of lower respiratory tract specimens) in clinically compatible cases should be performed if initial results are negative and there remains a high index of suspicion of infection.

Serology

Serum should be collected during the acute phase of the illness (preferably within the first 7 days of symptom onset), stored, and when serology testing becomes available tested in parallel with convalescent sera collected 3 or more weeks after acute infection. If no acute sample was collected, sera collected 14 or more days after symptom onset may be tested.

Specimen handling in the laboratory

Microbiology Laboratory

Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS 2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment. Specimens should be transported in accordance with current regulatory requirements as diagnostic samples for testing.

Point of care testing outside a PC2 facility

Diagnostic testing steps for specimens conducted outside of a PC2 facility (such as rapid respiratory testing performed at, or near, the point of care) should be assessed to determine if aerosol generation may occur, to inform which Transmission-based Precautions should be applied, to provide a barrier between the specimen and personnel during specimen manipulation. If local community transmission is established, consideration should be given to implementing airborne precautions. Staff undertaking point of care testing should be adequately trained and assessed in the appropriate use of PPE. Testing should be done in a well ventilated room, preferably with an external exhaust fan. Testing in non NATA/RCPA accredited medical pathology facilities should also adhere to the current NPAAC regulatory framework with respect to point of care tests.

Clinical Pathology

Non-respiratory specimens (blood, urine, and stool) are known to contain virus. Standard precautions should be used for non-microbial pathology testing (such as routine biochemistry and haematology). Where possible auto-analysers should be used according to standard practices and/or local protocols. There is evidence that capping and uncapping of samples is not a high risk aerosol generating procedure.

Respiratory Virus Diagnostic Testing

Nucleic acid testing of the upper or lower respiratory tract samples is performed for influenza and other common respiratory viruses using standard protocols and methods of the hospital or community laboratory.

Standard protocols of the testing laboratory for respiratory sample processing should be used. This is expected to consist of PC2 laboratory practices, and use of a Class II Biosafety cabinet for aerosol-generating procedures (such as centrifuging without sealed carriers, vortexing). Viral culture can only be undertaken in an accredited laboratory that has a PC3 facility.

The residue (original swab and remaining eluate) of the upper tract sample is forwarded together with the lower tract sample and the serum to the reference laboratory with SARS-CoV-2 testing capacity requesting SARS-CoV-2 testing.

Clinical liaison with jurisdictional public health officers is essential to coordinate referral and testing.

Standard protocols should be used for sample packaging and transport as diagnostic samples for testing (i.e. Category B).

SARS-CoV-2 specific testing

Nucleic acid testing (NAT) using real time polymerase chain reaction (RT-PCR) is the method of choice for detection of SARS-CoV-2. Specific diagnostic test approaches for SARS-CoV-2 will be described here only in broad terms. There is significant variation in PCR assays employed by different PHLN member laboratories and non PHLN laboratories performing these tests, and test algorithms are likely to be further refined over time. Commercial assays are becoming available from March 2020 and evaluation of these, or reference to another laboratory evaluation, needs to be performed prior to introduction.

[Specific Real Time PCR primer sets to detect SARS-CoV-2 are available](#). Some PHLN member laboratories have designed their own, and some have implemented primer sets recommended to the World Health Organization (WHO) by leading international coronavirus reference laboratories (available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance>). The majority of PHLN testing capacity now employs relatively swift RT-PCR assays for screening, with a laboratory turnaround time of several hours. Confirmation of positives is being done either with RT-PCR assays detecting a different target gene, or broadly reactive PCR tests with sequencing of amplicons (see below).

Well pedigreed PCR primer sets, probes and protocols are available from the [WHO/ European Viral Archive \(EVAg\)](#) (available at https://www.who.int/docs/default-source/coronaviruse/protocol-v2-1.pdf?sfvrsn=a9ef618c_2).

Many PCR assays, including those available through WHO will also detect other zoonotic coronaviruses such as SARS-CoV, sometimes with a recognisable shift in the cycle threshold value (Ct) compared to the SARS-CoV-2 target, but not commonly circulating coronaviruses usually detected by commercial assays (e.g. NL63, 229E strains).

Several Australian PHLN reference laboratories began diagnostic testing for the current outbreak using PCR assays capable of detecting a wide range of coronaviruses, including zoonotic and novel pathogens. A number of these were mapped against the promulgated nucleic acid sequence of SARS-CoV-2 from Wuhan, China (GenBank accession MN908947, December 2019) early in the course of the outbreak. Nucleic acid sequencing of amplicons from positive tests is used to identify the coronavirus in this approach. These assays have relatively long turnaround times and have largely been replaced by RT-PCR other than as a confirmatory test in some laboratories.

Complementary DNA (cDNA) synthesized from the VIDRL SARS-CoV-2 has now been made available to all PHLN member laboratories as a test positive control. Synthetic positive control material in the form of nucleic acid templates is also available through WHO/ European Viral Archive (EVAg).

There is variable use of one or two viral targets for SARS-CoV-2 testing. Confirmatory testing using an alternative target, at least in the early stages, for positive samples, is recommended if using a single target.

Testing algorithms are likely to be revised pending further information about the virus, and the number of specimens received in the laboratory for testing.

Viral culture should not be performed for routine diagnosis, and should only be attempted in reference laboratories with appropriate experience and containment facilities. Currently where attempted this is being done at Physical Containment Level 3 (PC3), consistent with current recommendations for SARS-CoV, pending specific SARS-CoV-2 international recommendations.

The Royal College of Pathologists of Australasia Quality Assurance Program (RCPAQAP), with Australian Government support, performed the first SARS-CoV-2 specific QAP, which closed on 11th March 2020, and involved 16 public and private laboratories in all Australian states and in New Zealand. This proficiency testing program (PTP) supplemented previous SARS-CoV, MERS-CoV and other coronaviruses PTP. A second, more detailed PTP is planned to be performed by the RCPA QAP in mid-2020. The second PTP is planned for distribution to a wider range of laboratories, once testing has been extended to more laboratories.

Randox Laboratories and Quality Control for Molecular Diagnostics (QCMD) have announced a pilot EQA scheme for coronaviruses which will include inactivated SARS-CoV-2.

Further Information

The [Department of Health has produced a series of resources on COVID-19 for health professionals, including pathology providers and healthcare managers](https://www.health.gov.au/resources/collections/coronavirus-covid-19-resources-for-health-professionals-including-pathology-providers-and-healthcare-managers), these may be accessed here: (<https://www.health.gov.au/resources/collections/coronavirus-covid-19-resources-for-health-professionals-including-aged-care-providers-pathology-providers-and-healthcare-managers>)

Appendix B: Guidance on the use of personal protective equipment (PPE) in hospitals during the COVID-19 outbreak.

Background

This guidance was developed by the Infection Control Expert Group (ICEG) and endorsed by the Australian Health Protection Principal Committee (AHPPC) to provide guidance on the use of personal protective equipment (PPE) in hospital settings during the COVID-19 outbreak.

These recommendations are based on *current evidence*, *current status of COVID-19 in Australia*, risk assessment and expert advice. This guidance will be updated as new information becomes available.

This guidance is intended for health care workers in hospital settings including emergency department (ED), intensive care unit (ICU), operating suite, surgery, general medical and surgical wards and obstetrics.

See above for current [case definitions](#) and [testing criteria](#).

NOTE: For clinical care of, or procedures on, patients who are NOT suspected of having COVID-19, i.e. business as usual, the usual infection prevention and control precautions, including PPE if required, should be observed, according to clinical circumstances.

Additional COVID-19 specific precautions are not required.

CURRENT EVIDENCE

Evidence relating to transmission of COVID-19 in hospitals is of variable quality, sometimes contradictory and cannot, necessarily, be extrapolated to the Australian context. Many uncertainties remain. The following advice is based on the best available evidence and the current epidemiology of COVID-19 in Australia, where community transmission is minimal, except in limited geographic areas.

- **Asymptomatic COVID-19** is apparently not uncommon but its incidence and role in transmission are unknown
 - It can occur at all ages
 - Fairly high rates of asymptomatic infection have been reported in the context of outbreaks in closed settings (e.g. cruise ship, aged care facility) or high community prevalence (e.g. China, New York)
- **Presymptomatic transmission** is well documented but the duration of infectivity before onset of symptoms is uncertain
- Relationships between **viral RNA load, infectivity and the stage and severity of disease** are uncertain
 - The presence on viral RNA does not necessarily indicate viable/infectious virus
 - Viral RNA load is variably reported as higher in the early than later stages of disease or increasing with late clinical deterioration
- There is varying evidence and much debate about the degree, if any, of **airborne vs droplet transmission** of COVID-19 but the relevance to the type of respiratory protection required in different settings is uncertain
 - There is strong evidence that COVID-19, like most respiratory viral infections, is predominantly transmitted by droplets
 - Clinical and epidemiological evidence suggest that airborne transmission is rare, but some aerosol-generating procedures (AGPs) can increase the risk

- Some fine particle (<5 micron) aerosols are produced by infected patients, but the quantity of virus in these particles is significantly less than that in large droplets
- The transmission dynamics of COVID-19 differ from those of the few infectious diseases for which airborne transmission is recognised e.g. TB, measles and varicella

CURRENT STATUS OF COVID-19 IN AUSTRALIA

- By international standards, Australia has a high (and increasing) rate of testing and a low percentage of positive results (currently 1.6%)
- More than 60% of total cases in Australia have been acquired overseas
- The number of cases and deaths from COVID-19 in Australia are in marked contrast to that in many parts of Europe, the United Kingdom and North America
- Since the introduction of travel restrictions and social distancing measures the daily number of new infections in Australia has fallen dramatically
- Community transmission is modest and limited to a few localised sites
- The case fatality rate in Australia, overall, is <1% and the median age of death is 78.5 years
- Limited data are available about COVID-19 cases in healthcare workers. Of those for which information is available, a significant proportion were not occupationally-acquired

These data indicate that current containment measures in community and health care settings in Australia are effective if consistently observed.

General guidance on procedures performed on patients who are NOT suspected or confirmed cases of COVID-19

During the COVID-19 outbreak, PPE for the care of patients who are not suspected or confirmed cases of COVID-19 should be used in line with the *Australian Guidelines for the Prevention and Control of Infection in Healthcare (2019)*¹.

AGPs performed on non-COVID-19 patients in operating theatre, emergency department, endoscopy suite etc.

Given the relatively low prevalence of COVID-19 in Australia, standard precautions, in addition to standard operating theatre attire or personal protective equipment appropriate for the procedure, are adequate for the performance of AGPs on patients who are not suspected or confirmed cases of COVID-19. A surgical mask, theatre gown, gloves, eye protection (and head covering only if required as regular theatre attire) should typically be worn. A P2 respirator is not necessary in this context.

[See below for a list of AGPs.](#)

NOTE: For AGPs performed on patients who are NOT suspected or confirmed cases of COVID-19, P2 respirators are not necessary, i.e., a surgical mask is sufficient.

General guidance on procedures performed on patients who are suspected or confirmed cases of COVID-19

Management of hospital patients in whom COVID-19 is NOT suspected

¹ <https://www.nhmrc.gov.au/about-us/publications/australian-guidelines-prevention-and-control-infection-healthcare-2019#block-views-block-file-attachments-content-block-1>

PPE required for each patient encounter depends on the specific clinical circumstances, but similar principles apply to all.

Standard precautions are required for all patients regardless of known COVID-19 status. This includes hand hygiene (5 Moments) and risk assessment to determine the level of PPE required, if any.

Cough etiquette and respiratory hygiene must be observed at all times.

Physical distancing during the COVID-19 outbreak: stay at least 1.5 m away from other people including:

- patients, except when unavoidable, e.g. during physical examination/care AND
- members of the public, hospital visitors and other staff e.g. in wards, clinics and nonclinical areas e.g. during meetings, tea breaks etc.

Management of patients with acute respiratory symptoms and/or suspected or proven COVID19

- Patients with acute respiratory symptoms should be asked to wear a surgical mask upon presentation to hospital AND
- Placed in a single room with the door closed or in a physically separated closed area designated for suspected COVID-19 cases OR
- If an AGP is to be performed, the patient should be placed in a negative pressure room (or an isolation room with door closed if a negative pressure room is not available)

If transfer outside of the room is necessary, the patient should wear a surgical mask during transfer, follow respiratory hygiene, and cough etiquette.

Environmental hygiene

- In addition to routine cleaning, frequently touched surfaces should be cleaned frequently or whenever visibly soiled, with detergent/disinfectant wipes or a detergent product, using disposable or laundry safe cloth

Advice on *Environmental cleaning and disinfection for health and residential care facilities* is available on the [Department of Health website](#).

Transmission-based precautions

- **Contact and droplet precautions** should be used for the routine care of patients in quarantine/isolation or under investigation for COVID-19 or with confirmed COVID-19
 - The use of nebulisers should be avoided and alternative medication administration devices (e.g. spacers) used
- **Contact and airborne precautions** should be used when performing AGPs

NOTE: Previous advice to use airborne precautions for care of patients with severe coughing has been withdrawn because:

- viral load does not necessarily correlate with clinical condition
- coughing generates droplets, predominantly
- surgical masks used by patient, if possible, and healthcare worker provide adequate protection.

Contact and droplet precautions for use in routine care of patients with suspected or confirmed COVID-19

There is strong clinical and epidemiological evidence that the predominant mode of spread of COVID-19 is via **respiratory droplets** (produced during speaking, coughing, sneezing etc.):

- **Directly** during close face-to-face contact (within ~1.5 m) by exposure of the mucosae of mouth, nose or eyes OR
- **Indirectly** by touching surfaces or fomites contaminated by respiratory droplets and then touching the face

Use of personal protective equipment

The following PPE should be put on, in this order, before entering the patient's room:

- Long-sleeved fluid resistant gown
 - An apron is a suitable alternative in situations in which the risk of splash is low (e.g. specimens collection)
- Surgical mask (fluid resistant, level 2 or 3)
- Eye protection: face shield, wrap-around safety glasses or goggles
- Disposable non-sterile gloves when in contact with patient (use hand hygiene before donning and after removing gloves)

Use of boots or shoe covers is not recommended unless gross contamination is anticipated or required as standard attire in operating theatre or trauma room.

Long hair should be securely tied back.

A head covering is not required except as part of standard operating theatre attire or when performing a sterile/aseptic procedure (e.g. central line insertion).

Take care to avoid self-contamination, when removing PPE.

- Remove gloves without touching the outside of the glove and perform hand hygiene
- Remove gown, without touching the front of the gown, by folding it so that the external (exposed) side is inside; perform hand hygiene
- Remove eye protection and mask outside the patient's room. Do not touch the front of mask or eye covering; perform hand hygiene after each step

Unsoiled PPE can be discarded into general waste; if visibly soiled e.g. with blood or faeces, PPE should be disposed of as clinical/infectious waste. (**Note:** local jurisdictional regulations for waste disposal should be followed).

Only PPE marked as reusable should be reused after decontamination and reprocessing according to the manufacturer's instructions. All other PPE must be disposed of after use.

Contact and airborne precautions during aerosol-generating procedures in the care of patients with COVID-19

The only modification for **airborne precautions** is the use of a **particle filter (P2/N95) respirator** or equivalent instead of a surgical mask.

Principles of use of P2/N95 respirators in care of patients with suspected or confirmed COVID-19

- P2/N95 respirators should be used only in the context of patient care using airborne precautions
- Health care professionals who use P2/N95 respirators should be trained in their correct use

- Unless used correctly, protection against airborne pathogen transmission will be compromised
- The minimum standard of use of a P2/N95 respirator is **careful fit-checking** with each use
 - An airtight protective seal is difficult to achieve for people with facial hair that underlies the mask at its edges
 - Facial hair which impedes achieving a seal should be removed or an alternative respirator protection, e.g. powered air-purifying respirator (PAPR) - considered (see below)
 - If available, a range of P2/N95 respirators may need to be fit-checked to find one that achieves a protective seal (i.e. passes fit-check)
 - If a suitable P2/N95 respirator cannot be found and alternative respirator - e.g. PAPR - should be considered
 - **Fit-testing** is recommended as the gold-standard (AS/NZS 1715:2009) for use of P2/N95 respirators, but it has not been widely applied in Australia
 - Despite increased awareness and demand, in the context of COVID-19, fit-testing of all healthcare professionals, who need to use P2/N95 respirators, will be difficult due to limited supplies and range of types/sizes available
 - **NOTE: Fit-testing does not guarantee that a respirator will not leak, particularly if a different type or size is used – this reinforces the need to fit-check with each use**

Transmission-based precautions, as outlined—including appropriate use of P2/N95 respirators—will provide high level protection of health care workers caring for patients with suspected or confirmed COVID-19.

Powered air-purifying respirators (PAPR)

- PAPRs are an alternative to P2/N95 respirators in selected circumstances:
 - A number of different types of relatively lightweight, comfortable PAPRs is available
 - PAPRs should only be used by healthcare professionals trained in their use, including safe removal with other PPE
 - PAPRs should be used according to the manufacturer's instructions
 - If a health care professional is required to remain in the patient's room continuously for a long period to perform multiple procedures e.g. more than one hour, the use of a PAPR may be considered for additional comfort and visibility
 - PAPRs designed for use in other settings outside of health care are not recommended
 - Manufacturer's instructions for reprocessing of reusable PAPR components and management of filters should strictly followed

Care is required with removal of a PAPR, which is associated with a risk of self-contamination.

Only PPE marked as reusable should be reused after decontamination and reprocessing according to the manufacturer's instructions. All other PPE must be disposed of after use.

Aerosol-generating procedures

AGPs during the care of patients with suspected or confirmed COVID-19 are associated with a risk of transmission. The following *examples* are illustrative of a range of AGPs.

Instrumentation or surgical procedures on the respiratory tract including:

- Insertion or removal of endotracheal tube
- Intentional or inadvertent disconnection/reconnection of closed ventilator circuit
- High frequency oscillatory ventilation (HFOV)
- Open oropharyngeal or tracheal suctioning
- Upper respiratory instrumentation or surgery
 - e.g. bronchoscopy, tracheotomy, ear nose throat surgery

- Surgical or post mortem procedures on respiratory tract involving high-speed devices
- Intercostal catheter insertion for relief of pneumothorax
- Thoracic surgery that involves entering the lung

Other procedures that can generate respiratory aerosols

- Manual or non-invasive ventilation (NIV);
 - Bi-level positive airway pressure ventilation (BiPAP)
 - Continuous positive airway pressure ventilation (CPAP)
- Collection of induced sputum
- High flow nasal oxygen (HFNO)
- Transoesophageal echocardiography

Cardiopulmonary resuscitation (CPR) is a special circumstance:

- Chest compression and defibrillation during resuscitation are not considered AGPs
- First responders can commence resuscitation without the need for airborne precautions while awaiting the arrival of clinicians to undertake airway manoeuvres

PPE in specific hospital settings

Intensive care unit (ICU)

- Contact and **droplet** precautions should be used for general care of COVID-19 patients in ICU e.g. a patient not requiring ventilation or AGPs
- Contact and **airborne** precautions should be used for care of COVID-19 patients in ICU requiring AGPs
 - The risk of aerosol transmission is reduced once the patient is intubated with a closed ventilator circuit
 - The use of P2/N95 respirators is recommended for AGPs, in the ICU. However, if a healthcare professional is required to remain in an ICU patient's room continuously for a long period (e.g. more than one hour) to perform multiple AGPs, the use of a PAPR may be considered, as an alternative, for greater comfort and visibility
 - ICU staff caring for patients with COVID-19 (or any other potentially serious infectious disease) should be trained in the correct use of PPE, including the use of P2/N95 respirators or PAPRs, preferably by an infection prevention and control professional or other suitably qualified personnel

Wards, including care of critically ill patients outside of the ICU setting

- Contact and **droplet** precautions should be used for care of COVID-19 patients in general wards
- Contact and **airborne** precautions should be used for care of COVID-19 patients in general wards, when performing an AGP
 - AGPs should be performed in a negative pressure room (or a standard isolation room with door closed)
 - the number of persons present in the room should be minimised

Emergency departments

- Contact and **droplet** precautions should be used for routine care of COVID-19 patients in the emergency department except when an AGP (including passage of an endotracheal tube) is required
- Contact and **airborne** precautions should be used for care of COVID-19 patients when performing an AGP
 - AGPs should be performed in a negative pressure room (or a standard isolation room with door closed)
 - the number of persons present in the room should be minimised

Operating suite

NOTE: For procedures performed on patients in an operating suite who are NOT suspected or confirmed cases of COVID-19, the usual surgical PPE for the clinical circumstances should be used, i.e., surgical mask, theatre cap, gown, gloves and eye protection.

The principles of routine infection prevention and control during elective surgery should be strictly adhered to, including avoidance of unnecessary entry and exit from the operating theatre during surgery.

The number of people in the theatre should be limited to those required for clinical or educational purposes.

- Surgical procedures for patients with suspected or confirmed COVID-19 should be performed only in an emergency

Separate guidelines are available for use of PPE by anaesthetic and surgical staff, caring patients with suspected or proven COVID-19 in the operating suite, during different types of surgery or procedures.

The same general principles apply as outlined above:

- Standard precautions apply to the care of all patients including use of PPE based on risk assessment
- **Contact and droplet** precautions for anaesthetic or surgical procedures not involving AGPs in patients with suspected/confirmed COVID-19
- Contact and **airborne** precautions for anaesthetic or surgical procedures involving AGPs with suspected/confirmed COVID-19

Labour ward

For care of a pregnant woman, with suspected or confirmed COVID-19, during labour:

- The woman should be asked to wear a surgical mask, if tolerated
- **Contact and droplet precautions** should be observed by labour ward staff, in addition to standard precautions
- The woman's partner or other support person (one only) may attend the delivery even if s/he is in quarantine, as a close contact. Precautions required to protect labour ward staff:
 - On entering the hospital, the partner/support person should: perform hand hygiene and put on surgical mask (to protect staff); in the labour ward put on a gown (to protect clothes from blood/liquor)
 - On leaving the labour ward, remove gown and perform hand hygiene; remove mask and perform hand hygiene when leaving premises
 -

Where can I get more information?

For the latest advice, information and resources go to the [Department of Health website](https://www.health.gov.au) www.health.gov.au

Call the National Coronavirus Health Information Line on 1800 020 080. The line operates 24 hours a day, seven days a week. If you require translating or interpreting services, call 131 450.

The [telephone number of your state or territory public health authority is available on the coronavirus page](https://www.health.gov.au/state-territory-contacts) at www.health.gov.au/state-territory-contacts



Coronavirus Disease 2019 (COVID-19)

CDNA National Guidelines for Public Health Units

Revision history			
Version	Date	Revised by	Changes
2.9	05 May 2020	Communicable Diseases Network Australia	Revised: Case definition – clinical criteria
2.8	01 May 2020	Communicable Diseases Network Australia	Inclusion of new sections: Summary, The disease, Surveillance, Communications, and Data management. Revised: Case definition, Laboratory testing Case management, Contact management, Special risk settings, Special situations, Appendix A, and Appendix B
2.7	24 April 2020	Communicable Diseases Network Australia	Revised: Case definition, Case management
2.6	17 April 2020	Communicable Diseases Network Australia	Revised: Case management, Contact management – Close contact definition
2.5	06 April 2020	Communicable Diseases Network Australia	Revised: Case definition.
2.4	26 March 2020	Communicable Diseases Network Australia	Inclusion of advice for probable cases throughout.
2.3	24 March 2020	Communicable Diseases Network Australia	Revised: Case definition.
2.2	21 March 2020	Communicable Diseases Network Australia	Revised: Case management – Release from isolation.

2.1	20 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management, Special situations.
2.0	13 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management, Laboratory testing, Appendix A.
1.18	10 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Case management, Contact management. Inclusion of Aircrew and Schools advice in Special situations section.
1.17	05 March 2020	Communicable Diseases Network Australia	Inclusion of self-quarantine advice for returned travellers from South Korea, revised Case management, inclusion of table of contents.
1.16	04 March 2020	Communicable Diseases Network Australia	Inclusion of Aboriginal and Torres Strait Islander community advice in Special situations section.
1.15	03 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management.
1.14	02 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Risk stratification of countries, Contact management.
1.13	28 February 2020	Communicable Diseases Network Australia	Revised: Laboratory testing, isolation and restriction and Appendix A: laboratory testing information.
1.12	27 February 2020	Communicable Diseases Network Australia	Inclusion of Cambodia in the list of countries in the Person under investigation section.
1.11	26 February 2020	Communicable Diseases Network Australia	Inclusion of Italy in the list of countries in the Person Under Investigation section.
1.10	23 February 2020	Communicable Diseases Network Australia	Inclusion of South Korea and Iran in the list of countries in the Person Under Investigation section.
1.9	21 February 2020	Communicable Diseases Network Australia	Revised: case definition, infectious period, contact management, special situation (cruise ship). Specific changes are highlighted.
1.8	17 February 2020	Communicable Diseases Network Australia	Inclusion of statement reflecting that passengers of the Diamond Princess cruise meet the criteria for close contact.
1.7	15 February 2020	Communicable Diseases Network Australia	Revised case definition.

1.6	14 February 2020	Communicable Diseases Network Australia	Addition of Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19). Updated nomenclature.
1.5	7 February 2020	Communicable Diseases Network Australia	Inclusion of advice on release from isolation.
1.4	6 February 2020	Communicable Diseases Network Australia	Revised case definition and added rationale. Updated infection control advice throughout.
1.3	4 February 2020	Communicable Diseases Network Australia	Revised the case definition and use of the terms 'quarantine' and 'isolation'.
1.2	2 February 2020	Communicable Diseases Network Australia	Revised the case definition, close and casual contact definitions and added self-isolation guidance.
1.1	27 January 2020	Communicable Diseases Network Australia	Removed references to Wuhan and revised the case definition.
1.0	23 January 2020	Communicable Diseases Network Australia	Developed by the 2019-nCoV Working Group.

This document summarises recommendations for surveillance, infection control, laboratory testing and contact management for coronavirus disease 2019 (COVID-19). CDNA will review and update these recommendations as required as new information becomes available on COVID-19 and the situation in Australia. These Guidelines will be updated regularly.

Readers should not rely solely on the information contained within these Guidelines. Guideline information is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a public health specialist or other health professional. Clinical judgement and discretion may be required in the interpretation and application of these guidelines.

The membership of the CDNA and the Australian Health Principal Protection Principal Committee (AHPPC), and the Australian Government as represented by the Department of Health (Health) do not warrant or represent that the information contained in these Guidelines is accurate, current or complete. The CDNA, the AHPPC and Health do not accept any legal liability or responsibility for any loss, damages, costs or expenses incurred by the use of, or reliance on, or interpretation of, the information contained in these Guidelines

Abbreviations and definitions

COVID-19:	Coronavirus disease 2019. The name of the disease caused by the virus SARS-CoV-2, as agreed by the World Health Organization, the World Organisation for Animal Health and the Food and Agriculture Organization of the United Nations. For more information, refer to the World Health Organization Director-General's remarks : (https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020)
SARS-CoV-2:	Severe acute respiratory syndrome coronavirus 2. The formal name of the coronavirus that causes COVID-19, as determined by the International Committee on Taxonomy of Viruses. Previously, this coronavirus was commonly known as 'novel coronavirus 2019 (2019-nCoV)'. For more information, refer to the International Committee on Taxonomy of Viruses manuscript : (https://www.biorxiv.org/content/10.1101/2020.02.07.937862v1.full.pdf)

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1. Summary

Public health priority

Urgent – public health responses should be initiated as soon as possible.

Case management

All confirmed and probable cases must be isolated until they meet the appropriate [release from isolation criteria](#). Cases should only be managed at home or in other community settings if the home environment permits separation of the case from other household members and following implementation of appropriate infection control measures and risk counselling.

Hospitalised patients should be isolated in a single room, a designated COVID-19 ward or, if symptoms are severe and, where available, in a negative pressure room. Clinical staff should use contact and droplet precautions for routine care of patients with confirmed, probable or suspected COVID-19. Where staff are performing [aerosol-generating procedures](#), they should use contact and airborne precautions.

Contact management

Close contacts of confirmed and probable cases should be advised to self-quarantine for 14 days following last close contact with the case during the case's infectious period. Close contacts should be actively monitored for development of fever or respiratory symptoms during this period, where feasible.

2. The disease

Infectious agents

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is the infective agent that causes coronavirus disease 2019 (COVID-19). SARS-CoV-2 is a novel coronavirus that was first identified in humans in Wuhan, China, in December 2019. SARS-CoV-2 shares 79.6% sequence identity to SARS-CoV-1 (1).

Coronaviruses are a large family of viruses, some causing illness in people and others that circulate among animals, including camels, cats and bats. Rarely, animal coronaviruses can evolve and infect people and then spread between people. Adaption has led to outbreaks of severe acute respiratory disease due to MERS-CoV and SARS-CoV, but there are also human coronaviruses that cause more mild illness in humans, such as the coronaviruses that cause the common cold.

Reservoir

It is highly likely that the virus has come from an animal source. Genomic analysis suggests that bats appear to be the reservoir of SARS-CoV-2 virus (2), but the intermediate host has not yet been identified (3).

Mode of transmission

Human-to-human transmission of SARS-CoV-2 is via droplets and fomites from an infected person to a close contact (3).

There is some evidence that COVID-19 infection may lead to intestinal infection and virus can be present in the faeces of infected persons (4). Additionally, airborne transmission of COVID-19 may occur during aerosol-generating procedures. Despite this, current evidence does not support faecal-oral or airborne spread as major drivers in transmission; however, aerosol-generating procedures should be undertaken with appropriate precautions (refer to [Aerosol-generating procedures](#)).

Estimates for the basic reproductive number (R_0) of SARS-CoV-2 range from 2–4, with R_0 for confined settings, e.g. cruise ships, at the higher end of this range. Estimates of the effective reproductive number (R_{eff}) vary from between settings and at different time points are dependent on a range of factors, including, public health interventions such as isolation, quarantine and physical distancing to limit close contact between people (5, 6).

Incubation period

Current estimates suggest a median incubation period of 5 to 6 days, with a range of 1 to 14 days (7). The advice in this guideline uses an upper range of 14 days based upon what is currently known about the incubation period for COVID-19. This advice is supported by the literature (8-10), which is informing reviews of this guideline.

Infectious period

The infectious period of COVID-19 is still being determined; however, there are multiple studies suggesting that pre-symptomatic, and possibly asymptomatic, transmission occurs (11, 12). For example, a Singaporean study of multiple case clusters identified pre-symptomatic transmission occurring 1-3 days before symptom onset (13). A recent study also found that viral loads of throat swabs were highest at the time of symptom onset and decreased quickly within 7 days. The study suggested that viral shedding may occur 2 to 3 days before symptom onset with infectiousness peaking at 0.7 days (95% CI, -0.2–2.0 days) prior to initial symptoms (14). Additionally, a Chinese study found that the viral load in an asymptomatic patient was similar to that of symptomatic patients, suggesting transmission potential of asymptomatic, or minimally symptomatic patients (15). The risk of transmission from symptomatic or pre-symptomatic cases is considered to be higher than from asymptomatic cases (16), as viral RNA shedding is higher at symptom onset (17).

As a precautionary approach, for the purposes of contact tracing, cases are considered to be infectious from 48 hours prior to onset of symptoms. Confirmed and probable cases are considered to pose a risk of onward transmission and require isolation until criteria listed in the [release from isolation section](#) have been met.

Clinical presentation and outcome

COVID-19 presents as a mild illness for approximately 80% of cases, with fever and cough being the most commonly reported symptoms. Other symptoms include headache, sore throat, fatigue, shortness of breath, myalgia, anosmia (18), dysgeusia, **diarrhoea**, chills and vomiting. Preliminary evidence suggests that children experience milder clinical symptoms than adults (similar to SARS-CoV and MERS-CoV infections) (19-21). Severe or fatal outcomes occur more frequently in the elderly and those with comorbid conditions (3).

Some individuals remain asymptomatic (21, 22). Asymptomatic case rates are difficult to determine because there is no reason for asymptomatic people to seek medical attention. Some studies estimate that the asymptomatic proportion of cases ranges from 18% to 42% (23, 24).

For confirmed cases reported globally, the case fatality rate is approximately 7% (25); however, this is likely an overestimate for the Australian health setting (26). The true case fatality rate for COVID-19 is difficult to estimate due to variable case ascertainment, especially in regards to mild cases, and the impact of health systems on patient outcomes. Mortality of cases is, to a significant extent, determined by individual risk factors and healthcare quality and access. Based on surveillance data notified in Australia as of 29 April 2020, the national case fatality rate is 1.3% (6,738 confirmed cases/88 deaths).

Disease occurrence and public health significance

Cases of COVID-19 were initially associated with exposure to an animal wet market—located in Wuhan, Hubei Province, China - indicating a probable zoonotic source. Human-to-human transmission is well established. As of 29 April 2020, 185 countries/regions have reported cases, numerous countries/regions have reported broader community transmission, and globally there has been over 3,100,000 confirmed cases and 215,000 deaths (27). The situation is rapidly evolving.

The World Health Organization (WHO) declared the outbreak of COVID-19 a Public Health Emergency of International Concern (PHEIC) on 30 January 2020 (28), and declared a pandemic on 12 March 2020 (29).

Australia has implemented measures aimed at slowing the spread of COVID-19 into and within the country, and to prepare healthcare services and laboratories for a targeted response. The [Australian Health Sector Emergency Response Plan for Novel Coronavirus \(COVID-19\)](#) provides an overview of the national approach, the operational plan and guidance for the health sector response.

'Human coronavirus with pandemic potential' was added to the [Biosecurity \(Listed Human Diseases\) Determination 2016](#) as a listed human disease on 21 January 2020, and has been listed temporarily on the National Notifiable Diseases List (NNDL) since 10 February 2020. Processes for permanent listing of COVID-19 on the NNDL are currently underway.

On 18 March 2020, the Australian Government declared a "human biosecurity emergency" under the *Biosecurity Act 2015*, given the risks COVID-19 poses to human health and the need to control its spread in Australia. The declaration was recommended by the Chief Medical Officer in his capacity as the Director of Human Biosecurity and allows the state and territory Health Ministers to issue targeted, legally enforceable directions and requirements to combat the virus as required.

3. Surveillance

There are three main objectives of surveillance for COVID-19:

1. To rapidly identify, isolate and manage cases.
2. To identify, quarantine and provide information to contacts.
3. To rapidly identify and manage clusters and outbreaks.
4. To describe the epidemiology of COVID-19 in Australia to inform public health response including:
 - the progression of the epidemic in time, person and place,
 - transmission dynamics,
 - special risk groups.

4. Communications

Public Health Units (PHU) should, within one working day, notify the central state/territory communicable diseases unit of confirmed cases upon receipt of a notification/report.

As much information regarding the case's age, sex, place of residence, Indigenous status, date of onset, travel history, laboratory results, clinical status, likely place of acquisition, identification of close contacts and follow-up action taken should be included in the initial report, with additional information being followed up as soon as possible.

Central state/territory communicable diseases units will notify confirmed COVID-19 cases as soon as practicable to the Australian Government Department of Health via both transmission of data to the National Notifiable Diseases Surveillance System (NNDSS) and via email or telephone notification to the National Incident Room.

5. Data management

Initial information on confirmed and probable cases of COVID-19 should be entered onto the jurisdictional notifiable diseases database, for transmission to the NNDSS, within one working day of the notification/report. Enhanced surveillance data should be entered shortly after case follow-up

6. Case definition

The case definition is based on what is currently known about the clinical and epidemiological profile of cases of COVID-19 presenting in Australia and internationally. Health authorities are constantly monitoring the spectrum of clinical symptoms and nature of illness. Using a 14 day exposure period will cover the duration of the incubation period in the vast majority of cases.

Confirmed case

A person who tests positive to a validated specific SARS-CoV-2 nucleic acid test or has the virus identified by electron microscopy or viral culture.

Probable case

A person, who has not been tested, with fever ($\geq 38^{\circ}\text{C}$)¹ or history of fever (e.g. night sweats, chills) **OR** acute respiratory infection (e.g. cough, shortness of breath, sore throat) **AND** who is a household contact (refer to [Contact definition](#) below) of a confirmed or probable case of COVID-19.

Suspect case

Clinical and public health judgement should be used to determine the need for testing in hospitalised patients and patients who do not meet the clinical or epidemiological criteria.

A person who meets the following clinical **AND** epidemiological criteria:

Clinical Criteria:

Fever ($\geq 38^{\circ}\text{C}$)¹ or history of fever (e.g. night sweats, chills) **OR** acute respiratory infection (e.g. cough, shortness of breath, sore throat)².

Epidemiological criteria:

- i. In the 14 days prior to illness onset:
 - Close contact^{3,4} (refer to [Contact definition](#) below) with a confirmed or probable case
 - International or interstate travel
 - Passengers and crew who have travelled on a cruise ship
 - Healthcare, aged or residential care workers and staff with direct patient contact
 - People who have lived in or travelled through a geographically localised area with elevated risk of community transmission, as defined by public health authorities⁵
- ii. Hospitalised patients, where no other clinical focus of infection or alternate explanation of the patient's illness is evident.

Footnotes:

¹ It is recommended that temperature is measured using a tympanic, oral or other thermometer proven to consistently and accurately represent peripheral body temperature.

² Other reported symptoms of COVID-19 include: loss of smell, loss of taste, runny nose, muscle pain, joint pain, diarrhoea, nausea/vomiting and loss of appetite. Clinical and public health judgement should be used to determine if individuals with sudden and unexplained onset of one or more of these other symptoms should be considered suspect cases.

³ Testing household contacts of confirmed or probable cases of COVID-19 may not be indicated where resources are constrained. These cases would be considered 'probable cases' (refer to definition above).

⁴ In certain high risk outbreak settings, PHU may consider testing asymptomatic contacts to inform management of the outbreak. For a list of settings, refer to [high risk settings](#).

⁵ For further information on geographically localised areas with elevated risk of community transmission, refer to the [Department of Health website](#): (<https://www1.health.gov.au/internet/main/publishing.nsf/Content/cdna-song-novel-coronavirus.htm>)

Enhanced testing

The information in this section reflects the current national recommendations for SARS-CoV-2 testing beyond the suspect case definition. These recommendations will change over time based on a variety of factors, including current epidemiology and testing capacity. It is important to check relevant state and territory health department case definitions and criteria for who should be tested, as these vary according to local epidemiology and circumstances.

Testing beyond the suspect case definition should be undertaken on persons with: fever ($\geq 38^{\circ}\text{C}$)¹ or history of fever (e.g. night sweats, chills) **OR** acute respiratory infection (e.g. cough, shortness of breath, sore throat)², where no other clinical focus of infection or alternate explanation of the patient's illness is evident.

¹ It is recommended that temperature is measured using a tympanic, oral or other thermometer proven to consistently and accurately represent peripheral body temperature.

² Other reported symptoms of COVID-19 include: loss of smell, loss of taste, runny nose, muscle pain, joint pain, diarrhoea, nausea/vomiting and loss of appetite. Testing beyond the suspect case definition may, based on the clinical and public health judgement of the treating clinician, include individuals with sudden and unexplained onset of one or more of these other symptoms.

It is recognised that without any other epidemiological risk factors, the risk of persons having COVID-19 is low. Any symptomatic persons should stay home until their symptoms have resolved. If symptoms have resolved, persons tested as part of enhanced testing do not need to continue to stay home until their test result is returned. If a person receives a PCR positive test result, they are a confirmed case and must isolate until they meet the appropriate release from isolation criteria. Respiratory specimens should be collected in accordance with the appropriate guidelines, refer to [Revised advice on non-inpatient care of people with suspected or confirmed COVID-19, including use of personal protective equipment \(PPE\)](https://www.health.gov.au/resources/publications/revised-advice-on-non-inpatient-care-of-people-with-suspected-or-confirmed-covid-19-including-use-of-personal-protective-equipment-ppe):
(<https://www.health.gov.au/resources/publications/revised-advice-on-non-inpatient-care-of-people-with-suspected-or-confirmed-covid-19-including-use-of-personal-protective-equipment-ppe>)

7. Laboratory testing

Persons meeting the suspect case definition should be tested for SARS-CoV-2. Persons meeting the enhanced testing criteria should be tested for SARS-CoV-2. State and territory communicable diseases units can advise on which laboratories can provide SARS-CoV-2 testing; appropriate specimen type, collection and transport; and also facilitate contact management if indicated.

When collecting respiratory specimens, transmission-based precautions should be observed whether or not respiratory symptoms are present.

For most patients with mild illness in the community, collection of upper respiratory specimens (i.e. deep nasal and oropharyngeal swabs) is a low risk procedure and can be performed using **contact and droplet precautions**:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield), and surgical mask.
- To collect a combined deep nasal and oropharyngeal swab, stand slightly to the side of the patient to avoid exposure to respiratory secretions, should the patient cough or sneeze.
- At completion of consultation, remove personal protective equipment (PPE) and perform hand hygiene, wipe any contacted/contaminated surfaces with detergent /disinfectant.
- Note that, for droplet precautions, the room does not need to be left empty after sample collection.

If the patient has severe symptoms suggestive of pneumonia, e.g., fever and breathing difficulty, or frequent, severe or productive coughing episodes then **contact and airborne precautions** should be observed.

Patients with these symptoms should be managed in hospital, and sample collection conducted in a negative pressure room, if available. If referral to hospital for specimen collection is not possible, specimens should be collected in a room from which air does not circulate to other areas. The door should be closed during specimens collection and the room left vacant for at least 30 minutes afterwards (cleaning can be performed during this time by a person wearing PPE).

The following precautions should be observed:

- Perform hand hygiene before donning gown, gloves, eye protection (goggles or face shield) and a **P2/N95 respirator – which should be fit checked**.
- At completion of consultation, remove gown and gloves, perform hand hygiene, remove eye protection and P2/N95 respirator. Do not touch the front of any item of PPE during removal; perform hand hygiene.

- The room surfaces should be wiped clean with disinfectant wipes by a person wearing gloves, gown and surgical mask.

For further information on circumstances requiring airborne precautions, refer to [aerosol-generating procedures](#).

Routine tests for acute pneumonia/pneumonitis should be performed where indicated, including bacterial cultures, acute and convalescent serology, urinary antigen testing and nucleic acid tests for respiratory pathogens, according to local protocols.

Serology for SARS-CoV-2 is not routinely available.

Refer to [Appendix A](#) for additional SARS-CoV-2 laboratory testing information.

8. Case management

Response times

On the same day as notification of a confirmed, probable, or suspect case, begin follow up investigation and, where applicable, notify your central state or territory communicable diseases unit.

PHU staff should be available to contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners.

Response procedure

Case investigation

The response to a notification will normally be carried out in collaboration with the clinicians managing the case, and be guided by the COVID-19 PHU checklist and the COVID-19 investigation form (currently pending).

Regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend that tests be done, including repeat tests where relevant.
- Determine if the diagnosis has been discussed with the case or relevant caregiver before beginning the interview).
- Review both case and contact management.
- Commence or complete contact tracing and determine if the case has attended settings that are at higher risk for infection.
- Ensure appropriate infection control guidelines are followed in caring for the case.
- Identify the likely source of infection

Note: If interviews with suspect cases are conducted face-to-face, the person conducting the interview must have a thorough understanding of infection control practices and be competent in using appropriate PPE.

Clinical management

In the absence of pathogen-specific interventions, patient management largely depends on supportive treatment, and vigilance for and treatment of complications.

Further advice on clinical management is available from:

- [WHO](https://bit.ly/3eKZQs3): <https://bit.ly/3eKZQs3>
- [National COVID-19 Clinical Evidence Taskforce](https://covid19evidence.net.au/): (<https://covid19evidence.net.au/>)
- [Cochrane Library: Coronavirus \(COVID-19\)](https://www.cochranelibrary.com/covid-19): (<https://www.cochranelibrary.com/covid-19>)

Education

Cases should be educated about the nature of the illness, importance of isolation and infection control measures that prevent the transmission of COVID-19. PHU staff should provide a COVID-19 factsheet to cases and their household contacts.

Isolation and restriction

Depending on clinical indication, cases should either be managed in hospital, at home, or other community settings identified by the PHU. Cases may be managed at home or in a community setting only if:

- a risk assessment is conducted regarding the suitability of the accommodation and living arrangements, including who else is in the home and their vulnerability to severe disease; and
- If it can be assured that the home environment permits separation of the case from other household members; the case and household contacts are counselled about risk, and; appropriate infection control measures are in place.

Healthcare workers and others who come into contact with confirmed, probable, and suspect cases must be protected according to recommended infection control guidelines. Visitors should be restricted to close family members.

A risk assessment should be undertaken for suspect cases who initially test negative for SARS-CoV-2. If there is no alternative diagnosis and a high index of suspicion remains that such cases may have COVID-19, consideration should be given to continued isolation and use of the recommended infection control precautions, pending further testing (refer to [Laboratory testing section](#) and [Appendix A](#)) and re-assessment. Suspect cases can otherwise discontinue isolation upon receipt of a negative test result, though should stay home until symptoms have resolved. Suspect cases who are close contacts or are required to quarantine for other purposes (e.g. international travel) must continue quarantine for the remainder of the 14 day period, regardless of any negative test results. Refer to [Contact management](#) for further information.

In addition to standard precautions, including hand hygiene (5 Moments), recommendations for the use of PPE during clinical care of people with confirmed, probable, or suspected COVID-19 are:

- **Contact and droplet precautions** are recommended for **routine care** of patients with confirmed, probable, or suspected COVID-19.
- **Contact and airborne precautions** are recommended when performing **aerosol-generating procedures**. Refer to [Appendix B](#) for further information.

Other recommended infection control measures include:

- When a patient with acute respiratory symptoms, and/or who meets the suspect, probable, or confirmed case definition, presents to a healthcare setting (GP, hospital ED, or pathology collection centre), the patient should immediately be:
 - given a surgical mask to put on if acute respiratory symptoms are present, AND
 - placed in a single room with the door closed or in a physically separated closed area designated for suspected COVID-19 cases OR
 - directed to a negative pressure room if an aerosol-generating procedure is to be performed (or an isolation room with the door closed if a negative pressure room is not available).
- If a patient with confirmed or probable COVID-19 needs to be transferred out of their isolation room, the patient should wear a “surgical” mask, follow respiratory hygiene, and cough etiquette.

For more detailed guidance on the use of PPE in hospitals during the COVID-19 outbreak, refer to [Appendix B](#).

Release from isolation

The following information details the circumstances under which confirmed and probable cases can be released from necessary isolation restrictions, as well as when cases are clear to go into high risk settings. Cases can be released from isolation if they meet the appropriate criteria in either point 1, 2, or 3 – whichever is applicable. Cases can go into a high risk setting if they meet the criteria in point 4.

1. Confirmed cases who are asymptomatic.

The case can be released from isolation if at least 10 days have passed since the first positive sample was taken and no symptoms have developed during this period.

2. Confirmed or probable cases with mild illness who did not require hospitalisation.

The case can be released from isolation if they meet all of the following criteria:

- at least 10 days have passed since the onset of symptoms; and
- there has been resolution of all symptoms of the acute illness for the previous 72 hours^{1,2}

3. Confirmed or probable cases with more severe illness who have been discharged from hospital.

If the case is ready clinically for hospital discharge, but has **not** had two consecutive swabs taken at least 24 hours apart which are negative for SARS-CoV-2 by PCR, then they can be discharged to home isolation.

The case can be released from home isolation if they meet all of the following criteria:

- at least 10 days have passed since hospital discharge; and
- there has been resolution of all symptoms of the acute illness for the previous 72 hours^{1,2}

If the case, at or prior to discharge, has had two consecutive swabs taken at least 24 hours apart which are negative for SARS-CoV-2 by PCR, then the case can simultaneously be discharged and released from isolation.

4. Clinical and laboratory Criteria

Cases returning to a high risk setting (such as working in a health care setting, living in a residential age care setting or being transferred to another ward in a hospital, refer below for a list of [high risk settings](#)) can be released from isolation based on the clinical criteria above but must meet a higher standard and need additional assessment before going into the high risk setting.

Confirmed and probable cases who will be going into to a high-risk setting can go into that setting if they meet **all** the following criteria:

- be at least 10 days after the onset of the acute illness;
- the person has been afebrile for the previous 48 hours;
- resolution of the acute illness for the previous 24 hours¹;
- PCR negative on at least two consecutive respiratory specimens collected at least 24 hours apart at least 7 days after symptom onset^{3,4}

¹ Some people may have pre-existing illnesses with chronic respiratory signs or symptoms, such as chronic cough. For these people, the treating medical practitioner should make an assessment as to whether the signs and symptoms of COVID-19 have resolved. If individuals have a persistent post-viral cough with negative test results, they are eligible for release from isolation.

² If a case who meets these criteria is swabbed, then the case be released from isolation regardless of the swab test result. The current evidence from the literature and Australian public health experience suggests that these people are unlikely to be infectious.

³ If the patient has a productive cough due to a pre-existing respiratory illness or other ongoing lower respiratory tract disease, then the sputum or other lower respiratory tract specimens must be PCR negative for SARS-CoV-2. Otherwise upper respiratory tract specimens (deep nasal and oropharyngeal swabs) must be PCR negative.

⁴ A small proportion of people may have an illness that has completely resolved but their respiratory specimens remain persistently PCR positive. In these circumstances, the decision around release to a high risk setting should be made on a case by case basis after discussion between the treating medical practitioner, the testing laboratory and public health. This may include laboratory interpretation of PCR cycle threshold (Ct) values and/or viral culture where available.

Routine PCR testing post-release from isolation is not recommended unless the person develops new clinical features consistent with COVID-19.

Persons who have been released from isolation should still adhere to social distancing measures, as the extent of acquired immunity is unknown.

If a recently recovered COVID-19 case becomes a close contact of a confirmed or probable case, they do not need to self-quarantine again. However, the recovered case should not attend high-risk settings (refer to suspect case definition) until 14 days after the last unprotected contact with the confirmed case and should vigilantly self-monitor for symptoms clinically consistent with COVID-19.

If symptoms reappear, they should immediately self-isolate and be retested for SARS-CoV-2. If the recently recovered case is a household contact of a currently isolated case, particular care should be taken with regards to consistent hand hygiene. If the recently recovered case needs medical attention, they should follow the processes outlined in [Medical care for quarantined individuals](#). As further evidence becomes available on the duration of immunity, these recommendations may be amended.

Faecal sampling is not recommended as a standard test, however, it may be done for patients with gastrointestinal symptoms. For cases who do have faecal samples tested, and remain persistently PCR positive in these samples after all the release from isolation criteria (above) are met, further or extended precautions and exclusions should be implemented on a case-by-case basis:

- All cases with diarrhoea should be advised not to prepare food for others until 48 hours after symptoms have resolved.
- Cases who have employment that may pose an increased risk of onward transmission (e.g. healthcare workers, restaurant workers and food handlers), should be excluded from work until 48 hours after any symptoms of diarrhoea have resolved.
- Cases with ongoing diarrhoea or faecal incontinence who may have limited capacity to maintain standards of personal hygiene should continue to be isolated until 48 hours after the resolution of these symptoms.

Patients do not require repeat testing until they are PCR negative in faecal samples. It is recommended that people who remained persistently PCR positive in faecal samples use soap and water for hand hygiene. If this is unavailable, alcohol hand gel should be used. Education emphasising the importance of proper hand hygiene should be provided to **all** cases upon release from isolation.

High risk settings

In the context of the ***release from isolation criteria and some aspects of testing outlined in the case definition, high-risk settings*** are defined as:

- Aged care and other residential care facilities
- Healthcare settings*
- Military – group residential and other closed settings, such as Navy ships or living in accommodation
- Boarding schools and other group residential settings
- Educational settings where students are present
- Childcare centres
- Correctional facilities
- Detention centres
- Remote industrial sites with accommodation (e.g. mine sites)
- Aboriginal and Torres Strait Islander rural and remote communities, in consultation with the local PHU
- Settings where COVID-19 outbreaks are occurring, in consultation with the local PHU

* In relation to persons going into high risk settings, this includes: persons returning to work in healthcare settings; patients who will be remaining in hospital after release from isolation; and those regularly attending healthcare settings for any other purpose. Persons who need to present to an emergency department or general practice for medical consultations and treatment can do so without meeting these criteria, but should, where feasible, inform staff before arrival if they have recently been released from isolation.

Aerosol-generating procedures

Appropriate care should be taken during aerosol-generating procedures. Listed [examples of aerosol-generating procedures](#) are available in [Appendix B](#). Collection of upper respiratory specimens is not generally regarded as aerosol-generating, but airborne precautions should be used for collection of specimens from severely symptomatic patients (refer to [Laboratory testing section](#)).

P2/N95 respirators should be used only when required. Unless used correctly, i.e. with fit-checking, they are unlikely to protect against airborne pathogen spread.

Airborne precautions should be used routinely for aerosol-generating procedures, such as bronchoscopy, intubation, suctioning etc. in hospital settings. Nebuliser use should be discouraged and alternative administration devices (e.g. spacers) should be used.

The [Laboratory testing section](#) provides detailed information on sample collection for SARS-CoV-2.

Active case finding

Contacts (refer to [Contact management section](#)) should be identified and advised to immediately seek medical advice should they develop symptoms. Contacts or caregivers should be asked to also inform the public health agency if they develop symptoms.

9. Environmental evaluation

Where local transmission of COVID-19 is thought possible, a thorough review of contributing environmental factors should be done. This should include a review of infection control procedures, and opportunities for exposure to respiratory or faecal contamination.

If a case has had occupational exposure to animals it may be appropriate to consult with animal health authorities.

10. Contact management

Identification of contacts

Persons categorised as close contacts (refer to definition of “close contacts” below) of a confirmed or probable case should be followed-up, provided with information, and self-quarantine at home for 14 days following the last close contact with the case whilst infectious. Close contacts should be monitored for the development of symptoms for 14 days after the last exposure to the infectious case (i.e. the maximum incubation period) where feasible to do so.

Contacts of suspect cases should also be considered for contact management if there is likely to be a delay in confirming or excluding COVID-19 in the suspect case, such as delayed testing.

Less frequent active follow-up together with passive surveillance may be necessary if there are large numbers of close contacts to monitor.

Contacts who do not meet the close contact definition but may have had some exposure to the infectious case (e.g. workplaces) should be identified and provided information (refer to [Education](#) below), where feasible.

Close contact definition

A close contact is defined as requiring:

- face-to-face contact in any setting with a confirmed or probable case, for greater than 15 minutes cumulative over the course of a week, in the period extending from 48 hours before onset of symptoms in the confirmed or probable case, or
- sharing of a closed space with a confirmed or probable case for a prolonged period (e.g. more than 2 hours) in the period extending from 48 hours before onset of symptoms in the confirmed or probable case.

For the purposes of surveillance, a close contact includes a person meeting any of the following criteria:

- Living in the same household or household-like setting (e.g. in a boarding school or hostel) – referred to as ‘household contacts’.
- Direct contact with the body fluids or laboratory specimens of a case without recommended PPE or failure of PPE.
- A person who spent 2 hours or longer in the same room (such as a GP or ED waiting room; a school classroom; communal room in an aged care facility). Refer to [Special situations](#) for further information specific to aged care facilities and schools.
- A person in the same hospital room when an aerosol-generating procedure is undertaken on the case, without recommended PPE.
- Aircraft passengers who were seated in the same row as the case, or in the two rows in front or two rows behind a confirmed or probable COVID-19 case. Contact tracing of people who may have had close contact on long bus or train trips should also be attempted where possible, using similar seating/proximity criteria.
- For aircraft crew exposed to a confirmed or probable case, a case-by-case risk assessment should be conducted by the airline to identify which crew member(s) should be managed as close contacts. Refer to [Special situations](#) for further information.
- If an aircraft crewmember is the COVID-19 case, contact tracing efforts should concentrate on passengers seated in the area where the crewmember was working during the flight and all of the other members of the crew.
- Close contacts on cruise ships can be difficult to identify, and a case-by-case risk assessment should be conducted to identify which passengers and crew should be managed as close contacts. Refer to [Special situations](#) for further information.

Contact needs to have occurred within the period extending 48 hours before onset of symptoms in the case until the case is classified as no longer infectious (.refer to [Release from isolation](#)).

Note that:

- Healthcare workers and other contacts who have taken recommended infection control precautions, including the use of full PPE, while caring for a symptomatic confirmed or probable COVID-19 cases are not considered to be close contacts.
- Contact tracing is not required for close contacts arriving on international flights on or after 16 March 2020.

Returned traveller definition

Returned travellers are defined as those who have undertaken international travel to any country outside Australia in the last 14 days.

Contact assessment

All persons identified as having had contact with a confirmed or probable case should be assessed to see if they should be classified as a close contact and should have demographic and epidemiological data collected. Information on close contacts should be managed according to jurisdictional requirements.

All identified contacts who do not meet the close contact definition should be provided with information on their risk (refer to [Education](#) below), where feasible.

Identification and assessment of the contacts of suspect cases may be deferred pending the results of initial laboratory testing.

Close contact testing

Routine laboratory screening for COVID-19 is not recommended for asymptomatic close contacts; however, in certain high risk outbreak settings, PHU may consider testing asymptomatic contacts to inform management of the outbreak.

Prophylaxis

No specific chemoprophylaxis is available for contacts.

Education

Close contacts should be counselled about their risk and the symptoms of COVID-19 and provided with a COVID-19 factsheet. They should be advised to self-quarantine. Other contacts not defined as close contacts are not required to quarantine, but may similarly, where feasible, be counselled about their risk and the symptoms of COVID-19 and provided with a COVID-19 factsheet.

Quarantine and restriction

Close contacts

Asymptomatic close contacts should be advised to self-quarantine at home for 14 days following the last contact with the infectious case, and to monitor their health for 14 days after the last possible contact with a confirmed or probable COVID-19 case.

Where feasible to do so, PHU should conduct active daily monitoring of close contacts for symptoms for 14 days after the last possible contact with a confirmed or probable COVID-19 case.

Self-quarantined close contacts should be advised on the processes for seeking medical care. Refer to [Medical care for quarantined individuals](#).

For the purpose of contact management, swabs are **not** indicated during quarantine in well people. A medical clearance from a health care provider is not required for release from quarantine or for other purposes such as returning to work, school or university.

Returned travellers

All travellers who have returned from international travel are required to be in mandatory quarantine for 14 days after arrival in Australia. This advice for all travellers to quarantine supersedes advice for returning travellers and people transiting through various destinations early in the outbreak.

In addition, some state and territory governments have travel restrictions for persons arriving from other domestic jurisdictions. Persons may be required to quarantine for 14 days following travel to another state or territory and should check local requirements before travelling.

Quarantined returned travellers should be advised on the processes for seeking medical care, refer to [Medical care for quarantined individuals](#). All returned travellers undertaking quarantine should self-monitor for symptoms and [immediately isolate themselves from others if they become unwell](#). This advice should be followed for 14 days after returning to Australia/from interstate.

All returned travellers who have undertaken international travel in the last 14 days **who are unwell** with fever, or with respiratory symptoms (with or without fever) or other symptoms consistent with COVID-19 should be isolated and managed as per the current recommendations for suspect cases.

Social distancing

Social distancing is an effective measure, but it is recognised that it cannot be practised in all situations. The aim is to generally reduce the potential for transmission. Whilst practising social distancing, people can travel to work (including by public transport) and carry out normal duties. Social distancing outside the workplace is aimed at nonessential activities and includes:

- Avoiding crowds and mass gatherings.
- Avoiding small gatherings in enclosed spaces, for example family celebrations.
- Attempting to keep a distance of 1.5 metres between themselves and other people where possible, for example when out and about in public spaces.

Jurisdictions may have public health directions in place to ensure social distancing is occurring to further support prevention of transmission, depending on the nature of the outbreak at a point in time.

Quarantine and essential workers

Quarantined individuals who are regarded as essential workers in a [critical infrastructure industry](#) should work from their quarantine space (e.g. home, hotel) and/or implement alternate staffing arrangements wherever possible. Where this is not feasible, an individual risk assessment should be conducted in collaboration with the PHU to identify essential workers who **may** be permitted to maintain normal work patterns while in quarantine. This should only be considered in circumstances where there is risk of grave damage to Australian national interests and security if the worker is unable to work. If normal work patterns are maintained, the essential worker should vigilantly practise social distancing, hand and respiratory hygiene, and wear a mask whilst around others at work. Normal quarantine restrictions should be adhered to outside of essential work activities.

Medical care for quarantined individuals

If individuals under self-quarantine need to see a doctor for any reason (e.g. fever and respiratory symptoms or other illness/injury), they should **telephone their GP or hospital Emergency Department before presenting. Patients with severe symptoms should call 000 and make it clear they are in quarantine or isolation (or otherwise) because of COVID-19.** If the patient has **symptoms consistent with the COVID-19 [case definition](#)**, the local PHU should be consulted about the most suitable venue for clinical assessment and specimen collection. Where feasible, patients should don a surgical mask before presenting to any healthcare setting. Contact and droplet precautions are recommended for routine care of patients in quarantine.

Management of symptomatic contacts

If fever or respiratory symptoms consistent with the clinical criteria in the [suspect case definition](#) develop within the first 14 days following the last contact, the individual should be immediately isolated and managed as per the current recommendations for suspected COVID-19 cases, with urgent testing for COVID-19 undertaken in an environment that minimises the exposure of others.

Ill contacts who are being evaluated for COVID-19 can be appropriately isolated and managed at home or in other community settings identified by PHU, unless their condition is severe enough to require hospitalisation.

Symptomatic household contacts who test negative for SARS-CoV-2 by PCR should be re-tested, given the pre-test probability for COVID-19. Re-testing should occur as soon as soon as possible after a negative result is received, and if still negative, another test may be conducted on day 14 of the quarantine period. They will still need to be monitored for 14 days after their last contact with a confirmed or probable COVID-19 case.

11. Special risk settings

Healthcare workers

All healthcare workers should observe usual infection prevention and control practices in the workplace. This includes healthcare workers and other staff in any setting who have direct patient contact.

Healthcare workers with influenza-like illness should not work while they are symptomatic. They should undergo isolation and additionally be tested for SARS-CoV-2 if they meet the suspect case definition (fever OR acute respiratory illness).

Healthcare workers who are defined as close contacts should be treated as such (refer to section [6. Contact Management](#)).

In settings where the loss of the healthcare worker will have a significant impact on health services, an individual risk assessment should be conducted in collaboration with the PHU.

Quarantined healthcare worker close contacts should be advised on the processes for seeking medical care. Refer to [Medical care for quarantined individuals](#).

PHU may assist infection control units of health facilities to identify and monitor healthcare worker close contacts.

It is recognised that clinical work restrictions on close contacts who are healthcare workers may place strain on individuals and on the delivery of health services. This underlines the importance of ensuring healthcare workers implement appropriate infection control precautions when assessing and managing confirmed, probable, and suspect COVID-19 cases.

Staff (including Healthcare workers) who have direct patient contact in a hospital or residential/aged care facility.

Healthcare workers and other staff with close patient contact who work in hospitals or residential/aged care facilities should take additional precautions because they come into contact with a high caseload of potentially vulnerable patients.

Aboriginal and Torres Strait Islander Communities

CDNA will continue to monitor the emerging evidence around COVID-19 transmission risks in healthcare settings and Aboriginal and Torres Strait Islander communities and revise these recommendations as needed. For further information, refer to the [CDNA Interim National Guidance for remote Aboriginal and Torres Strait Islander communities for COVID-19](https://www.health.gov.au/resources/publications/cdna-interim-national-guidance-for-remote-aboriginal-and-torres-strait-islander-communities-for-covid-19) (<https://www.health.gov.au/resources/publications/cdna-interim-national-guidance-for-remote-aboriginal-and-torres-strait-islander-communities-for-covid-19>).

Key drivers of increased risk of transmission and severity

- **Mobility:** Aboriginal and Torres Strait Islander peoples are highly mobile, with frequent travel often linked to family and cultural connections and community events involving long distances between cities, towns, and communities. In addition, remote communities have a high flow of visitors (e.g. tourists, fly-in fly-out clinicians and other workers). This increases the risk of transmission even in generally isolated communities.
- **Remoteness:** A fifth of the Aboriginal and Torres Strait Islander population lives in remote and very remote areas. There is often reduced access health services, these are usually at capacity in normal circumstances and are often reliant on temporary staff. Limited transport options may further inhibit presentations and delay laboratory testing.
- **Barriers to access:** Unwell people may present late in disease progression for many reasons including lack of availability of services, institutional racism, and mistrust of mainstream health services.
- **Overcrowding:** Many Aboriginal and Torres Strait Islander communities have insufficient housing infrastructure, which results in people living in overcrowded conditions. This facilitates disease transmission and makes it difficult for cases and contacts to maintain social distance measures and self-quarantine.
- **Burden of disease:** Aboriginal and Torres Strait Islander people experience a burden of disease 2.3 times the rate of other Australians. This may increase the risk of severe disease from SARS-CoV-2.

Key response strategies

- **Shared decision-making and governance:** Throughout all phases, COVID-19 response work should be collaborative to ensure local community leaders are central to the response. Further risk reduction strategies and public health responses should be co-developed, and co-designed, enabling Aboriginal and Torres Strait Islander people to contribute and fully participate in shared decision-making.
- **Social and cultural determinants of health:** Public health strategies should be considered within the context of a holistic approach that prioritises the safety and well-being of individuals, families and communities while acknowledging the centrality of culture, and the addressing racism, intergenerational trauma and other social determinants of health.

- **Community control:** The Aboriginal Community Controlled Health Services (ACCHS) sector provides a comprehensive model of culturally safe care with structured support and governance systems. The network of ACCHS and peak bodies should be included in the response as a fundamental mechanism of engagement and communication.
- **Appropriate communication with the community:** Each community action plan should contain recommendations for communication within the community. These should be implemented as agreed by community-controlled organisations. Messages should be strengths-based and encompass Aboriginal ways of living, including family-centred approaches during both prevention and control phases. They should address factors that may contribute to risk such as social determinants of health, including living arrangements and accessibility to services.
- **Clinical Communication:** Public health officers should immediately alert other health services in the region and the regional town that there is a suspect case (if this is thought likely to be confirmed) or if there is a confirmed case. This should include services in other jurisdictions if there is regular travel between these communities.
- **Education of confirmed and suspect cases:** Suspect cases should be offered education on why isolation is required to protect others and how this can be done within a household as well as social and cultural support. This should be ongoing if the case is confirmed. All contacts should be provided with an explanation of COVID-19, ample opportunity to ask questions; informed about the community response plan including quarantine options and why it is important that they quarantine themselves to protect others.
- **Flexible and responsive models of care:** Consider flexible health service delivery and healthcare models (e.g. pandemic assessment centres, flexible ACCHSs clinic hours/location with additional staffing, and home visits). Consider employing the use of point of care influenza tests, where available, to help determine whether influenza is implicated in presentations in the community.
- **Isolation and quarantine:** Families should feel empowered and be part of decision-making around quarantine. This can be achieved through exploring with families what quarantine looks like, working through how it might impact on the family and their way of living, and identifying ways around it. Family members will want to visit unwell people in hospital. It should be made clear that there are other ways to be with sick family members in hospital, maintain communication with families and communities in lieu of gatherings (e.g. staying socially connected through the internet and video calling).

Aged care facilities

Aged care facilities are high-risk settings for infectious disease outbreaks. This is because there is often high density living with extensive close physical contact between staff and residents during the provision of care. Residents are at increased risk of severe illness and death due to their age and presence of co-morbid conditions. There are often many visitors, volunteers and staff moving between the community and facilities, which can promote the spread of infectious diseases.

Residents of aged care facilities who require testing for SARS-CoV-2 should be tested on site, where feasible.

Preventative measures

In addition to usual preventative protocols, aged care facilities should ensure that high rates of influenza vaccination are maintained amongst all occupants and staff. Messaging to discourage unwell visitors from visiting facilities and occupants should be reinforced, and care should be taken to ensure unwell staff and volunteers know not to present to work while symptomatic with any infectious condition. Visitors, residents and staff should be encouraged to increase their frequency of hand hygiene (with soap and water or using alcohol hand rub), surface cleaning, and to use correct cough/sneeze etiquette.

Outbreaks

The vast majority of aged care facilities should have frameworks and protocols for testing and isolation in the event of respiratory disease outbreaks.

Outbreaks of COVID-19 in residential care facilities should be managed with close reference to the [Coronavirus \(COVID-19\) guidelines for outbreaks in residential care facilities](https://www.health.gov.au/resources/publications/coronavirus-covid-19-guidelines-for-outbreaks-in-residential-care-facilities) (available at: <https://www.health.gov.au/resources/publications/coronavirus-covid-19-guidelines-for-outbreaks-in-residential-care-facilities>). The guidelines provide specific advice on the prevention, control and public health management of COVID-19 outbreaks in residential care facilities in Australia.

12. Special situations

Cruise ships

Risk assessment and identification of contacts

Cruise ships represent a high-risk setting for outbreaks of COVID-19. All persons travelling on cruise ships, regardless of whether cases of COVID-19 have occurred, should be quarantined for 14 days following disembarkation.

Hospital transfer of confirmed, probable or suspect cases

If confirmed, probable or suspect cases on board require transfer to a hospital, the Commonwealth Biosecurity Officer will notify the port authority to provide access for medical transport. The jurisdictional Human Biosecurity Officer will then coordinate transfer of the person to an appropriate medical facility for further management, via the most appropriate means that adheres to necessary precautions.

Quarantine for passengers and crew after arrival at a seaport

Any returned travellers should quarantine. Although a variety of quarantine arrangements have occurred, hotel-based quarantine is now the standard for returned international travellers, including for cruise-ship passengers and crew. It is important that appropriate PPE precautions are employed during any travel following disembarkation. Matters of quarantine should be addressed jurisdictionally.

Disembarking and embarking

After all confirmed, probable and suspect cases have been managed appropriately and the Human Biosecurity Officer has determined that no other passengers or crew have symptoms consistent with COVID-19, remaining passengers and crew will be allowed to disembark. The vessel may be permitted to commence embarking once it is certain there is no risk of ongoing transmission.

Air crew

Risk assessment and identification of contacts

Decisions regarding the contact classification of cabin crews can be difficult to determine. On an aircraft with one or more confirmed or probable cases of COVID-19, a case-by-case risk assessment should be conducted by the airline in conjunction with the PHU to identify which crew should be managed as close contacts.

Considerations for conducting a risk assessment should include:

- Proximity of crew to confirmed or probable case
- Duration of exposure to confirmed or probable case
- Size of the compartment in which the crew member and confirmed or probable case interacted
- Precautions taken, including PPE worn, when in close proximity to the confirmed or probable case

Where it has been determined that a crewmember is a close contact, the airline is responsible for notifying the relevant state/territory public health authority to facilitate management of the close contact.

Schools

The best way to prevent transmission of COVID-19 in schools is through the promotion of correct hand hygiene habits and cough/sneeze etiquette. Children or staff with respiratory symptoms should not attend school while symptomatic. If a child or staff member becomes ill with respiratory symptoms, they should be isolated from other students and sent home as soon as possible.

Contact tracing or management of school outbreaks may require temporary full or partial school closures; however, closures are not generally recommended as a reactive measure on public health grounds.

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14. Appendices

Appendix A: PHLN guidance on laboratory testing for SARS-CoV-2

Appendix B: Guidance on the use of personal protective equipment (PPE) in hospitals during the COVID-19 outbreak

Appendix A: SARS-CoV-2 Laboratory testing information

Laboratory testing for SARS-CoV-2 continues to evolve rapidly with the accumulation of clinical data, and as reagents and protocols are refined.

The aim of testing is to, if clinically appropriate, exclude common respiratory viruses using local hospital and community nucleic acid testing capacity, and to simultaneously refer onward to a laboratory with capacity to test for SARS-CoV-2. As co-infection is possible, initial testing protocols should include testing for SARS-CoV-2 in patients with epidemiological risk, even where another infection is shown to be present.

Samples for testing

- (i) upper respiratory tract samples
- (ii) lower respiratory tract sample if the lower tract is involved
- (iii) serum (to be stored pending serology availability)

Upper respiratory tract samples

1. Deep nasal and oropharyngeal swab: may be dacron or rayon, although flocked is preferred
 - oropharyngeal (throat): swab the tonsillar beds and the back of the throat, avoiding the tongue
 - deep nasal: swab the right or left nostril by gently inserting the swab along the floor of the nasal cavity parallel to the palate until resistance is encountered, and rotate gently for 10-15 seconds; then withdraw and repeat the process in the other nostril.
To conserve swabs the same swab that has been used to sample the oropharynx should be utilised for deep nasal sampling
 - place the swab(s) back into the accompanying transport medium

Sampling both sites, deep nasal and oropharynx, is recommended to optimise the chances of virus detection. The swab(s) should be placed in transport medium, which may be viral transport medium (VTM) or Liquid Amies.

If SARS-CoV-2 testing is to be undertaken in a different laboratory to testing for other respiratory viruses, then the original swab and remaining eluate should be forwarded for SARS-CoV-2 testing.

2. Nasal wash/aspirates

- collect 2-3 mL into a sterile, leak-proof, screw-top dry sterile container

A nasal wash or aspirate, if available, may be substituted for the deep nasal swab sample described above.

3. Self-collected deep nasal and oropharyngeal swab using a single swab

- Clear instructions should be provided to the patient. A self-collected combined deep nasal, oropharyngeal swab can be used that accesses the throat, and then a deep nasal swab inserted as far as comfortably possible into the depth of the nasal cavity. The process is then repeated in the second nostril. The swab is then placed into viral transport medium (VTM) or Liquid Amies.

- This broadens the use of swabs available, reduces infection risk to the health care worker providing the collection and also reduces the requirements for Personal Protective Equipment. PHLN has reviewed data that suggests this has been determined to be equivalent to combined nasal/nasopharyngeal and throat swabs in detecting coronavirus.
- To maximise control of the collection process, it is recommended that the self-collect process be undertaken with medical oversight.
- It is recommended that laboratories validate their ability to obtain equivalent viral loads and monitor positivity rates using these self-collection kits compared to other methods of collection.
- A self-collected sample should be clearly identified as such on the report.

Lower respiratory tract samples

1. Sputum

- patient should rinse his/her mouth with water before collection
- expectorate deep cough sputum directly into a sterile, leak-proof, screw-top dry sterile container

2. Bronchoalveolar lavage, tracheal aspirate, pleural fluid

- collect 2-3 mL into a sterile, leak-proof, screw-top sputum collection cup or dry sterile container

As lower respiratory tract specimens contain the highest viral loads in SARS-CoV and MERS-CoV, it is advised that lower respiratory tract specimens should be collected for SARS-CoV-2 testing where possible. Initial experience in testing for SARS-CoV-2 seems to be consistent with this prior experience. Repeat testing (especially of lower respiratory tract specimens) in clinically compatible cases should be performed if initial results are negative and there remains a high index of suspicion of infection.

Serology

Serum should be collected during the acute phase of the illness (preferably within the first 7 days of symptom onset), stored, and when serology testing becomes available tested in parallel with convalescent sera collected 3 or more weeks after acute infection. If no acute sample was collected, sera collected 14 or more days after symptom onset may be tested.

Specimen handling in the laboratory

Microbiology Laboratory

Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS 2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment. Specimens should be transported in accordance with current regulatory requirements as diagnostic samples for testing.

Point of care testing outside a PC2 facility

Diagnostic testing steps for specimens conducted outside of a PC2 facility (such as rapid respiratory testing performed at, or near, the point of care) should be assessed to determine if aerosol generation may occur, to inform which Transmission-based Precautions should be applied, to provide a barrier between the specimen and personnel during specimen manipulation. If local community transmission is established, consideration should be given to implementing airborne precautions. Staff undertaking point of care testing should be adequately trained and assessed in the appropriate use of PPE. Testing should be done in a well ventilated room, preferably with an external exhaust fan. Testing in non NATA/RCPA accredited medical pathology facilities should also adhere to the current NPAAC regulatory framework with respect to point of care tests.

Clinical Pathology

Non-respiratory specimens (blood, urine, and stool) are known to contain virus. Standard precautions should be used for non-microbial pathology testing (such as routine biochemistry and haematology). Where possible auto-analysers should be used according to standard practices and/or local protocols. There is evidence that capping and uncapping of samples is not a high risk aerosol generating procedure.

Respiratory Virus Diagnostic Testing

Nucleic acid testing of the upper or lower respiratory tract samples is performed for influenza and other common respiratory viruses using standard protocols and methods of the hospital or community laboratory.

Standard protocols of the testing laboratory for respiratory sample processing should be used. This is expected to consist of PC2 laboratory practices, and use of a Class II Biosafety cabinet for aerosol-generating procedures (such as centrifuging without sealed carriers, vortexing). Viral culture can only be undertaken in an accredited laboratory that has a PC3 facility.

The residue (original swab and remaining eluate) of the upper tract sample is forwarded together with the lower tract sample and the serum to the reference laboratory with SARS-CoV-2 testing capacity requesting SARS-CoV-2 testing.

Clinical liaison with jurisdictional public health officers is essential to coordinate referral and testing.

Standard protocols should be used for sample packaging and transport as diagnostic samples for testing (i.e. Category B).

SARS-CoV-2 specific testing

Nucleic acid testing (NAT) using real time polymerase chain reaction (RT-PCR) is the method of choice for detection of SARS-CoV-2. Specific diagnostic test approaches for SARS-CoV-2 will be described here only in broad terms. There is significant variation in PCR assays employed by different PHLN member laboratories and non PHLN laboratories performing these tests, and test algorithms are likely to be further refined over time. Commercial assays are becoming available from March 2020 and evaluation of these, or reference to another laboratory evaluation, needs to be performed prior to introduction.

[Specific Real Time PCR primer sets to detect SARS-CoV-2 are available](#). Some PHLN member laboratories have designed their own, and some have implemented primer sets recommended to the World Health Organization (WHO) by leading international coronavirus reference laboratories (available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance>). The majority of PHLN testing capacity now employs relatively swift RT-PCR assays for screening, with a laboratory turnaround time of several hours. Confirmation of positives is being done either with RT-PCR assays detecting a different target gene, or broadly reactive PCR tests with sequencing of amplicons (refer below).

Well pedigreed PCR primer sets, probes and protocols are available from the [WHO/ European Viral Archive \(EVAg\)](#) (available at https://www.who.int/docs/default-source/coronaviruse/protocol-v2-1.pdf?sfvrsn=a9ef618c_2).

Many PCR assays, including those available through WHO will also detect other zoonotic coronaviruses such as SARS-CoV, sometimes with a recognisable shift in the cycle threshold value (Ct) compared to the SARS-CoV-2 target, but not commonly circulating coronaviruses usually detected by commercial assays (e.g. NL63, 229E strains).

Several Australian PHLN reference laboratories began diagnostic testing for the current outbreak using PCR assays capable of detecting a wide range of coronaviruses, including zoonotic and novel pathogens. A number of these were mapped against the promulgated nucleic acid sequence of SARS-CoV-2 from Wuhan, China (GenBank accession MN908947, December 2019) early in the course of the outbreak. Nucleic acid sequencing of amplicons from positive tests is used to identify the coronavirus in this approach. These assays have relatively long turnaround times and have largely been replaced by RT-PCR other than as a confirmatory test in some laboratories.

Complementary DNA (cDNA) synthesized from the VIDRL SARS-CoV-2 has now been made available to all PHLN member laboratories as a test positive control. Synthetic positive control material in the form of nucleic acid templates is also available through WHO/ European Viral Archive (EVAg).

There is variable use of one or two viral targets for SARS-CoV-2 testing. Confirmatory testing using an alternative target, at least in the early stages, for positive samples, is recommended if using a single target.

Testing algorithms are likely to be revised pending further information about the virus, and the number of specimens received in the laboratory for testing.

Viral culture should not be performed for routine diagnosis, and should only be attempted in reference laboratories with appropriate experience and containment facilities. Currently where attempted this is being done at Physical Containment Level 3 (PC3), consistent with current recommendations for SARS-CoV, pending specific SARS-CoV-2 international recommendations.

The Royal College of Pathologists of Australasia Quality Assurance Program (RCPAQAP), with Australian Government support, performed the first SARS-CoV-2 specific QAP, which closed on 11th March 2020, and involved 16 public and private laboratories in all Australian states and in New Zealand. This proficiency testing program (PTP) supplemented previous SARS-CoV, MERS-CoV and other coronaviruses PTP. A second, more detailed PTP is planned to be performed by the RCPA QAP in mid-2020. The second PTP is planned for distribution to a wider range of laboratories, once testing has been extended to more laboratories.

Randox Laboratories and Quality Control for Molecular Diagnostics (QCMD) have announced a pilot EQA scheme for coronaviruses which will include inactivated SARS-CoV-2.

Further Information

The [Department of Health has produced a series of resources on COVID-19 for health professionals, including pathology providers and healthcare managers](https://www.health.gov.au/resources/collections/coronavirus-covid-19-resources-for-health-professionals-including-aged-care-providers-pathology-providers-and-healthcare-managers), these may be accessed here: (<https://www.health.gov.au/resources/collections/coronavirus-covid-19-resources-for-health-professionals-including-aged-care-providers-pathology-providers-and-healthcare-managers>)

Appendix B: Guidance on the use of personal protective equipment (PPE) in hospitals during the COVID-19 outbreak.

Background

This guidance was developed by the Infection Control Expert Group (ICEG) and endorsed by the Australian Health Protection Principal Committee (AHPPC) to provide guidance on the use of personal protective equipment (PPE) in hospital settings during the COVID-19 outbreak.

These recommendations are based on *current evidence, current status of COVID-19 in Australia*, risk assessment and expert advice. This guidance will be updated as new information becomes available.

This guidance is intended for health care workers in hospital settings including emergency department (ED), intensive care unit (ICU), operating suite, surgery, general medical and surgical wards and obstetrics.

Refer above for current [case definitions](#) and [testing criteria](#).

NOTE: For clinical care of, or procedures on, patients who are NOT suspected of having COVID-19, i.e. business as usual, the usual infection prevention and control precautions, including PPE if required, should be observed, according to clinical circumstances.

Additional COVID-19 specific precautions are not required.

CURRENT EVIDENCE

Evidence relating to transmission of COVID-19 in hospitals is of variable quality, sometimes contradictory and cannot, necessarily, be extrapolated to the Australian context. Many uncertainties remain. The following advice is based on the best available evidence and the current epidemiology of COVID-19 in Australia, where community transmission is minimal, except in limited geographic areas.

- **Asymptomatic COVID-19** is apparently not uncommon but its incidence and role in transmission are unknown
 - It can occur at all ages
 - Fairly high rates of asymptomatic infection have been reported in the context of outbreaks in closed settings (e.g. cruise ship, aged care facility) or high community prevalence (e.g. China, New York)
- **Presymptomatic transmission** is well documented but the duration of infectivity before onset of symptoms is uncertain
- Relationships between **viral RNA load, infectivity and the stage and severity** of disease are uncertain
 - The presence on viral RNA does not necessarily indicate viable/infectious virus
 - Viral RNA load is variably reported as higher in the early than later stages of disease or increasing with late clinical deterioration
- There is varying evidence and much debate about the degree, if any, of **airborne vs droplet transmission** of COVID-19 but the relevance to the type of respiratory protection required in different settings is uncertain
 - There is strong evidence that COVID-19, like most respiratory viral infections, is predominantly transmitted by droplets
 - Clinical and epidemiological evidence suggest that airborne transmission is rare, but some aerosol-generating procedures (AGPs) can increase the risk

- Some fine particle (<5 micron) aerosols are produced by infected patients, but the quantity of virus in these particles is significantly less than that in large droplets
- The transmission dynamics of COVID-19 differ from those of the few infectious diseases for which airborne transmission is recognised e.g. TB, measles and varicella

CURRENT STATUS OF COVID-19 IN AUSTRALIA

- By international standards, Australia has a high (and increasing) rate of testing and a low percentage of positive results (currently 1.6%)
- More than 60% of total cases in Australia have been acquired overseas
- The number of cases and deaths from COVID-19 in Australia are in marked contrast to that in many parts of Europe, the United Kingdom and North America
- Since the introduction of travel restrictions and social distancing measures the daily number of new infections in Australia has fallen dramatically
- Community transmission is modest and limited to a few localised sites
- The case fatality rate in Australia, overall, is <1% and the median age of death is 78.5 years
- Limited data are available about COVID-19 cases in healthcare workers. Of those for which information is available, a significant proportion were not occupationally-acquired

These data indicate that current containment measures in community and health care settings in Australia are effective if consistently observed.

General guidance on procedures performed on patients who are NOT suspected or confirmed cases of COVID-19

During the COVID-19 outbreak, PPE for the care of patients who are not suspected or confirmed cases of COVID-19 should be used in line with the *Australian Guidelines for the Prevention and Control of Infection in Healthcare (2019)*¹.

AGPs performed on non-COVID-19 patients in operating theatre, emergency department, endoscopy suite etc.

Given the relatively low prevalence of COVID-19 in Australia, standard precautions, in addition to standard operating theatre attire or personal protective equipment appropriate for the procedure, are adequate for the performance of AGPs on patients who are not suspected or confirmed cases of COVID-19. A surgical mask, theatre gown, gloves, eye protection (and head covering only if required as regular theatre attire) should typically be worn. A P2 respirator is not necessary in this context.

[Refer below for a list of AGPs.](#)

NOTE: For AGPs performed on patients who are NOT suspected or confirmed cases of COVID-19, P2 respirators are not necessary, i.e., a surgical mask is sufficient.

General guidance on procedures performed on patients who are suspected or confirmed cases of COVID-19

Management of hospital patients in whom COVID-19 is NOT suspected

¹ <https://www.nhmrc.gov.au/about-us/publications/australian-guidelines-prevention-and-control-infection-healthcare-2019#block-views-block-file-attachments-content-block-1>

PPE required for each patient encounter depends on the specific clinical circumstances, but similar principles apply to all.

Standard precautions are required for all patients regardless of known COVID-19 status. This includes hand hygiene (5 Moments) and risk assessment to determine the level of PPE required, if any.

Cough etiquette and respiratory hygiene must be observed at all times.

Physical distancing during the COVID-19 outbreak: stay at least 1.5 m away from other people including:

- patients, except when unavoidable, e.g. during physical examination/care AND
- members of the public, hospital visitors and other staff e.g. in wards, clinics and nonclinical areas e.g. during meetings, tea breaks etc.

Management of patients with acute respiratory symptoms and/or suspected or proven COVID19

- Patients with acute respiratory symptoms should be asked to wear a surgical mask upon presentation to hospital AND
- Placed in a single room with the door closed or in a physically separated closed area designated for suspected COVID-19 cases OR
- If an AGP is to be performed, the patient should be placed in a negative pressure room (or an isolation room with door closed if a negative pressure room is not available)

If transfer outside of the room is necessary, the patient should wear a surgical mask during transfer, follow respiratory hygiene, and cough etiquette.

Environmental hygiene

- In addition to routine cleaning, frequently touched surfaces should be cleaned frequently or whenever visibly soiled, with detergent/disinfectant wipes or a detergent product, using disposable or laundry safe cloth

Advice on *Environmental cleaning and disinfection for health and residential care facilities* is available on the [Department of Health website](#).

Transmission-based precautions

- **Contact and droplet precautions** should be used for the routine care of patients in quarantine/isolation or under investigation for COVID-19 or with confirmed COVID-19
 - The use of nebulisers should be avoided and alternative medication administration devices (e.g. spacers) used
- **Contact and airborne precautions** should be used when performing AGPs

NOTE: Previous advice to use airborne precautions for care of patients with severe coughing has been withdrawn because:

- viral load does not necessarily correlate with clinical condition
- coughing generates droplets, predominantly
- surgical masks used by patient, if possible, and healthcare worker provide adequate protection.

Contact and droplet precautions for use in routine care of patients with suspected or confirmed COVID-19

There is strong clinical and epidemiological evidence that the predominant mode of spread of COVID-19 is via **respiratory droplets** (produced during speaking, coughing, sneezing etc.):

- **Directly** during close face-to-face contact (within ~1.5 m) by exposure of the mucosae of mouth, nose or eyes OR
- **Indirectly** by touching surfaces or fomites contaminated by respiratory droplets and then touching the face

Use of personal protective equipment

The following PPE should be put on, in this order, before entering the patient's room:

- Long-sleeved fluid resistant gown
 - An apron is a suitable alternative in situations in which the risk of splash is low (e.g. specimens collection)
- Surgical mask (fluid resistant, level 2 or 3)
- Eye protection: face shield, wrap-around safety glasses or goggles
- Disposable non-sterile gloves when in contact with patient (use hand hygiene before donning and after removing gloves)

Use of boots or shoe covers is not recommended unless gross contamination is anticipated or required as standard attire in operating theatre or trauma room.

Long hair should be securely tied back.

A head covering is not required except as part of standard operating theatre attire or when performing a sterile/aseptic procedure (e.g. central line insertion).

Take care to avoid self-contamination, when removing PPE.

- Remove gloves without touching the outside of the glove and perform hand hygiene
- Remove gown, without touching the front of the gown, by folding it so that the external (exposed) side is inside; perform hand hygiene
- Remove eye protection and mask outside the patient's room. Do not touch the front of mask or eye covering; perform hand hygiene after each step

Unsoiled PPE can be discarded into general waste; if visibly soiled e.g. with blood or faeces, PPE should be disposed of as clinical/infectious waste. (**Note:** local jurisdictional regulations for waste disposal should be followed).

Only PPE marked as reusable should be reused after decontamination and reprocessing according to the manufacturer's instructions. All other PPE must be disposed of after use.

Contact and airborne precautions during aerosol-generating procedures in the care of patients with COVID-19

The only modification for **airborne precautions** is the use of a **particle filter (P2/N95) respirator** or equivalent instead of a surgical mask.

Principles of use of P2/N95 respirators in care of patients with suspected or confirmed COVID-19

- P2/N95 respirators should be used only in the context of patient care using airborne precautions
- Health care professionals who use P2/N95 respirators should be trained in their correct use

- Unless used correctly, protection against airborne pathogen transmission will be compromised
- The minimum standard of use of a P2/N95 respirator is **careful fit-checking** with each use
 - An airtight protective seal is difficult to achieve for people with facial hair that underlies the mask at its edges
 - Facial hair which impedes achieving a seal should be removed or an alternative respirator protection, e.g. powered air-purifying respirator (PAPR) - considered (refer below)
 - If available, a range of P2/N95 respirators may need to be fit-checked to find one that achieves a protective seal (i.e. passes fit-check)
 - If a suitable P2/N95 respirator cannot be found and alternative respirator - e.g. PAPR - should be considered
 - **Fit-testing** is recommended as the gold-standard (AS/NZS 1715:2009) for use of P2/N95 respirators, but it has not been widely applied in Australia
 - Despite increased awareness and demand, in the context of COVID-19, fit-testing of all healthcare professionals, who need to use P2/N95 respirators, will be difficult due to limited supplies and range of types/sizes available
 - **NOTE: Fit-testing does not guarantee that a respirator will not leak, particularly if a different type or size is used – this reinforces the need to fit-check with each use**

Transmission-based precautions, as outlined—including appropriate use of P2/N95 respirators—will provide high level protection of health care workers caring for patients with suspected or confirmed COVID-19.

Powered air-purifying respirators (PAPR)

- PAPRs are an alternative to P2/N95 respirators in selected circumstances:
 - A number of different types of relatively lightweight, comfortable PAPRs is available
 - PAPRs should only be used by healthcare professionals trained in their use, including safe removal with other PPE
 - PAPRs should be used according to the manufacturer's instructions
 - If a health care professional is required to remain in the patient's room continuously for a long period to perform multiple procedures e.g. more than one hour, the use of a PAPR may be considered for additional comfort and visibility
 - PAPRs designed for use in other settings outside of health care are not recommended
 - Manufacturer's instructions for reprocessing of reusable PAPR components and management of filters should strictly followed

Care is required with removal of a PAPR, which is associated with a risk of self-contamination.

Only PPE marked as reusable should be reused after decontamination and reprocessing according to the manufacturer's instructions. All other PPE must be disposed of after use.

Aerosol-generating procedures

AGPs during the care of patients with suspected or confirmed COVID-19 are associated with a risk of transmission. The following *examples* are illustrative of a range of AGPs.

Instrumentation or surgical procedures on the respiratory tract including:

- Insertion or removal of endotracheal tube
- Intentional or inadvertent disconnection/reconnection of closed ventilator circuit
- High frequency oscillatory ventilation (HFOV)
- Open oropharyngeal or tracheal suctioning
- Upper respiratory instrumentation or surgery
 - e.g. bronchoscopy, tracheotomy, ear nose throat surgery

- Surgical or post mortem procedures on respiratory tract involving high-speed devices
- Intercostal catheter insertion for relief of pneumothorax
- Thoracic surgery that involves entering the lung

Other procedures that can generate respiratory aerosols

- Manual or non-invasive ventilation (NIV);
 - Bi-level positive airway pressure ventilation (BiPAP)
 - Continuous positive airway pressure ventilation (CPAP)
- Collection of induced sputum
- High flow nasal oxygen (HFNO)
- Transoesophageal echocardiography

Cardiopulmonary resuscitation (CPR) is a special circumstance:

- Chest compression and defibrillation during resuscitation are not considered AGPs
- First responders can commence resuscitation without the need for airborne precautions while awaiting the arrival of clinicians to undertake airway manoeuvres

PPE in specific hospital settings

Intensive care unit (ICU)

- Contact and **droplet** precautions should be used for general care of COVID-19 patients in ICU e.g. a patient not requiring ventilation or AGPs
- Contact and **airborne** precautions should be used for care of COVID-19 patients in ICU requiring AGPs
 - The risk of aerosol transmission is reduced once the patient is intubated with a closed ventilator circuit
 - The use of P2/N95 respirators is recommended for AGPs, in the ICU. However, if a healthcare professional is required to remain in an ICU patient's room continuously for a long period (e.g. more than one hour) to perform multiple AGPs, the use of a PAPR may be considered, as an alternative, for greater comfort and visibility
 - ICU staff caring for patients with COVID-19 (or any other potentially serious infectious disease) should be trained in the correct use of PPE, including the use of P2/N95 respirators or PAPRs, preferably by an infection prevention and control professional or other suitably qualified personnel

Wards, including care of critically ill patients outside of the ICU setting

- Contact and **droplet** precautions should be used for care of COVID-19 patients in general wards
- Contact and **airborne** precautions should be used for care of COVID-19 patients in general wards, when performing an AGP
 - AGPs should be performed in a negative pressure room (or a standard isolation room with door closed)
 - the number of persons present in the room should be minimised

Emergency departments

- Contact and **droplet** precautions should be used for routine care of COVID-19 patients in the emergency department except when an AGP (including passage of an endotracheal tube) is required
- Contact and **airborne** precautions should be used for care of COVID-19 patients when performing an AGP
 - AGPs should be performed in a negative pressure room (or a standard isolation room with door closed)
 - the number of persons present in the room should be minimised

Operating suite

NOTE: For procedures performed on patients in an operating suite who are NOT suspected or confirmed cases of COVID-19, the usual surgical PPE for the clinical circumstances should be used, i.e., surgical mask, theatre cap, gown, gloves and eye protection.

The principles of routine infection prevention and control during elective surgery should be strictly adhered to, including avoidance of unnecessary entry and exit from the operating theatre during surgery.

The number of people in the theatre should be limited to those required for clinical or educational purposes.

- Surgical procedures for patients with suspected or confirmed COVID-19 should be performed only in an emergency

Separate guidelines are available for use of PPE by anaesthetic and surgical staff, caring patients with suspected or proven COVID-19 in the operating suite, during different types of surgery or procedures.

The same general principles apply as outlined above:

- Standard precautions apply to the care of all patients including use of PPE based on risk assessment
- **Contact** and **droplet** precautions for anaesthetic or surgical procedures not involving AGPs in patients with suspected/confirmed COVID-19
- Contact and **airborne** precautions for anaesthetic or surgical procedures involving AGPs with suspected/confirmed COVID-19

Labour ward

For care of a pregnant woman, with suspected or confirmed COVID-19, during labour:

- The woman should be asked to wear a surgical mask, if tolerated
- **Contact and droplet precautions** should be observed by labour ward staff, in addition to standard precautions
- The woman's partner **or** other support person (one only) may attend the delivery even if s/he is in quarantine, as a close contact. Precautions required to protect labour ward staff:
 - On entering the hospital, the partner/support person should: perform hand hygiene and put on surgical mask (to protect staff); in the labour ward put on a gown (to protect clothes from blood/liquor)
 - On leaving the labour ward, remove gown and perform hand hygiene; remove mask and perform hand hygiene when leaving premises
 -

Where can I get more information?

For the latest advice, information and resources go to the [Department of Health website](https://www.health.gov.au) www.health.gov.au

Call the National Coronavirus Health Information Line on 1800 020 080. The line operates 24 hours a day, seven days a week. If you require translating or interpreting services, call 131 450.

The [telephone number of your state or territory public health authority is available on the coronavirus page](https://www.health.gov.au/state-territory-contacts) at www.health.gov.au/state-territory-contacts



Coronavirus Disease 2019 (COVID-19)

CDNA National Guidelines for Public Health Units

Revision history			
Version	Date	Revised by	Changes
2.10	13 May 2020	Communicable Diseases Network Australia	Inclusion of new sections: Appendix C, Appendix D, Appendix E. Revised sections: The disease, Communications, Case definition, Laboratory testing, Case management, Contact management, Special risk settings, Special situations, Appendix A
2.9	05 May 2020	Communicable Diseases Network Australia	Revised: Case definition – clinical criteria.
2.8	01 May 2020	Communicable Diseases Network Australia	Inclusion of new sections: Summary, The disease, Surveillance, Communications, and Data management. Revised: Case definition, Laboratory testing Case management, Contact management, Special risk settings, Special situations, Appendix A, and Appendix B.
2.7	24 April 2020	Communicable Diseases Network Australia	Revised: Case definition, Case management.
2.6	17 April 2020	Communicable Diseases Network Australia	Revised: Case management, Contact management – Close contact definition.
2.5	06 April 2020	Communicable Diseases Network Australia	Revised: Case definition.
2.4	26 March 2020	Communicable Diseases Network Australia	Inclusion of advice for probable cases throughout.

2.3	24 March 2020	Communicable Diseases Network Australia	Revised: Case definition.
2.2	21 March 2020	Communicable Diseases Network Australia	Revised: Case management – Release from isolation.
2.1	20 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management, Special situations.
2.0	13 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management, Laboratory testing, Appendix A.
1.18	10 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Case management, Contact management. Inclusion of Aircrew and Schools advice in Special situations section.
1.17	05 March 2020	Communicable Diseases Network Australia	Inclusion of self-quarantine advice for returned travellers from South Korea, revised Case management, inclusion of table of contents.
1.16	04 March 2020	Communicable Diseases Network Australia	Inclusion of Aboriginal and Torres Strait Islander community advice in Special situations section.
1.15	03 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Contact management.
1.14	02 March 2020	Communicable Diseases Network Australia	Revised: Case definition, Risk stratification of countries, Contact management.
1.13	28 February 2020	Communicable Diseases Network Australia	Revised: Laboratory testing, isolation and restriction and Appendix A: laboratory testing information.
1.12	27 February 2020	Communicable Diseases Network Australia	Inclusion of Cambodia in the list of countries in the Person under investigation section.
1.11	26 February 2020	Communicable Diseases Network Australia	Inclusion of Italy in the list of countries in the Person Under Investigation section.
1.10	23 February 2020	Communicable Diseases Network Australia	Inclusion of South Korea and Iran in the list of countries in the Person Under Investigation section.
1.9	21 February 2020	Communicable Diseases Network Australia	Revised: case definition, infectious period, contact management, special situation (cruise ship). Specific changes are highlighted.
1.8	17 February 2020	Communicable Diseases Network Australia	Inclusion of statement reflecting that passengers of the Diamond Princess cruise meet the criteria for close contact.

1.7	15 February 2020	Communicable Diseases Network Australia	Revised case definition.
1.6	14 February 2020	Communicable Diseases Network Australia	Addition of Appendix B: Interim recommendations for the use of personal protective equipment (PPE) during hospital care of people with Coronavirus Disease 2019 (COVID-19). Updated nomenclature.
1.5	7 February 2020	Communicable Diseases Network Australia	Inclusion of advice on release from isolation.
1.4	6 February 2020	Communicable Diseases Network Australia	Revised case definition and added rationale. Updated infection control advice throughout.
1.3	4 February 2020	Communicable Diseases Network Australia	Revised the case definition and use of the terms 'quarantine' and 'isolation'.
1.2	2 February 2020	Communicable Diseases Network Australia	Revised the case definition, close and casual contact definitions and added self-isolation guidance.
1.1	27 January 2020	Communicable Diseases Network Australia	Removed references to Wuhan and revised the case definition.
1.0	23 January 2020	Communicable Diseases Network Australia	Developed by the 2019-nCoV Working Group.

This document summarises recommendations for surveillance, infection control, laboratory testing and contact management for coronavirus disease 2019 (COVID-19). CDNA will review and update these recommendations as required as new information becomes available on COVID-19 and the situation in Australia. These Guidelines will be updated regularly.

Readers should not rely solely on the information contained within these Guidelines. Guideline information is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a public health specialist or other health professional. Clinical judgement and discretion may be required in the interpretation and application of these guidelines.

The membership of the CDNA and the Australian Health Principal Protection Principal Committee (AHPPC), and the Australian Government as represented by the Department of Health (Health) do not warrant or represent that the information contained in these Guidelines is accurate, current or complete. The CDNA, the AHPPC and Health do not accept any legal liability or responsibility for any loss, damages, costs or expenses incurred by the use of, or reliance on, or interpretation of, the information contained in these Guidelines

Abbreviations and definitions

- COVID-19: Coronavirus disease 2019. The name of the disease caused by the virus SARS-CoV-2, as agreed by the World Health Organization, the World Organisation for Animal Health and the Food and Agriculture Organization of the United Nations. For more information, refer to the [World Health Organization Director-General's remarks](https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020):
(<https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020>)
- SARS-CoV-2: Severe acute respiratory syndrome coronavirus 2. The formal name of the coronavirus that causes COVID-19, as determined by the International Committee on Taxonomy of Viruses. Previously, this coronavirus was commonly known as 'novel coronavirus 2019 (2019-nCoV)'. For more information, refer to the [International Committee on Taxonomy of Viruses manuscript](https://www.biorxiv.org/content/10.1101/2020.02.07.937862v1.full.pdf):
(<https://www.biorxiv.org/content/10.1101/2020.02.07.937862v1.full.pdf>)

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1. Summary

Public health priority

Urgent – public health responses should be initiated as soon as possible.

Case management

All confirmed and probable cases must be isolated until they meet the appropriate [release from isolation criteria](#). Cases should only be managed at home or in other community settings if the home environment permits separation of the case from other household members and following implementation of appropriate infection control measures and risk counselling.

Hospitalised patients should be isolated in a single room, a designated COVID-19 ward or, if symptoms are severe and, where available, in a negative pressure room. Clinical staff should use contact and droplet precautions for routine care of patients with confirmed, probable or suspected COVID-19. Where staff are performing [aerosol-generating procedures](#), they should use contact and airborne precautions.

Contact management

Close contacts of confirmed and probable cases should be advised to self-quarantine for 14 days following last close contact with the case during the case's infectious period. Close contacts should be actively monitored for development of fever or respiratory symptoms during this period, where feasible.

2. The disease

Infectious agents

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is the infective agent that causes coronavirus disease 2019 (COVID-19). SARS-CoV-2 is a novel coronavirus that was first identified in humans in Wuhan, China, in December 2019. SARS-CoV-2 shares 79.6% sequence identity to SARS-CoV-1 (1).

Coronaviruses are a large family of viruses, some causing illness in people and others that circulate among animals, including camels, cats and bats. Rarely, animal coronaviruses can evolve and infect people and then spread between people. Adaption has led to outbreaks of severe acute respiratory disease due to MERS-CoV and SARS-CoV, but there are also human coronaviruses that cause more mild illness in humans, such as the coronaviruses that cause the common cold.

Reservoir

It is highly likely that the virus has come from an animal source. Genomic analysis suggests that bats appear to be the reservoir of SARS-CoV-2 virus (2), but the intermediate host has not yet been identified (3).

Mode of transmission

Human-to-human transmission of SARS-CoV-2 is via droplets and fomites from an infected person (3).

There is some evidence that COVID-19 infection may lead to intestinal infection and virus can be present in the faeces of infected persons (4). Additionally, airborne transmission of COVID-19 may occur during aerosol-generating procedures. Despite this, current evidence does not support faecal-oral or airborne spread as major drivers in transmission; however, aerosol-generating procedures should be undertaken with appropriate precautions (refer to [Aerosol-generating procedures](#)).

Estimates for the basic reproductive number (R_0) of SARS-CoV-2 range from 2–4, with R_0 for confined settings, e.g. cruise ships, at the higher end of this range. Estimates of the effective reproductive number (R_{eff}) vary from between settings and at different time points are dependent on a range of factors, including, public health interventions such as isolation, quarantine and physical distancing to limit close contact between people (5, 6).

Incubation period

Current estimates suggest a median incubation period of 5 to 6 days, with a range of 1 to 14 days (7). The advice in this guideline uses an upper range of 14 days based upon what is currently known about the incubation period for COVID-19. This advice is supported by the literature (8-10), which is informing reviews of this guideline.

Infectious period

The infectious period of COVID-19 is still being determined; however, there are multiple studies suggesting that pre-symptomatic, and possibly asymptomatic, transmission occurs (11, 12). For example, a Singaporean study of multiple case clusters identified pre-symptomatic transmission occurring 1-3 days before symptom onset (13). A recent study also found that viral loads of throat swabs were highest at the time of symptom onset and decreased quickly within 7 days. The study suggested that viral shedding may occur 2 to 3 days before symptom onset with infectiousness peaking at 0.7 days (95% CI, -0.2–2.0 days) prior to initial symptoms (14). Additionally, a Chinese study found that the viral load in an asymptomatic patient was similar to that of symptomatic patients, suggesting transmission potential of asymptomatic, or minimally symptomatic patients (15). The risk of transmission from symptomatic or pre-symptomatic cases is considered to be higher than from asymptomatic cases (16), as viral RNA shedding is higher at symptom onset (17).

As a precautionary approach, for the purposes of contact tracing, cases are considered to be infectious from 48 hours prior to onset of symptoms. Confirmed and probable cases are considered to pose a risk of onward transmission and require isolation until criteria listed in the [release from isolation section](#) have been met.

Clinical presentation and outcome

COVID-19 presents as a mild illness for approximately 80% of cases, with fever and cough being the most commonly reported symptoms. Other symptoms include headache, sore throat, fatigue, shortness of breath, myalgia, anosmia (18), dysgeusia, chills and vomiting. Preliminary evidence suggests that children experience milder clinical symptoms than adults (similar to SARS-CoV and MERS-CoV infections) (19-21). Severe or fatal outcomes occur more frequently in the elderly and those with comorbid conditions (3).

Some individuals remain asymptomatic (21, 22). Asymptomatic case rates are difficult to determine because there is no reason for asymptomatic people to seek medical attention. Some studies estimate that the asymptomatic proportion of cases ranges from 18% to 42% (23, 24).

For confirmed cases reported globally, the case fatality rate is approximately 7% (25); however, this is likely an overestimate for the Australian health setting (26). The true case fatality rate for COVID-19 is difficult to estimate due to variable case ascertainment, especially in regards to mild cases, and the impact of health systems on patient outcomes. Mortality of cases is, to a significant extent, determined by individual risk factors and healthcare quality and access. Based on surveillance data notified in Australia as of 13 May 2020, the crude national case fatality rate is 1.4% (6,975 confirmed cases/98 deaths).

Disease occurrence and public health significance

Cases of COVID-19 were initially associated with exposure to an animal wet market—located in Wuhan, Hubei Province, China - indicating a probable zoonotic source. Human-to-human transmission is well established. As of 13 May 2020, 218 countries/regions have reported cases, numerous countries/regions have reported broader community transmission, and globally there has been over 4,260,000 confirmed cases and 290,000 deaths (27, 28). The situation is rapidly evolving.

The World Health Organization (WHO) declared the outbreak of COVID-19 a Public Health Emergency of International Concern (PHEIC) on 30 January 2020 (29), and declared a pandemic on 12 March 2020 (30).

Australia has implemented measures aimed at slowing the spread of COVID-19 into and within the country, and to prepare healthcare services and laboratories for a targeted response. The [Australian Health Sector Emergency Response Plan for Novel Coronavirus \(COVID-19\)](#) provides an overview of the national approach, the operational plan and guidance for the health sector response.

'Human coronavirus with pandemic potential' was added to the [Biosecurity \(Listed Human Diseases\) Determination 2016](#) as a listed human disease on 21 January 2020, and has been listed temporarily on the National Notifiable Diseases List (NNDL) since 10 February 2020. Processes for permanent listing of COVID-19 on the NNDL are currently underway.

On 18 March 2020, the Australian Government declared a "human biosecurity emergency" under the *Biosecurity Act 2015*, given the risks COVID-19 poses to human health and the need to control its spread in Australia. The declaration was recommended by the Chief Medical Officer in his capacity as the Director of Human Biosecurity and allows the state and territory Health Ministers to issue targeted, legally enforceable directions and requirements to combat the virus as required.

3. Surveillance

There are four main objectives of surveillance for COVID-19:

1. To rapidly identify, isolate and manage cases.
2. To identify, quarantine and provide information to contacts.
3. To rapidly identify and manage clusters and outbreaks.

4. To describe the epidemiology of COVID-19 in Australia to inform public health response including:
 - o the progression of the epidemic in time, person and place,
 - o transmission dynamics,
 - o special risk groups.

4. Communications

Public Health Units (PHU) should, within one working day, notify the central state/territory communicable diseases unit of confirmed cases upon receipt of a notification/report.

As much information regarding the case's age, sex, **comorbidities**, place of residence, Indigenous status, date of onset, travel history, laboratory results, clinical status, likely place of acquisition, identification of close contacts and follow-up action taken should be included in the initial report, with additional information being followed up as soon as possible.

Central state/territory communicable diseases units will notify confirmed COVID-19 cases as soon as practicable to the Australian Government Department of Health via both transmission of data to the National Notifiable Diseases Surveillance System (NNDSS) and via email or telephone notification to the National Incident Room.

5. Data management

Initial information on confirmed and probable cases of COVID-19 should be entered onto the jurisdictional notifiable diseases database, for transmission to the NNDSS, within one working day of the notification/report. Enhanced surveillance data should be entered shortly after case follow-up

6. Case definition

The case definition is based on what is currently known about the clinical and epidemiological profile of cases of COVID-19 presenting in Australia and internationally. Health authorities are constantly monitoring the spectrum of clinical symptoms and nature of illness. Using a 14 day exposure period will cover the duration of the incubation period in the vast majority of cases.

Confirmed case

A person who:

- i. tests positive to a validated specific SARS-CoV-2 nucleic acid test;
OR
- ii. has the virus isolated in cell culture, with PCR confirmation using a validated method;
OR
- iii. undergoes a seroconversion to or has a significant rise in SARS-CoV-2 neutralising or IgG antibody level (e.g. four-fold or greater rise in titre).¹

Probable case

A person who:

- i. has not been tested, with fever ($\geq 38^{\circ}\text{C}$)² or history of fever (e.g. night sweats, chills) **OR** acute respiratory infection (e.g. cough, shortness of breath, sore throat) **AND** is a household contact (refer to [Contact definition](#) below) of a confirmed or probable³ case of COVID-19;
OR
- ii. has detection of SARS-CoV-2 neutralising or IgG antibody¹ **AND** has had a compatible clinical illness **AND** is a close contact (refer to [Contact definition](#) below) of a confirmed or probable³ case of COVID-19.

Suspect case

Clinical and public health judgement should be used to determine the need for testing in hospitalised patients and patients who do not meet the clinical or epidemiological criteria.

A person who meets the following clinical **AND** epidemiological criteria:

Clinical Criteria:

Fever ($\geq 38^{\circ}\text{C}$)² or history of fever (e.g. night sweats, chills) **OR** acute respiratory infection (e.g. cough, shortness of breath, sore throat)⁴.

Epidemiological criteria:

- i. In the 14 days prior to illness onset:
 - Close contact^{5,6} (refer to [Contact definition](#) below) with a confirmed or probable case
 - International or interstate travel
 - Passengers **or** crew who have travelled on a cruise ship
 - Healthcare, aged or residential care workers and staff with direct patient contact
 - People who have lived in or travelled through a geographically localised area with elevated risk of community transmission, as defined by public health authorities⁷
- ii. Hospitalised patients, where no other clinical focus of infection or alternate explanation of the patient's illness is evident.

Footnotes:

¹ Antibody detection must be by a validated assay and included in an external quality assurance program.

² It is recommended that temperature is measured using a tympanic, oral or other thermometer proven to consistently and accurately represent peripheral body temperature.

³ If the person is a close contact of a probable case, at least one person in the chain of transmission must be a confirmed case.

⁴ Other reported symptoms of COVID-19 include: **fatigue**, loss of smell, loss of taste, runny nose, muscle pain, joint pain, diarrhoea, nausea/vomiting and loss of appetite. Clinical and public health judgement should be used to determine if individuals with sudden and unexplained onset of one or more of these other symptoms should be considered suspect cases.

⁵ Testing household contacts of confirmed or probable cases of COVID-19 may not be indicated where resources are constrained. These cases would be considered 'probable cases' (refer to definition above).

⁶ In certain high risk outbreak settings, PHU may consider testing asymptomatic contacts to inform management of the outbreak. For a list of settings, refer to [high risk settings](#).

⁷ For further information on geographically localised areas with elevated risk of community transmission, refer to the [Department of Health website](#): (<https://www1.health.gov.au/internet/main/publishing.nsf/Content/cdna-song-novel-coronavirus.htm>)

Enhanced testing

The information in this section reflects the current national recommendations for SARS-CoV-2 testing beyond the suspect case definition. These recommendations will change over time based on a variety of factors, including current epidemiology and testing capacity. It is important to check relevant state and territory health department case definitions and criteria for who should be tested, as these vary according to local epidemiology and circumstances.

Testing beyond the suspect case definition should be undertaken on persons with: fever ($\geq 38^{\circ}\text{C}$)¹ or history of fever (e.g. night sweats, chills) **OR** acute respiratory infection (e.g. cough, shortness of breath, sore throat)², where no other clinical focus of infection or alternate explanation of the patient's illness is evident.

¹ It is recommended that temperature is measured using a tympanic, oral or other thermometer proven to consistently and accurately represent peripheral body temperature.

² Other reported symptoms of COVID-19 include: **fatigue**, loss of smell, loss of taste, runny nose, muscle pain, joint pain, diarrhoea, nausea/vomiting and loss of appetite. Testing beyond the suspect case definition may, based on the clinical and public health judgement of the treating clinician, include individuals with sudden and unexplained onset of one or more of these other symptoms.

It is recognised that without any other epidemiological risk factors, the risk of persons having COVID-19 is low. Any symptomatic persons should stay home until their symptoms have resolved. If symptoms have resolved, persons tested as part of enhanced testing do not need to continue to stay home until their test result is returned. If a person receives a PCR positive test result, they are a confirmed case and must isolate until they meet the appropriate release from isolation criteria.

Respiratory specimens should be collected in accordance with the appropriate guidelines, refer to [Coronavirus \(COVID-19\) guidance on use of personal protective equipment \(PPE\) in non-inpatient health care settings, during the COVID-19 outbreak](https://www.health.gov.au/resources/publications/coronavirus-covid-19-guidance-on-use-of-personal-protective-equipment-ppe-in-non-inpatient-health-care-settings-during-the-covid-19-outbreak)

(<https://www.health.gov.au/resources/publications/coronavirus-covid-19-guidance-on-use-of-personal-protective-equipment-ppe-in-non-inpatient-health-care-settings-during-the-covid-19-outbreak>)

To mitigate the risk of transmission through donated organs and to ensure transplantation is conducted as safely as possible, all deceased and living donors should be tested for SARS-CoV-2; ideally, recipients would also be tested. For more detailed information, refer to [Appendix E](#).

7. Laboratory testing

Persons meeting the suspect case definition should be tested for SARS-CoV-2. Persons meeting the enhanced testing criteria should be tested for SARS-CoV-2. State and territory communicable diseases units can advise on which laboratories can provide SARS-CoV-2 testing; appropriate specimen type, collection and transport; and also facilitate contact management if indicated.

In the context of specimen collection from confirmed, probable, or suspect cases in a clinic or pathology collection centre, when specimen collection is the only procedure required, the following infection prevention and control precautions apply. If clinical examination is required, full contact and droplet precautions should be observed as described in the [Coronavirus \(COVID-19\) guidance on use of personal protective equipment \(PPE\) in non-inpatient health care settings, during the COVID-19 outbreak](https://www.health.gov.au/resources/publications/coronavirus-covid-19-guidance-on-use-of-personal-protective-equipment-ppe-in-non-inpatient-health-care-settings-during-the-covid-19-outbreak)

(<https://www.health.gov.au/resources/publications/coronavirus-covid-19-guidance-on-use-of-personal-protective-equipment-ppe-in-non-inpatient-health-care-settings-during-the-covid-19-outbreak>)

Infection prevention and control precautions:

- Perform hand hygiene
- Use gloves, surgical mask and eye protection (safety glasses or face shield).
 - Gloves must be removed, and hand hygiene performed after each patient, and new gloves put on before the next one.
 - Safety glasses and face shields can be worn during consecutive patients' specimen collections in the same location.
 - If it is labelled as reusable, the face shield can be cleaned with a detergent/disinfectant wipe in between uses.
 - If surgical masks are in short supply, they can be used for periods up to 4 hours during consecutive patients' specimen collections in the same location.
 - The mask should be discarded if it becomes wet or contaminated and on leaving the room.
 - Take care not to touch the mask while it is on; if the front of the mask is touched, remove and discard it, perform hand hygiene and put on a new one.
- The need for a gown or apron is based on risk assessment:
 - A gown or apron is needed for specimen collection, only if close physical contact with a symptomatic patient or splash/spray of body substances is anticipated.
 - If worn, a gown or apron can be worn for specimen collections from consecutive patients in the same location.
 - It must be changed if it becomes visibly contaminated.
 - It must be removed when leaving the immediate area to avoid contaminating other environments.

For collection of specimens from asymptomatic members of the public being tested for surveillance purposes, standard precautions are required; additional PPE is not required. Perform hand hygiene between individual subjects.

For detailed guidance on the use of PPE in hospitals during the COVID-19 outbreak, refer to [Appendix B](#). For information on circumstances requiring airborne precautions, refer to [aerosol-generating procedures](#).

Routine tests for acute pneumonia/pneumonitis should be performed where indicated, including bacterial cultures, acute and convalescent serology, urinary antigen testing and nucleic acid tests for respiratory pathogens, according to local protocols.

Serology for SARS-CoV-2 can help identify individuals who have developed detectable antibodies as part of an immune response to the virus. Serology does not currently have a role for diagnosis during acute illness but has utility for the diagnosis of past SARS-CoV-2 infection. Collection of serum must be performed under transmission-based precautions if an individual is a suspect COVID-19 case or has proven COVID-19 infection and not yet released from isolation. Collection of serum from proven cases of COVID-19 who have been released from isolation can be performed using standard precautions.

Refer to [Appendix A](#) for additional SARS-CoV-2 laboratory testing information.

8. Case management

Response times

On the same day as notification of a confirmed, probable, or suspect case, begin follow up investigation and, where applicable, notify your central state or territory communicable diseases unit.

PHU staff should be available to contribute to the expert assessment of patients under investigation as possible cases on request from hospital clinicians or general practitioners.

Response procedure

Case investigation

The response to a notification will normally be carried out in collaboration with the clinicians managing the case, and be guided by the [COVID-19 PHU checklist \(Appendix C\)](#) and the COVID-19 investigation form (currently pending).

Regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend that tests be done, including repeat tests where relevant.
- Determine if the diagnosis has been discussed with the case or relevant caregiver before beginning the interview).
- Review both case and contact management.

- Commence or complete contact tracing and determine if the case has attended settings that are at higher risk for infection.
- Ensure appropriate infection control guidelines are followed in caring for the case.
- Identify the likely source of infection

Note: If interviews with suspect cases are conducted face-to-face, the person conducting the interview must have a thorough understanding of infection control practices and be competent in using appropriate PPE.

Clinical management

In the absence of pathogen-specific interventions, patient management largely depends on supportive treatment, and vigilance for and treatment of complications.

Further advice on clinical management is available from:

- [WHO](https://bit.ly/3eKZQs3): <https://bit.ly/3eKZQs3>
- [National COVID-19 Clinical Evidence Taskforce](https://covid19evidence.net.au/): (<https://covid19evidence.net.au/>)
- [Cochrane Library: Coronavirus \(COVID-19\)](https://www.cochranelibrary.com/covid-19): (<https://www.cochranelibrary.com/covid-19>)

Education

Cases should be educated about the nature of the illness, importance of isolation and infection control measures that prevent the transmission of COVID-19. PHU staff should provide a COVID-19 factsheet to cases and their household contacts.

Isolation and restriction

Depending on clinical indication, cases should either be managed in hospital, at home, or other community settings identified by the PHU. Cases may be managed at home or in a community setting only if:

- a risk assessment is conducted regarding the suitability of the accommodation and living arrangements, including who else is in the home and their vulnerability to severe disease; and
- If it can be assured that the home environment permits separation of the case from other household members; the case and household contacts are counselled about risk, and; appropriate infection control measures are in place.

Healthcare workers and others who come into contact with confirmed, probable, and suspect cases must be protected according to recommended infection control guidelines. Visitors should be restricted to close family members.

If a case is identified through serology, clinical and public health judgement should be used in determining case management and whether or not a case requires isolation. If the case had a clinically compatible illness some time ago, it may not be necessary to isolate and trace close contacts.

A risk assessment should be undertaken for suspect cases who initially test negative for SARS-CoV-2. If there is no alternative diagnosis and a high index of suspicion remains that such cases may have COVID-19, consideration should be given to continued isolation and use of the recommended infection control precautions, pending further testing (refer to [Laboratory testing section](#) and [Appendix A](#)) and re-assessment. Suspect cases can otherwise discontinue isolation upon receipt of a negative test result, though should stay home until symptoms have resolved. Suspect cases who are close contacts or are required to quarantine for other purposes (e.g. international travel) must continue quarantine for the remainder of the 14 day period, regardless of any negative test results. Refer to [Contact management](#) for further information.

In addition to standard precautions, including hand hygiene (5 Moments), recommendations for the use of PPE during clinical care of people with confirmed, probable, or suspected COVID-19 are:

- **Contact and droplet precautions** are recommended for **routine care** of patients with confirmed, probable, or suspected COVID-19.
- **Contact and airborne precautions** are recommended when performing **aerosol-generating procedures**. Refer to [Appendix B](#) for further information.

Other recommended infection control measures include:

- When a patient with acute respiratory symptoms, and/or who meets the suspect, probable, or confirmed case definition
 - presents to a healthcare setting (GP, hospital ED, or pathology collection centre), the patient should immediately be:
 - given a surgical mask to put on if acute respiratory symptoms are present, AND
 - placed in a single room with the door closed or in a physically separated closed area designated for suspected COVID-19 cases OR
 - directed to a negative pressure room if an aerosol-generating procedure is to be performed (or an isolation room with the door closed if a negative pressure room is not available).
 - needs to be transferred out of their isolation room, the patient should wear a “surgical” mask **and** follow respiratory hygiene and cough etiquette.

For more detailed guidance on the use of PPE in hospitals during the COVID-19 outbreak, refer to [Appendix B](#).

For detailed information on standard and transmission-based precautions, (including contact, droplet, and airborne precautions) refer to the [Australian Guidelines for the Prevention and Control of Infection in Healthcare](#) (<https://www.nhmrc.gov.au/about-us/publications/australian-guidelines-prevention-and-control-infection-healthcare-2019>).

Release from isolation

The following information details the circumstances under which confirmed and probable cases can be released from necessary isolation restrictions, as well as when cases are clear to go into high risk settings. Cases can be released from isolation if they meet the appropriate criteria in either point 1, 2, or 3 – whichever is applicable. Cases can go into a high risk setting if they meet the criteria in point 4.

1. Confirmed cases who are asymptomatic.

The case can be released from isolation if at least 10 days have passed since the first positive sample was taken and no symptoms have developed during this period.

2. Confirmed or probable cases with mild illness who did not require hospitalisation.

The case can be released from isolation if they meet all of the following criteria:

- at least 10 days have passed since the onset of symptoms; and
- there has been resolution of all symptoms of the acute illness for the previous 72 hours^{1,2}

3. Confirmed or probable cases with more severe illness who have been discharged from hospital.

If the case is ready clinically for hospital discharge, but has **not** had two consecutive swabs taken at least 24 hours apart which are negative for SARS-CoV-2 by PCR, then they can be discharged to home isolation.

The case can be released from home isolation if they meet all of the following criteria:

- at least 10 days have passed since hospital discharge; and
- there has been resolution of all symptoms of the acute illness for the previous 72 hours^{1,2}

If the case, at or prior to discharge, has had two consecutive swabs taken at least 24 hours apart which are negative for SARS-CoV-2 by PCR, then the case can simultaneously be discharged and released from isolation.

4. Release into high risk setting.

Cases returning to a high risk setting (such as working in a health care setting, living in a residential age care setting or being transferred to another ward in a hospital, see below for a list of [high risk settings](#)) can be released from isolation based on the clinical criteria above, but must meet a higher standard and need additional assessment before going into the high risk setting.

Confirmed and probable cases who will be going into to a high-risk setting can go into that setting if they meet **all** the following criteria:

- be at least 10 days after the onset of the acute illness;
- the person has been afebrile for the previous 48 hours;
- resolution of the acute illness for the previous 24 hours¹;
- PCR negative on at least two consecutive respiratory specimens collected at least 24 hours apart at least 7 days after symptom onset^{3,4}

¹ Some people may have pre-existing illnesses with chronic respiratory signs or symptoms, such as chronic cough. For these people, the treating medical practitioner should make an assessment as to whether the signs and symptoms of COVID-19 have resolved. If individuals have a persistent post-viral cough with negative test results, they are eligible for release from isolation.

² If a case who meets these criteria is additionally swabbed and tests positive, then the case can still be released from isolation based on current evidence from the literature and Australian public health experience that suggests these people are unlikely to be infectious. However, to go into a high risk setting they must meet the clinical and laboratory criteria as above in point 4.

³ If the patient has a productive cough due to a pre-existing respiratory illness or other ongoing lower respiratory tract disease, then the sputum or other lower respiratory tract specimens must be PCR negative for SARS-CoV-2. Otherwise upper respiratory tract specimens (deep nasal and oropharyngeal swabs) must be PCR negative.

⁴ A small proportion of people may have an illness that has completely resolved but their respiratory specimens remain persistently PCR positive. In these circumstances, the decision around release to a high risk setting should be made on a case by case basis after discussion between the treating medical practitioner, the testing laboratory and public health. This may include laboratory interpretation of PCR cycle threshold (Ct) values and/or viral culture where available.

Routine PCR testing post-release from isolation is not recommended unless the person develops new clinical features consistent with COVID-19.

Persons who have been released from isolation should still adhere to hygiene and physical distancing measures, as the extent of acquired immunity is unknown.

If a recently recovered COVID-19 case becomes a close contact of a confirmed or probable case, they do not need to self-quarantine again. However, the recovered case should not attend high-risk settings (refer to [suspect case definition](#)) until 14 days after the last unprotected contact with the confirmed case and should vigilantly self-monitor for symptoms clinically consistent with COVID-19. If symptoms reappear, they should immediately self-isolate and be retested for SARS-CoV-2. If the recently recovered case is a household contact of a currently isolated case, particular care should be taken with regards to consistent hand hygiene. If the recently recovered case needs medical attention, they should follow the processes outlined in [Medical care for quarantined individuals](#). As further evidence becomes available on the duration of immunity, these recommendations may be amended.

Faecal sampling is not recommended as a standard test, however, it may be done for patients with gastrointestinal symptoms. For cases who do have faecal samples tested, and remain persistently PCR positive in these samples after all the release from isolation criteria (above) are met, further or extended precautions and exclusions should be implemented on a case-by-case basis:

- All cases with diarrhoea should be advised not to prepare food for others until 48 hours after symptoms have resolved.
- Cases who have employment that may pose an increased risk of onward transmission (e.g. healthcare workers, restaurant workers and food handlers), should be excluded from work until 48 hours after any symptoms of diarrhoea have resolved.
- Cases with ongoing diarrhoea or faecal incontinence who may have limited capacity to maintain standards of personal hygiene should continue to be isolated until 48 hours after the resolution of these symptoms.

Patients do not require repeat testing until they are PCR negative in faecal samples. It is recommended that people who remained persistently PCR positive in faecal samples use soap and water for hand hygiene. If this is unavailable, alcohol hand gel should be used. Education emphasising the importance of proper hand hygiene should be provided to **all** cases upon release from isolation.

High risk settings

In the context of the ***release from isolation criteria and some aspects of testing outlined in the case definition, high-risk settings*** are defined as:

- Aged care and other residential care facilities
- Healthcare settings*
- Military – group residential and other closed settings, such as Navy ships or living in accommodation
- Boarding schools and other group residential settings
- Educational settings where students are present
- Childcare centres
- Correctional facilities
- Detention centres
- Remote industrial sites with accommodation (e.g. mine sites)
- Aboriginal and Torres Strait Islander rural and remote communities, in consultation with the local PHU
- Settings where COVID-19 outbreaks are occurring, in consultation with the local PHU

* In relation to persons going into high risk settings, this includes: persons returning to work in healthcare settings; patients who will be remaining in hospital after release from isolation; and those regularly attending healthcare settings for any other purpose. Persons who need to present to an emergency department or general practice for medical consultations and treatment can do so without meeting these criteria, but should, where feasible, inform staff before arrival if they have recently been released from isolation.

Aerosol-generating procedures

Appropriate care should be taken during aerosol-generating procedures. Listed [examples of aerosol-generating procedures](#) are available in [Appendix B](#). Collection of upper respiratory specimens is not generally regarded as aerosol-generating, but airborne precautions should be used for collection of specimens from severely symptomatic patients (refer to [Laboratory testing section](#)).

P2/N95 respirators should be used only when required. Unless used correctly, i.e. with fit-checking, they are unlikely to protect against airborne pathogen spread.

Airborne precautions should be used routinely for aerosol-generating procedures, such as bronchoscopy, intubation, suctioning etc. in hospital settings. Nebuliser use should be discouraged and alternative administration devices (e.g. spacers) should be used.

The [Laboratory testing section](#) provides detailed information on sample collection for SARS-CoV-2.

Active case finding

Contacts (refer to [Contact management section](#)) should be identified and advised to immediately seek medical advice should they develop symptoms. Contacts or caregivers should be asked to also inform the public health agency if they develop symptoms.

Definition of COVID-19 death

A death due to COVID-19 is defined for surveillance purposes as a death resulting from a clinically compatible illness, in a probable or confirmed COVID-19 case, unless there is a clear alternative cause of death that cannot be related to COVID-19 (e.g. trauma). There should be no period of complete recovery from COVID-19 between illness and death.

9. Environmental evaluation

Where local transmission of COVID-19 is thought possible, a thorough review of contributing environmental factors should be done. This should include a review of infection control procedures, and opportunities for exposure to respiratory or faecal contamination.

If a case has had occupational exposure to animals it may be appropriate to consult with animal health authorities.

10. Contact management

Identification of contacts

Persons categorised as close contacts (refer to definition of “close contacts” below) of a confirmed or probable case should be followed-up, provided with information, and self-quarantine at home for 14 days following the last close contact with the case whilst infectious. Close contacts should be monitored for the development of symptoms for 14 days after the last exposure to the infectious case (i.e. the maximum incubation period) where feasible to do so.

Contacts of suspect cases should also be considered for contact management if there is likely to be a delay in confirming or excluding COVID-19 in the suspect case, such as delayed testing.

Less frequent active follow-up together with passive surveillance may be necessary if there are large numbers of close contacts to monitor.

Contacts who do not meet the close contact definition but may have had some exposure to the infectious case (e.g. workplaces) should be identified and provided information (refer to [Education](#) below), where feasible.

Close contact definition

A close contact is defined as requiring:

- face-to-face contact in any setting with a confirmed or probable case, for greater than 15 minutes cumulative over the course of a week, in the period extending from 48 hours before onset of symptoms in the confirmed or probable case, or
- sharing of a closed space with a confirmed or probable case for a prolonged period (e.g. more than 2 hours) in the period extending from 48 hours before onset of symptoms in the confirmed or probable case.

For the purposes of surveillance, a close contact includes a person meeting any of the following criteria:

- Living in the same household or household-like setting (e.g. in a boarding school or hostel) – referred to as ‘household contacts’.
- Direct contact with the body fluids or laboratory specimens of a case without recommended PPE or failure of PPE.
- A person who spent 2 hours or longer in the same room (such as a GP or ED waiting room; a school classroom; communal room in an aged care facility). Refer to [Special situations](#) for further information specific to aged care facilities and schools.
- A person in the same hospital room when an aerosol-generating procedure is undertaken on the case, without recommended PPE.
- Aircraft passengers who were seated in the same row as the case, or in the two rows in front or two rows behind a confirmed or probable COVID-19 case. Contact tracing of people who may have had close contact on long bus or train trips should also be attempted where possible, using similar seating/proximity criteria.
- For aircraft crew exposed to a confirmed or probable case, a case-by-case risk assessment should be conducted by the airline to identify which crew member(s) should be managed as close contacts. Refer to [Special situations](#) and [Appendix D](#) for further information.
- If an aircraft crewmember is the COVID-19 case, contact tracing efforts should concentrate on passengers seated in the area where the crewmember was working during the flight and all of the other members of the crew. A case by case risk assessment should be conducted to identify which passengers and crew members should be managed as close contacts. Refer to [Special situations](#) and [Appendix D](#) for further information.
- Close contacts on cruise ships can be difficult to identify, and a case-by-case risk assessment should be conducted to identify which passengers and crew should be managed as close contacts. Refer to [Special situations](#) for further information.

Contact needs to have occurred within the period extending 48 hours before onset of symptoms in the case until the case is classified as no longer infectious (refer to [Release from isolation](#)).

Note that:

- Healthcare workers and other contacts who have taken recommended infection control precautions, including the use of full PPE, while caring for a symptomatic confirmed or probable COVID-19 cases are not considered to be close contacts.
- Contact tracing is not required for close contacts arriving on international flights on or after 16 March 2020.

Returned traveller definition

Returned travellers are defined as those who have undertaken international travel to any country outside Australia in the last 14 days.

Contact assessment

All persons identified as having had contact with a confirmed or probable case should be assessed to see if they should be classified as a close contact and should have demographic and epidemiological data collected. Information on close contacts should be managed according to jurisdictional requirements.

All identified contacts who do not meet the close contact definition should be provided with information on their risk (refer to [Education](#) below), where feasible.

Identification and assessment of the contacts of suspect cases may be deferred pending the results of initial laboratory testing.

Close contact testing

Routine laboratory screening for COVID-19 is not recommended for asymptomatic close contacts; however, in certain high risk outbreak settings, PHU may consider testing asymptomatic contacts to inform management of the outbreak.

Prophylaxis

No specific chemoprophylaxis is available for contacts.

Education

Close contacts should be counselled about their risk and the symptoms of COVID-19 and provided with a COVID-19 factsheet. They should be advised to self-quarantine. Other contacts not defined as close contacts are not required to quarantine, but may similarly, where feasible, be counselled about their risk and the symptoms of COVID-19 and provided with a COVID-19 factsheet.

Quarantine and restriction

Close contacts

Asymptomatic close contacts should be advised to self-quarantine at home for 14 days following the last contact with the infectious case, and to monitor their health for 14 days after the last possible contact with a confirmed or probable COVID-19 case.

Where feasible to do so, PHU should conduct active daily monitoring of close contacts for symptoms for 14 days after the last possible contact with a confirmed or probable COVID-19 case.

Self-quarantined close contacts should be advised on the processes for seeking medical care. Refer to [Medical care for quarantined individuals](#).

For the purpose of contact management, swabs are **not currently** indicated during quarantine in well people. A medical clearance from a health care provider is not required for release from quarantine or for other purposes such as returning to work, school or university.

Returned travellers

All travellers who have returned from international travel are required to be in mandatory quarantine for 14 days after arrival in Australia. **Returned travellers must adhere to jurisdictional quarantine requirements, which may include mandatory hotel quarantine.**

In addition, some state and territory governments have travel restrictions for persons arriving from other domestic jurisdictions. Persons may be required to quarantine for 14 days following travel to another state or territory and should check local requirements before travelling.

Quarantined returned travellers should be advised on the processes for seeking medical care, refer to [Medical care for quarantined individuals](#). All returned travellers undertaking quarantine should self-monitor for symptoms and [immediately isolate themselves from others if they become unwell](#). This advice should be followed for 14 days after returning to Australia/from interstate.

All returned travellers who have undertaken international travel in the last 14 days **who are unwell** with fever, or with respiratory symptoms (with or without fever) or other symptoms consistent with COVID-19 should be isolated and managed as per the current recommendations for suspect cases.

Physical distancing

Physical distancing is an effective measure, but it is recognised that it cannot be practised in all situations. The aim is to generally reduce the potential for transmission. Whilst practising **physical** distancing, people can travel to work (including by public transport) and carry out normal duties. **Physical** distancing outside the workplace is aimed at nonessential activities and includes:

- Avoiding crowds and mass gatherings.
- Avoiding small gatherings in enclosed spaces, for example family celebrations.
- Attempting to keep a distance of 1.5 metres between themselves and other people where possible, for example when out and about in public spaces.

Jurisdictions may have public health directions in place to ensure **physical** distancing is occurring to further support prevention of transmission, depending on the nature of the outbreak at a point in time.

Quarantine and essential workers

Quarantined individuals who are regarded as essential workers in a [critical infrastructure industry](#) should work from their quarantine space (e.g. home, hotel) and/or implement alternate staffing arrangements wherever possible. Where this is not feasible, an individual risk assessment should be conducted in collaboration with the PHU to identify essential workers who **may** be permitted to maintain normal work patterns while in quarantine. This should only be considered in circumstances where there is risk of grave damage to Australian national interests and security if the worker is unable to work. If normal work patterns are maintained, the essential worker should vigilantly practise **physical** distancing, hand and respiratory hygiene, and wear a mask whilst around others at work. Normal quarantine restrictions should be adhered to outside of essential work activities.

Medical care for quarantined individuals

If individuals under self-quarantine need to see a doctor for any reason (e.g. fever and respiratory symptoms or other illness/injury), they should **telephone their GP or hospital Emergency Department before presenting. Patients with severe symptoms should call 000 and make it clear they are in quarantine or isolation (or otherwise) because of COVID-19.** If the patient has **symptoms consistent with the COVID-19 case definition**, the local PHU should be consulted about the most suitable venue for clinical assessment and specimen collection. Where feasible, patients should don a surgical mask before presenting to any healthcare setting. Contact and droplet precautions are recommended for routine care of patients in quarantine.

Management of symptomatic contacts

If fever or respiratory symptoms consistent with the clinical criteria in the [suspect case definition](#) develop within the first 14 days following the last contact, the individual should be immediately isolated and managed as per the current recommendations for suspected COVID-19 cases, with urgent testing for COVID-19 undertaken in an environment that minimises the exposure of others.

Ill contacts who are being evaluated for COVID-19 can be appropriately isolated and managed at home or in other community settings identified by PHU, unless their condition is severe enough to require hospitalisation.

Symptomatic **close** contacts who test negative for SARS-CoV-2 by PCR should be re-tested, given the pre-test probability for COVID-19. Re-testing should occur as soon as possible after a negative result is received, and if still negative, another test may be conducted on day 14 of the quarantine period. They will still need to be monitored for 14 days after their last contact with a confirmed or probable COVID-19 case.

11. Special risk settings

Healthcare workers

All healthcare workers should observe usual infection prevention and control practices in the workplace. This includes healthcare workers and other staff in any setting who have direct patient contact.

Healthcare workers with influenza-like illness should not work while they are symptomatic. **They should be tested for SARS-CoV-2 and undergo isolation pending results.** Healthcare workers who are defined as close contacts should be treated as such (refer to section [6. Contact Management](#)).

In settings where the loss of the healthcare worker will have a significant impact on health services, an individual risk assessment should be conducted in collaboration with the PHU.

Quarantined healthcare worker close contacts should be advised on the processes for seeking medical care. Refer to [Medical care for quarantined individuals](#).

PHU may assist infection control units of health facilities to identify and monitor healthcare worker close contacts.

It is recognised that clinical work restrictions on close contacts who are healthcare workers may place strain on individuals and on the delivery of health services. This underlines the importance of ensuring healthcare workers implement appropriate infection control precautions when assessing and managing confirmed, probable, and suspect COVID-19 cases.

Staff (including Healthcare workers) who have direct patient contact in a hospital or residential/aged care facility.

Healthcare workers and other staff with close patient contact who work in hospitals or residential/aged care facilities should take additional precautions because they come into contact with a high caseload of potentially vulnerable patients.

Aboriginal and Torres Strait Islander Communities

CDNA will continue to monitor the emerging evidence around COVID-19 transmission risks in healthcare settings and Aboriginal and Torres Strait Islander communities and revise these recommendations as needed. For further information, refer to the [CDNA Interim National Guidance for remote Aboriginal and Torres Strait Islander communities for COVID-19](https://www.health.gov.au/resources/publications/cdna-interim-national-guidance-for-remote-aboriginal-and-torres-strait-islander-communities-for-covid-19) (<https://www.health.gov.au/resources/publications/cdna-interim-national-guidance-for-remote-aboriginal-and-torres-strait-islander-communities-for-covid-19>).

Key drivers of increased risk of transmission and severity

- **Mobility:** Aboriginal and Torres Strait Islander peoples are highly mobile, with frequent travel often linked to family and cultural connections and community events involving long distances between cities, towns, and communities. In addition, remote communities have a high flow of visitors (e.g. tourists, fly-in fly-out clinicians and other workers). This increases the risk of transmission even in generally isolated communities.
- **Remoteness:** A fifth of the Aboriginal and Torres Strait Islander population lives in remote and very remote areas. There is often reduced access health services, these are usually at capacity in normal circumstances and are often reliant on temporary staff. Limited transport options may further inhibit presentations and delay laboratory testing.
- **Barriers to access:** Unwell people may present late in disease progression for many reasons including lack of availability of services, institutional racism, and mistrust of mainstream health services.
- **Overcrowding:** Many Aboriginal and Torres Strait Islander communities have insufficient housing infrastructure, which results in people living in overcrowded conditions. This facilitates disease transmission and makes it difficult for cases and contacts to maintain **physical** distance measures and self-quarantine.
- **Burden of disease:** Aboriginal and Torres Strait Islander people experience a burden of disease 2.3 times the rate of other Australians. This may increase the risk of severe disease from SARS-CoV-2.

Key response strategies

- **Shared decision-making and governance:** Throughout all phases, COVID-19 response work should be collaborative to ensure local community leaders are central to the response. Further risk reduction strategies and public health responses should be co-developed, and co-designed, enabling Aboriginal and Torres Strait Islander people to contribute and fully participate in shared decision-making.
- **Social and cultural determinants of health:** Public health strategies should be considered within the context of a holistic approach that prioritises the safety and well-being of individuals, families and communities while acknowledging the centrality of culture, and the addressing racism, intergenerational trauma and other social determinants of health.
- **Community control:** The Aboriginal Community Controlled Health Services (ACCHS) sector provides a comprehensive model of culturally safe care with structured support and governance systems. The network of ACCHS and peak bodies should be included in the response as a fundamental mechanism of engagement and communication.
- **Appropriate communication with the community:** Each community action plan should contain recommendations for communication within the community. These should be implemented as agreed by community-controlled organisations. Messages should be strengths-based and encompass Aboriginal ways of living, including family-centred approaches during both prevention and control phases. They should address factors that may contribute to risk such as social determinants of health, including living arrangements and accessibility to services.

- **Clinical Communication:** Public health officers should immediately alert other health services in the region and the regional town that there is a suspect case (if this is thought likely to be confirmed) or if there is a confirmed case. This should include services in other jurisdictions if there is regular travel between these communities.
- **Education of confirmed and suspect cases:** Suspect cases should be offered education on why isolation is required to protect others and how this can be done within a household as well as social and cultural support. This should be ongoing if the case is confirmed. All contacts should be provided with an explanation of COVID-19, ample opportunity to ask questions; informed about the community response plan including quarantine options and why it is important that they quarantine themselves to protect others.
- **Flexible and responsive models of care:** Consider flexible health service delivery and healthcare models (e.g. pandemic assessment centres, flexible ACCHSs clinic hours/location with additional staffing, and home visits). Consider employing the use of point of care influenza tests, where available, to help determine whether influenza is implicated in presentations in the community.
- **Isolation and quarantine:** Families should feel empowered and be part of decision-making around quarantine. This can be achieved through exploring with families what quarantine looks like, working through how it might impact on the family and their way of living, and identifying ways around it. Family members will want to visit unwell people in hospital. It should be made clear that there are other ways to be with sick family members in hospital, maintain communication with families and communities in lieu of gatherings (e.g. staying socially connected through the internet and video calling).

Aged care facilities

Aged care facilities are high-risk settings for infectious disease outbreaks. This is because there is often high density living with extensive close physical contact between staff and residents during the provision of care. Residents are at increased risk of severe illness and death due to their age and presence of co-morbid conditions. There are often many visitors, volunteers and staff moving between the community and facilities, which can promote the spread of infectious diseases.

Residents of aged care facilities who require testing for SARS-CoV-2 should be tested on site, where feasible.

Preventative measures

In addition to usual preventative protocols, aged care facilities should ensure that high rates of influenza vaccination are maintained amongst all occupants and staff. Messaging to discourage unwell visitors from visiting facilities and occupants should be reinforced, and care should be taken to ensure unwell staff and volunteers know not to present to work while symptomatic with any infectious condition. Visitors, residents and staff should be encouraged to increase their frequency of hand hygiene (with soap and water or using alcohol hand rub), surface cleaning, and to use correct cough/sneeze etiquette.

Outbreaks

The vast majority of aged care facilities should have frameworks and protocols for testing and isolation in the event of respiratory disease outbreaks.

Outbreaks of COVID-19 in residential care facilities should be managed with close reference to the [Coronavirus \(COVID-19\) guidelines for outbreaks in residential care facilities](https://www.health.gov.au/resources/publications/coronavirus-covid-19-guidelines-for-outbreaks-in-residential-care-facilities) (available at: <https://www.health.gov.au/resources/publications/coronavirus-covid-19-guidelines-for-outbreaks-in-residential-care-facilities>). The guidelines provide specific advice on the prevention, control and public health management of COVID-19 outbreaks in residential care facilities in Australia.

Correctional and detention facilities

Correctional and detention facilities are likely to be at increased risk for significant transmission of COVID-19. This is due to high-density shared living arrangements where inmates are often located in close proximity and logistical and practical difficulties involved in implementing physical distancing. Visitors, inmates and staff moving between the facility and the community, and inmate transfers between facilities, represent potential routes of introducing infection into correctional and detention facilities.

Preventive measures

Consider zoning or cohorting of staff, inmates and essential prison services (e.g. food service, laundry, cleaning) so that if a case occurs, the number of close contacts is a fraction of the people in the facility, not everyone. Correctional and detention facilities should educate staff, inmates and visitors to inform their behaviour and promote preventive measures. Staff, inmates and visitors should be encouraged to self-screen for symptoms, practise good personal hygiene, and practise physical distancing where possible. If staff or visitors are unwell, they should not enter the facility, and facilities should consider the use of a screening tool for visitors and/or staff. If inmates are unwell with COVID-19 symptoms, SARS-CoV-2 testing should be arranged. Unwell inmates should be kept separate from others until results are available and/or symptoms have resolved. Facilities should undertake regular environmental cleaning and should ensure hygiene supplies such as soap are readily available for inmates and staff. Precautions should be taken when transferring inmates between facilities and when admitting new inmates to a facility, with screening processes in place. Early detection, testing and isolation of symptomatic inmates is essential. For more information, refer to section 3.2 of the [CDNA National Guidelines for the Prevention, Control and Public Health Management of COVID-19 Outbreaks in Correctional and Detention Facilities in Australia](#).

Outbreaks

Correctional and detention facilities may already have frameworks and protocols in place for testing and isolation in the event of a disease outbreak. Correctional and detention facilities should prepare for and manage outbreaks of COVID-19 with close reference to the [CDNA National Guidelines for the Prevention, Control and Public Health Management of COVID-19 Outbreaks in Correctional and Detention Facilities in Australia](#).

12. Special situations

Cruise ships

Risk assessment and identification of contacts

Cruise ships represent a high-risk setting for outbreaks of COVID-19. All persons travelling on cruise ships, regardless of whether cases of COVID-19 have occurred, should be quarantined for 14 days following disembarkation.

Hospital transfer of confirmed, probable or suspect cases

If confirmed, probable or suspect cases on board require transfer to a hospital, the Commonwealth Biosecurity Officer will notify the port authority to provide access for medical transport. The jurisdictional Human Biosecurity Officer will then coordinate transfer of the person to an appropriate medical facility for further management, via the most appropriate means that adheres to necessary precautions.

Quarantine for passengers and crew after arrival at a seaport

All returned travellers should quarantine. Returned international travellers, including cruise ship passengers and crew, must adhere to jurisdictional quarantine requirements. States and territories should ensure effective quarantine of returned international travellers, which may include hotel-based quarantine. Matters of quarantine should be addressed jurisdictionally. It is important that appropriate PPE precautions are employed during any travel following disembarkation.

Disembarking and embarking

After all confirmed, probable and suspect cases have been managed appropriately and the Human Biosecurity Officer has determined that no other passengers or crew have symptoms consistent with COVID-19, remaining passengers and crew will be allowed to disembark. The vessel may be permitted to commence embarking once it is certain there is no risk of ongoing transmission.

Air crew

Risk assessment and identification of contacts

Decisions regarding the contact classification of cabin crews can be difficult to determine. On an aircraft with one or more confirmed or probable cases of COVID-19, a case-by-case risk assessment should be conducted by the airline in conjunction with the PHU to identify which crew should be managed as close contacts.

Considerations for conducting a risk assessment should include:

- Proximity of crew to confirmed or probable case
- Duration of exposure to confirmed or probable case
- Size of the compartment in which the crew member and confirmed or probable case interacted
- Precautions taken, including PPE worn, when in close proximity to the confirmed or probable case

When the case is in a crew member, similar principles can be applied to identify passengers and crew who should be managed as close contacts.

Where it has been determined that a crewmember is a close contact, the airline is responsible for notifying the relevant state/territory public health authority to facilitate management of the close contact.

For further information, refer to [Appendix D: Risk assessment and identification of close contacts in aircrew](#).

Schools

The best way to prevent transmission of COVID-19 in schools is through the promotion of correct hand hygiene habits and cough/sneeze etiquette. Children or staff with respiratory symptoms should not attend school while symptomatic. If a child or staff member becomes ill with respiratory symptoms, they should be isolated from other students and sent home as soon as possible.

Contact tracing or management of school outbreaks may require temporary full or partial school closures; however, closures are not generally recommended as a reactive measure on public health grounds.

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14. Appendices

[Appendix A](#): PHLN guidance on laboratory testing for SARS-CoV-2

[Appendix B](#): Guidance on the use of personal protective equipment (PPE) in hospitals during the COVID-19 outbreak

[Appendix C](#): PHU checklist

[Appendix D](#): Risk assessment and identification of close contacts in aircrew

[Appendix E](#): Information for donor and transplant professionals

Appendix A: SARS-CoV-2 Laboratory testing information

Laboratory testing for SARS-CoV-2 continues to evolve rapidly with the accumulation of clinical data, and as reagents and protocols are refined.

The aim of testing is to, if clinically appropriate, exclude common respiratory viruses using local hospital and community nucleic acid testing capacity, and to simultaneously refer onward to a laboratory with capacity to test for SARS-CoV-2. As co-infection is possible, initial testing protocols should include testing for SARS-CoV-2 in patients with epidemiological risk, even where another infection is shown to be present.

Samples for testing

- (i) upper respiratory tract samples
- (ii) lower respiratory tract sample if the lower tract is involved
- (iii) serum (to be stored pending serology availability)

Upper respiratory tract samples

1. Deep nasal and oropharyngeal swab: may be dacron or rayon, although flocked is preferred
 - oropharyngeal (throat): swab the tonsillar beds and the back of the throat, avoiding the tongue
 - deep nasal:
 - Using a pencil grip and while gently rotating the swab, insert the tip 2–3 cm (or until resistance is met), into the nostril, parallel to the palate, to absorb mucoid secretion.
 - Rotate the swab several times against the nasal wall.
 - Withdraw the swab and repeat the process in the other nostril. To conserve swabs the same swab that has been used to sample the oropharynx should be utilised for nasal sampling.
 - place the swab(s) back into the accompanying transport medium

Sampling both sites, deep nasal and oropharynx, is recommended to optimise the chances of virus detection. The swab(s) should be placed in transport medium, which may be viral transport medium (VTM) or Liquid Amies.

If SARS-CoV-2 testing is to be undertaken in a different laboratory to testing for other respiratory viruses, then the original swab and remaining eluate should be forwarded for SARS-CoV-2 testing.

2. Nasal wash/aspirates

- collect 2-3 mL into a sterile, leak-proof, screw-top dry sterile container

A nasal wash or aspirate, if available, may be substituted for the deep nasal swab sample described above.

3. Self-collected deep nasal and oropharyngeal swab using a single swab

- Clear instructions should be provided to the patient. A self-collected combined deep nasal, oropharyngeal swab can be used that accesses the throat, and then a deep nasal swab inserted as far as comfortably possible into the depth of the nasal cavity. The process is then repeated in the second nostril. The swab is then placed into viral transport medium (VTM) or Liquid Amies.

- This broadens the use of swabs available, reduces infection risk to the health care worker providing the collection and also reduces the requirements for Personal Protective Equipment. PHLN has reviewed data that suggests this has been determined to be equivalent to combined nasal/nasopharyngeal and throat swabs in detecting coronavirus.
- To maximise control of the collection process, it is recommended that the self-collect process be undertaken with medical oversight.
- It is recommended that laboratories validate their ability to obtain equivalent viral loads and monitor positivity rates using these self-collection kits compared to other methods of collection.
- A self-collected sample should be clearly identified as such on the report.

Lower respiratory tract samples

1. Sputum

- patient should rinse his/her mouth with water before collection
- expectorate deep cough sputum directly into a sterile, leak-proof, screw-top dry sterile container

2. Bronchoalveolar lavage, tracheal aspirate, pleural fluid

- collect 2-3 mL into a sterile, leak-proof, screw-top sputum collection cup or dry sterile container

As lower respiratory tract specimens contain the highest viral loads in SARS-CoV and MERS-CoV, it is advised that lower respiratory tract specimens should be collected for SARS-CoV-2 testing where possible. Initial experience in testing for SARS-CoV-2 seems to be consistent with this prior experience. Repeat testing (especially of lower respiratory tract specimens) in clinically compatible cases should be performed if initial results are negative and there remains a high index of suspicion of infection.

Serology

Serum should be collected during the acute phase of the illness (preferably within the first 7 days of symptom onset), stored, and tested in parallel with convalescent sera collected 2 or more weeks after the onset of illness. If no acute sample was collected, sera collected 14 or more days after symptom onset may be tested.

Specimen handling in the laboratory

Microbiology Laboratory

Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS 2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment. Specimens should be transported in accordance with current regulatory requirements as diagnostic samples for testing.

Point of care testing outside a PC2 facility

PHLN members considered the guidance from [WHO on laboratory biosafety](https://www.who.int/publications-detail/laboratory-biosafety-guidance-related-to-coronavirus-disease-2019-(covid-19)) at ([https://www.who.int/publications-detail/laboratory-biosafety-guidance-related-to-coronavirus-disease-2019-\(covid-19\)](https://www.who.int/publications-detail/laboratory-biosafety-guidance-related-to-coronavirus-disease-2019-(covid-19))) and notes the highlighted recommendations which refer to laboratory-based work:

- All procedures must be performed based on risk assessment and only by personnel with demonstrated capability, in strict observance of any relevant protocols at all times.

Diagnostic testing steps for specimens conducted outside of a PC2 facility (such as rapid respiratory testing performed at, or near, the point of care) should be assessed to determine if aerosol generation may occur, to inform which Transmission-based Precautions should be applied, to provide a barrier between the specimen and personnel during specimen manipulation. If local community transmission is established, consideration should be given to implementing airborne precautions. Staff undertaking point of care testing should be adequately trained and assessed in the appropriate use of PPE. Testing should be done in a well ventilated room, preferably with an external exhaust fan. Testing in non NATA/RCPA accredited medical pathology facilities should also adhere to the current NPAAC regulatory framework with respect to point of care tests.

Clinical Pathology

Non-respiratory specimens (blood, urine, and stool) are known to contain virus. Standard precautions should be used for non-microbial pathology testing (such as routine biochemistry and haematology). Where possible auto-analysers should be used according to standard practices and/or local protocols. There is evidence that capping and uncapping of samples is not a high risk aerosol generating procedure.

Respiratory Virus Diagnostic Testing

Nucleic acid testing of the upper or lower respiratory tract samples is performed for influenza and other common respiratory viruses using standard protocols and methods of the hospital or community laboratory.

Standard protocols of the testing laboratory for respiratory sample processing should be used. This is expected to consist of PC2 laboratory practices, and use of a Class II Biosafety cabinet for aerosol-generating procedures (such as centrifuging without sealed carriers, vortexing). Viral culture can only be undertaken in an accredited laboratory that has a PC3 facility.

The residue (original swab and remaining eluate) of the upper tract sample is forwarded together with the lower tract sample and the serum to the reference laboratory with SARS-CoV-2 testing capacity requesting SARS-CoV-2 testing.

Clinical liaison with jurisdictional public health officers is essential to coordinate referral and testing.

Standard protocols should be used for sample packaging and transport as diagnostic samples for testing (i.e. Category B).

SARS-CoV-2 specific testing

Nucleic acid testing

Nucleic acid testing (NAT) using real time polymerase chain reaction (RT-PCR) is the method of choice for detection of SARS-CoV-2. Specific diagnostic test approaches for SARS-CoV-2 will be described here only in broad terms. There is significant variation in PCR assays employed by different PHLN member laboratories and non PHLN laboratories performing these tests, and test algorithms are likely to be further refined over time. Commercial assays are becoming available from March 2020 and evaluation of these, or reference to another laboratory evaluation, needs to be performed prior to introduction.

[Specific Real Time PCR primer sets to detect SARS-CoV-2 are available](#). Some PHLN member laboratories have designed their own, and some have implemented primer sets recommended to the [World Health Organization \(WHO\) by leading international coronavirus reference laboratories](#) (available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance>). The majority of PHLN testing capacity now employs relatively swift RT-PCR assays for screening, with a laboratory turnaround time of several hours. Confirmation of positives is being done either with RT-PCR assays detecting a different target gene, or broadly reactive PCR tests with sequencing of amplicons (see below).

Well pedigreed PCR primer sets, probes and protocols are available from the [WHO/ European Viral Archive \(EVAg\)](#) (available at https://www.who.int/docs/default-source/coronaviruse/protocol-v2-1.pdf?sfvrsn=a9ef618c_2).

Many PCR assays, including those available through WHO will also detect other zoonotic coronaviruses such as SARS-CoV, sometimes with a recognisable shift in the cycle threshold value (Ct) compared to the SARS-CoV-2 target, but not commonly circulating coronaviruses usually detected by commercial assays (e.g. NL63, 229E strains).

Several Australian PHLN reference laboratories began diagnostic testing for the current outbreak using PCR assays capable of detecting a wide range of coronaviruses, including zoonotic and novel pathogens. A number of these were mapped against the promulgated nucleic acid sequence of SARS-CoV-2 from Wuhan, China (GenBank accession MN908947, December 2019) early in the course of the outbreak. Nucleic acid sequencing of amplicons from positive tests is used to identify the coronavirus in this approach. These assays have relatively long turnaround times and have largely been replaced by RT-PCR other than as a confirmatory test in some laboratories.

Complementary DNA (cDNA) synthesized from the VIDRL SARS-CoV-2 has now been made available to all PHLN member laboratories as a test positive control. Synthetic positive control material in the form of nucleic acid templates is also available through WHO/ European Viral Archive (EVAg).

There is variable use of one or two viral targets for SARS-CoV-2 testing. Confirmatory testing using an alternative target, at least in the early stages, for positive samples, is recommended if using a single target.

Testing algorithms are likely to be revised pending further information about the virus, and the number of specimens received in the laboratory for testing.

Viral culture should not be performed for routine diagnosis, and should only be attempted in reference laboratories with appropriate experience and containment facilities. Currently where attempted this is being done at Physical Containment Level 3 (PC3), consistent with current recommendations for SARS-CoV, pending specific SARS-CoV-2 international recommendations.

The Royal College of Pathologists of Australasia Quality Assurance Program (RCPAQAP), with Australian Government support, performed the first SARS-CoV-2 specific QAP, which closed on 11th March 2020, and involved 16 public and private laboratories in all Australian states and in New Zealand. This proficiency testing program (PTP) supplemented previous SARS-CoV, MERS-CoV and other coronaviruses PTP. A second, more detailed PTP is planned to be performed by the RCPA QAP in mid-2020. The second PTP is planned for distribution to a wider range of laboratories, once testing has been extended to more laboratories.

Randox Laboratories and Quality Control for Molecular Diagnostics (QCMD) have announced a pilot EQA scheme for coronaviruses which will include inactivated SARS-CoV-2.

Serology

Serology does not currently have a role in the diagnosis of COVID-19 during the acute illness but can be helpful for the diagnosis of past cases, such as for public health follow up of suspected cases who either did not undergo NAT during the acute illness or were NAT negative. Serology will also be important for broad-based surveillance, vaccine efficacy and research activities.

Serology for the determination of past COVID-19 is performed using either in-house methodology or commercially manufactured kits. The SARS-CoV-2 antigens are the four structural proteins: the spike, membrane, envelope and nucleocapsid proteins. Antibody tests to date have used either whole virion or the complete or certain domains of the spike protein and the nucleocapsid protein. The nucleoprotein is the most abundant viral protein whereas the spike protein is the most diverse across the coronaviruses, and therefore the most specific for SARS-CoV-2. The temporal pattern of antibody expression has not been fully elucidated and the persistence of the antibody isotypes is currently unknown. Early evidence suggests that IgM, IgA, IgG and neutralising antibodies become detectable between one and two weeks after illness onset in the majority of cases but some NAT-confirmed COVID-19 cases have not shown seroconversion.

It is recommended that antibody detection be performed using a validated assay meeting acceptable and documented performance standards. Laboratory-based antibody assays available or in development include neutralization assays, enzyme-linked immunosorbent assays, microsphere immunoassays and immunofluorescence assays. A number of point-of-care serological tests have been approved by the Therapeutic Goods Administration subject to conditions, including restrictions on who can obtain them. See '*Public Health Laboratory Network Statement on Point-of-Care Serology Testing for SARS-CoV-2 (the virus that causes COVID-19)*' for more information. No SARS-CoV-2 western blot assay or SARS-CoV-2 antigen test is currently available.

A seroconversion, or significant rise (e.g. four-fold or greater titre rise) in either neutralising or IgG antibody level is definitive laboratory evidence of SARS-CoV-2 infection whereas detection of neutralising or IgG antibody in a single specimen from a person meeting clinical criteria for COVID-19 is suggestive evidence of SARS-CoV-2 infection. The role of serology for the diagnosis of COVID-19 will be reviewed as more information on the serological response to SARS-CoV-2 becomes available.

The role of serology in determining immunity to SARS-CoV-2 is currently unclear. The development of neutralising antibodies to the spike protein, the virus receptor responsible for host cell entry, has been shown but the correlation of antibodies detected using different methods with virus neutralisation is not known. Further, more studies are needed to determine whether the development of neutralising antibodies to SARS-CoV-2 is indicative of protection from reinfection.

Further Information

The [Department of Health has produced a series of resources on COVID-19 for health professionals, including pathology providers and healthcare managers](https://www.health.gov.au/resources/collections/coronavirus-covid-19-resources-for-health-professionals-including-pathology-providers-and-healthcare-managers), these may be accessed here: (<https://www.health.gov.au/resources/collections/coronavirus-covid-19-resources-for-health-professionals-including-aged-care-providers-pathology-providers-and-healthcare-managers>)

Appendix B: Guidance on the use of personal protective equipment (PPE) in hospitals during the COVID-19 outbreak.

Background

This guidance was developed by the Infection Control Expert Group (ICEG) and endorsed by the Australian Health Protection Principal Committee (AHPPC) to provide guidance on the use of personal protective equipment (PPE) in hospital settings during the COVID-19 outbreak.

These recommendations are based on *current evidence, current status of COVID-19 in Australia*, risk assessment and expert advice. This guidance will be updated as new information becomes available.

This guidance is intended for health care workers in hospital settings including emergency department (ED), intensive care unit (ICU), operating suite, surgery, general medical and surgical wards and obstetrics.

Refer to above for current [case definitions](#) and [testing criteria](#).

NOTE: For clinical care of, or procedures on, patients who are NOT suspected of having COVID-19, i.e. business as usual, the usual infection prevention and control precautions, including PPE if required, should be observed, according to clinical circumstances.

Additional COVID-19 specific precautions are not required.

CURRENT EVIDENCE

Evidence relating to transmission of COVID-19 in hospitals is of variable quality, sometimes contradictory and cannot, necessarily, be extrapolated to the Australian context. Many uncertainties remain. The following advice is based on the best available evidence and the current epidemiology of COVID-19 in Australia, where community transmission is minimal, except in limited geographic areas.

- **Asymptomatic COVID-19** is apparently not uncommon but its incidence and role in transmission are unknown
 - It can occur at all ages
 - Fairly high rates of asymptomatic infection have been reported in the context of outbreaks in closed settings (e.g. cruise ship, aged care facility) or high community prevalence (e.g. China, New York)
- **Presymptomatic transmission** is well documented but the duration of infectivity before onset of symptoms is uncertain
- Relationships between **viral RNA load, infectivity and the stage and severity** of disease are uncertain
 - The presence on viral RNA does not necessarily indicate viable/infectious virus
 - Viral RNA load is variably reported as higher in the early than later stages of disease or increasing with late clinical deterioration
- There is varying evidence and much debate about the degree, if any, of **airborne vs droplet transmission** of COVID-19 but the relevance to the type of respiratory protection required in different settings is uncertain
 - There is strong evidence that COVID-19, like most respiratory viral infections, is predominantly transmitted by droplets
 - Clinical and epidemiological evidence suggest that airborne transmission is rare, but some aerosol-generating procedures (AGPs) can increase the risk
 - Some fine particle (<5 micron) aerosols are produced by infected patients, but the quantity of virus in these particles is significantly less than that in large droplets

- The transmission dynamics of COVID-19 differ from those of the few infectious diseases for which airborne transmission is recognised e.g. TB, measles and varicella

CURRENT STATUS OF COVID-19 IN AUSTRALIA

- By international standards, Australia has a high (and increasing) rate of testing and a low percentage of positive results (currently 1.6%)
- More than 60% of total cases in Australia have been acquired overseas
- The number of cases and deaths from COVID-19 in Australia are in marked contrast to that in many parts of Europe, the United Kingdom and North America
- Since the introduction of travel restrictions and **physical** distancing measures the daily number of new infections in Australia has fallen dramatically
- Community transmission is modest and limited to a few localised sites
- The case fatality rate in Australia, overall, is <1% and the median age of death is 78.5 years
- Limited data are available about COVID-19 cases in healthcare workers. Of those for which information is available, a significant proportion were not occupationally-acquired

These data indicate that current containment measures in community and health care settings in Australia are effective if consistently observed.

General guidance on procedures performed on patients who are NOT suspected or confirmed cases of COVID-19

During the COVID-19 outbreak, PPE for the care of patients who are not suspected or confirmed cases of COVID-19 should be used in line with the *Australian Guidelines for the Prevention and Control of Infection in Healthcare (2019)*¹.

AGPs performed on non-COVID-19 patients in operating theatre, emergency department, endoscopy suite etc.

Given the relatively low prevalence of COVID-19 in Australia, standard precautions, in addition to standard operating theatre attire or personal protective equipment appropriate for the procedure, are adequate for the performance of AGPs on patients who are not suspected or confirmed cases of COVID-19. A surgical mask, theatre gown, gloves, eye protection (and head covering only if required as regular theatre attire) should typically be worn. A P2 respirator is not necessary in this context.

[See below for a list of AGPs.](#)

NOTE: For AGPs performed on patients who are NOT suspected or confirmed cases of COVID-19, P2 respirators are not necessary, i.e., a surgical mask is sufficient.

General guidance on procedures performed on patients who are suspected or confirmed cases of COVID-19

Management of hospital patients in whom COVID-19 is NOT suspected

PPE required for each patient encounter depends on the specific clinical circumstances, but similar principles apply to all.

¹ <https://www.nhmrc.gov.au/about-us/publications/australian-guidelines-prevention-and-control-infection-healthcare-2019#block-views-block-file-attachments-content-block-1>

Standard precautions are required for all patients regardless of known COVID-19 status. This includes hand hygiene (5 Moments) and risk assessment to determine the level of PPE required, if any.

Cough etiquette and respiratory hygiene must be observed at all times.

Physical distancing during the COVID-19 outbreak: stay at least 1.5 m away from other people including:

- patients, except when unavoidable, e.g. during physical examination/care AND
- members of the public, hospital visitors and other staff e.g. in wards, clinics and nonclinical areas e.g. during meetings, tea breaks etc.

Management of patients with acute respiratory symptoms and/or suspected or proven COVID19

- Patients with acute respiratory symptoms should be asked to wear a surgical mask upon presentation to hospital AND
- Placed in a single room with the door closed or in a physically separated closed area designated for suspected COVID-19 cases OR
- If an AGP is to be performed, the patient should be placed in a negative pressure room (or an isolation room with door closed if a negative pressure room is not available)

If transfer outside of the room is necessary, the patient should wear a surgical mask during transfer, follow respiratory hygiene, and cough etiquette.

Environmental hygiene

- In addition to routine cleaning, frequently touched surfaces should be cleaned frequently or whenever visibly soiled, with detergent/disinfectant wipes or a detergent product, using disposable or laundry safe cloth

Advice on *Environmental cleaning and disinfection for health and residential care facilities* is available on the [Department of Health website](#).

Transmission-based precautions

- **Contact and droplet precautions** should be used for the routine care of patients in quarantine/isolation or under investigation for COVID-19 or with confirmed COVID-19
 - The use of nebulisers should be avoided and alternative medication administration devices (e.g. spacers) used
- **Contact and airborne precautions** should be used when performing AGPs

NOTE: Previous advice to use airborne precautions for care of patients with severe coughing has been withdrawn because:

- viral load does not necessarily correlate with clinical condition
- coughing generates droplets, predominantly
- surgical masks used by patient, if possible, and healthcare worker provide adequate protection.

Contact and droplet precautions for use in routine care of patients with suspected or confirmed COVID-19

There is strong clinical and epidemiological evidence that the predominant mode of spread of COVID-19 is via **respiratory droplets** (produced during speaking, coughing, sneezing etc.):

- **Directly** during close face-to-face contact (within ~1.5 m) by exposure of the mucosae of mouth, nose or eyes OR
- **Indirectly** by touching surfaces or fomites contaminated by respiratory droplets and then touching the face

Use of personal protective equipment

The following PPE should be put on, in this order, before entering the patient's room:

- Long-sleeved fluid resistant gown
 - An apron is a suitable alternative in situations in which the risk of splash is low (e.g. specimens collection)
- Surgical mask (fluid resistant, level 2 or 3)
- Eye protection: face shield, wrap-around safety glasses or goggles
- Disposable non-sterile gloves when in contact with patient (use hand hygiene before donning and after removing gloves)

Use of boots or shoe covers is not recommended unless gross contamination is anticipated or required as standard attire in operating theatre or trauma room.

Long hair should be securely tied back.

A head covering is not required except as part of standard operating theatre attire or when performing a sterile/aseptic procedure (e.g. central line insertion).

Take care to avoid self-contamination, when removing PPE.

- Remove gloves without touching the outside of the glove and perform hand hygiene
- Remove gown, without touching the front of the gown, by folding it so that the external (exposed) side is inside; perform hand hygiene
- Remove eye protection and mask outside the patient's room. Do not touch the front of mask or eye covering; perform hand hygiene after each step

Unsoiled PPE can be discarded into general waste; if visibly soiled e.g. with blood or faeces, PPE should be disposed of as clinical/infectious waste. (**Note:** local jurisdictional regulations for waste disposal should be followed).

Only PPE marked as reusable should be reused after decontamination and reprocessing according to the manufacturer's instructions. All other PPE must be disposed of after use.

Contact and airborne precautions during aerosol-generating procedures in the care of patients with COVID-19

The only modification for **airborne precautions** is the use of a **particle filter (P2/N95) respirator** or equivalent instead of a surgical mask.

Principles of use of P2/N95 respirators in care of patients with suspected or confirmed COVID-19

- P2/N95 respirators should be used only in the context of patient care using airborne precautions
- Health care professionals who use P2/N95 respirators should be trained in their correct use

- Unless used correctly, protection against airborne pathogen transmission will be compromised
- The minimum standard of use of a P2/N95 respirator is **careful fit-checking** with each use
 - An airtight protective seal is difficult to achieve for people with facial hair that underlies the mask at its edges
 - Facial hair which impedes achieving a seal should be removed or an alternative respirator protection, e.g. powered air-purifying respirator (PAPR) - considered (see below)
 - If available, a range of P2/N95 respirators may need to be fit-checked to find one that achieves a protective seal (i.e. passes fit-check)
 - If a suitable P2/N95 respirator cannot be found and alternative respirator - e.g. PAPR - should be considered
 - **Fit-testing** is recommended as the gold-standard (AS/NZS 1715:2009) for use of P2/N95 respirators, but it has not been widely applied in Australia
 - Despite increased awareness and demand, in the context of COVID-19, fit-testing of all healthcare professionals, who need to use P2/N95 respirators, will be difficult due to limited supplies and range of types/sizes available
 - **NOTE: Fit-testing does not guarantee that a respirator will not leak, particularly if a different type or size is used – this reinforces the need to fit-check with each use**

Transmission-based precautions, as outlined—including appropriate use of P2/N95 respirators—will provide high level protection of health care workers caring for patients with suspected or confirmed COVID-19.

Powered air-purifying respirators (PAPR)

- PAPRs are an alternative to P2/N95 respirators in selected circumstances:
 - A number of different types of relatively lightweight, comfortable PAPRs is available
 - PAPRs should only be used by healthcare professionals trained in their use, including safe removal with other PPE
 - PAPRs should be used according to the manufacturer's instructions
 - If a health care professional is required to remain in the patient's room continuously for a long period to perform multiple procedures e.g. more than one hour, the use of a PAPR may be considered for additional comfort and visibility
 - PAPRs designed for use in other settings outside of health care are not recommended
 - Manufacturer's instructions for reprocessing of reusable PAPR components and management of filters should strictly followed

Care is required with removal of a PAPR, which is associated with a risk of self-contamination.

Only PPE marked as reusable should be reused after decontamination and reprocessing according to the manufacturer's instructions. All other PPE must be disposed of after use.

Aerosol-generating procedures

AGPs during the care of patients with suspected or confirmed COVID-19 are associated with a risk of transmission. The following *examples* are illustrative of a range of AGPs.

Instrumentation or surgical procedures on the respiratory tract including:

- Insertion or removal of endotracheal tube
- Intentional or inadvertent disconnection/reconnection of closed ventilator circuit
- High frequency oscillatory ventilation (HFOV)
- Open oropharyngeal or tracheal suctioning
- Upper respiratory instrumentation or surgery
 - e.g. bronchoscopy, tracheotomy, ear nose throat surgery

- Surgical or post mortem procedures on respiratory tract involving high-speed devices
- Intercostal catheter insertion for relief of pneumothorax
- Thoracic surgery that involves entering the lung

Other procedures that can generate respiratory aerosols

- Manual or non-invasive ventilation (NIV);
 - Bi-level positive airway pressure ventilation (BiPAP)
 - Continuous positive airway pressure ventilation (CPAP)
- Collection of induced sputum
- High flow nasal oxygen (HFNO)
- Transoesophageal echocardiography

Cardiopulmonary resuscitation (CPR) is a special circumstance:

- Chest compression and defibrillation during resuscitation are not considered AGPs
- First responders can commence resuscitation without the need for airborne precautions while awaiting the arrival of clinicians to undertake airway manoeuvres

PPE in specific hospital settings

Intensive care unit (ICU)

- Contact and **droplet** precautions should be used for general care of COVID-19 patients in ICU e.g. a patient not requiring ventilation or AGPs
- Contact and **airborne** precautions should be used for care of COVID-19 patients in ICU requiring AGPs
 - The risk of aerosol transmission is reduced once the patient is intubated with a closed ventilator circuit
 - The use of P2/N95 respirators is recommended for AGPs, in the ICU. However, if a healthcare professional is required to remain in an ICU patient's room continuously for a long period (e.g. more than one hour) to perform multiple AGPs, the use of a PAPR may be considered, as an alternative, for greater comfort and visibility
 - ICU staff caring for patients with COVID-19 (or any other potentially serious infectious disease) should be trained in the correct use of PPE, including the use of P2/N95 respirators or PAPRs, preferably by an infection prevention and control professional or other suitably qualified personnel

Wards, including care of critically ill patients outside of the ICU setting

- Contact and **droplet** precautions should be used for care of COVID-19 patients in general wards
- Contact and **airborne** precautions should be used for care of COVID-19 patients in general wards, when performing an AGP
 - AGPs should be performed in a negative pressure room (or a standard isolation room with door closed)
 - the number of persons present in the room should be minimised

Emergency departments

- Contact and **droplet** precautions should be used for routine care of COVID-19 patients in the emergency department except when an AGP (including passage of an endotracheal tube) is required
- Contact and **airborne** precautions should be used for care of COVID-19 patients when performing an AGP
 - AGPs should be performed in a negative pressure room (or a standard isolation room with door closed)
 - the number of persons present in the room should be minimised

Operating suite

NOTE: For procedures performed on patients in an operating suite who are NOT suspected or confirmed cases of COVID-19, the usual surgical PPE for the clinical circumstances should be used, i.e., surgical mask, theatre cap, gown, gloves and eye protection.

The principles of routine infection prevention and control during elective surgery should be strictly adhered to, including avoidance of unnecessary entry and exit from the operating theatre during surgery.

The number of people in the theatre should be limited to those required for clinical or educational purposes.

- Surgical procedures for patients with suspected or confirmed COVID-19 should be performed only in an emergency

Separate guidelines are available for use of PPE by anaesthetic and surgical staff, caring patients with suspected or proven COVID-19 in the operating suite, during different types of surgery or procedures.

The same general principles apply as outlined above:

- Standard precautions apply to the care of all patients including use of PPE based on risk assessment
- **Contact** and **droplet** precautions for anaesthetic or surgical procedures not involving AGPs in patients with suspected/confirmed COVID-19
- Contact and **airborne** precautions for anaesthetic or surgical procedures involving AGPs with suspected/confirmed COVID-19

Labour ward

For care of a pregnant woman, with suspected or confirmed COVID-19, during labour:

- The woman should be asked to wear a surgical mask, if tolerated
- **Contact and droplet precautions** should be observed by labour ward staff, in addition to standard precautions
- The woman's partner **or** other support person (one only) may attend the delivery even if s/he is in quarantine, as a close contact. Precautions required to protect labour ward staff:
 - On entering the hospital, the partner/support person should: perform hand hygiene and put on surgical mask (to protect staff); in the labour ward put on a gown (to protect clothes from blood/liquor)
 - On leaving the labour ward, remove gown and perform hand hygiene; remove mask and perform hand hygiene when leaving premises
 -

Where can I get more information?

For the latest advice, information and resources go to the [Department of Health website](https://www.health.gov.au) www.health.gov.au

Call the National Coronavirus Health Information Line on 1800 020 080. The line operates 24 hours a day, seven days a week. If you require translating or interpreting services, call 131 450.

The [telephone number of your state or territory public health authority is available on the coronavirus page](https://www.health.gov.au/state-territory-contacts) at www.health.gov.au/state-territory-contacts

Appendix C: PHU checklist

Using the appropriate jurisdictional investigation form or program, contact the patient or their doctor to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend that tests be done, including repeat tests where relevant.
- Where applicable and feasible, seek the doctor's permission to contact the case or relevant care-giver.
- Review case management including:
 - infection control measures being used in caring for the case, and
 - home isolation procedures are being followed.
- Ensure appropriate infection control measures are followed in caring for the case.

Interview the case or care-giver to complete exposure and contact history and other details

- Complete the exposure history and other sections of the relevant jurisdictional investigation form.
- Identify close contacts according to the contact definition.
- Identify the likely source of infection.
- Determine if the case has attended settings that are at higher risk for infection.

Follow-up case's contacts to:

- Assess risk of COVID-19 transmission and identify any close contacts.
- Determine current symptoms, if any, and manage as a suspect case if present.
- Explain symptoms, advise on active daily monitoring of symptoms by public health unit (close contacts) where feasible and need to immediately report any new symptoms.
- Explain to all close contacts the need for quarantine.
- Provide state based factsheets as appropriate.
- Arrange PCR and serological testing if available and contact is symptomatic, and follow local policy for testing in an outbreak setting. Seek protocol on this from the reference laboratory or central communicable disease agency where necessary.
- For cases in schools, aged care facilities, correctional and detention facilities, and Aboriginal and Torres Strait Islander communities, relevant guidelines should be followed. See [Special risk settings](#) and [Special situations](#) for links to guidelines.

Notify central jurisdictional communicable disease control agency, if they do not already know

Central communicable disease control agency to notify Commonwealth Department of Health Office of Health Protection

Consider need for media release and designate a media spokesperson.

Appendix D: Risk assessment and identification of close contacts in aircrew

These recommendations are intended to assist airlines undertaking risk assessments in consultation with PHUs to identify which air crew are close contacts of a confirmed or probable COVID-19 case. The recommendations relate to the specific circumstance where an ill passenger or crew member has travelled on a flight and potentially exposed other passengers and crew. It is important to note that an infected person may be infectious up to 48 hours prior to onset of symptoms and while symptomatic. Any risk assessment needs to consider that a person may appear well, but still be infectious. This risk assessment is directed at identifying air crew close contacts. Contact management among passengers is the responsibility of public health units.

General principles

- Case-by-case risk assessments should be conducted by the airline in consultation with PHUs to identify close contacts among aircrew where one or more confirmed or probable cases of COVID-19 were present on a flight.
- Risk assessments for air crew should be consistent with criteria for being a close contact:
 - o Face-to-face contact in any setting with a confirmed or probable case, for greater than 15 minutes cumulative over the course of a week, in the period extending from 48 hours before onset of symptoms in the confirmed or probable case;
 - o Sharing of a closed space (i.e. the same air craft section) with a confirmed or probable case for a prolonged period (more than 2 hours) in the period extending from 48 hours before onset of symptoms in the confirmed or probable case; or
 - o Direct contact with the body fluids (e.g. used tissues) of a confirmed or probable case in the absence of wearing recommended PPE or if there was a failure of PPE.
- Risk assessments should be conducted in consultation with the relevant public health unit, particularly where the exposures are unclear or complex.

Considerations for conducting risk assessments

For aircraft crew exposed to a confirmed or probable case, a case-by-case risk assessment should be conducted by the airline to identify which crew member(s) should be managed as close contacts.

Considerations for conducting a risk assessment should include:

1. Proximity of crew to confirmed or probable case
Crew who have had face-to-face contact with an infected passenger for greater than 15 minutes cumulative during the course of the flight should be considered close contacts.
2. Duration of exposure to confirmed or probable case
Crew who provided prolonged periods of in-flight service in the section of the aircraft where the infected passenger was seated should be considered close contacts.

3. Size of the compartment in which the crew and confirmed or probable case interacted

Subject to considerations about aircraft design and airflow patterns, crew who provided in-flight service for greater than 15 minutes cumulative in confined sections (e.g first or business class) where the infected passenger was seated should be considered close contacts.

4. Precautions taken, including PPE worn, when in close proximity to the confirmed or probable case

Crew who were involved in looking after an infected passenger (e.g. providing first aid) who was ill without wearing appropriate PPE should be considered close contacts.

Cockpit crew who did not walk through cabins or come close to the infected passenger(s) or crew member(s) are not considered to be close contacts.

Where the confirmed or probable COVID-19 case is an aircraft crew member, all associated crew should be considered close contacts. In this circumstance, public health units will concentrate contact tracing efforts on passengers seated in the area where the crew member worked during the flight along with other members of the crew. The same general principles and considerations detailed above can be adapted to identify close contacts in these circumstances.

If an airline becomes aware that a crew member or passenger is a close contact of a confirmed or probable case, they should notify the local public health unit to facilitate management of the close contact/s.

Appendix E: Organ donation and transplantation

Testing of deceased and living donors and transplant recipients

Viral safety of donated tissue and organs remains a concern as there is significant uncertainty about viraemia during the COVID-19 incubation period; during an asymptomatic course of infection; or after symptom resolution (31-34).

There is currently no licensed test for the screening of blood, plasma or cell and tissue donations. Laboratory screening of blood, plasma, cells and tissues is currently not recommended. This is because transmission of COVID-19 through donated tissues and organs has not been reported; and levels of detected RNA in plasma coinciding with clinical symptoms are very low (31). SARS-CoV-2 testing is rapidly evolving and these recommendations will be subject to ongoing review.

To mitigate the risk of transmission through donated organs and to ensure transplantation is conducted as safely as possible, all deceased and living donors should be tested for SARS-CoV-2 with negative results obtained prior to transplantation proceeding; ideally, the same principles would be applied to recipients. Donation should not proceed from deceased individuals in whom there is a clinical suspicion of COVID-19. All deceased donors should be routinely tested to exclude COVID-19, although transplant teams should have the discretion to proceed prior to test results being available in time constrained circumstances. The practice of routine testing of potential recipients of deceased donor organs should be determined by the local transplant unit in consultation with infectious disease clinicians. When testing has been performed and the potential recipient is deemed to be at low risk on epidemiological and clinical grounds, the decision to proceed to transplantation prior to test results being available in time constrained circumstances should be at the discretion of the transplant team.

Processing of respiratory samples from donors (including all unrelated haemopoietic stem cell donors) and recipients should be prioritised in order to enable expedited retrieval and transplantation processes. Increasing availability of rapid testing may expedite testing timeframes to support time criticalities for deceased donor testing.

Asymptomatic donors and recipients without any other epidemiological risk factors are not classified as suspect cases and do not need to be quarantined or isolated following testing, unless a positive test result is received.

For collection of specimens from asymptomatic members of the public being tested for surveillance (i.e. enhanced testing) purposes, standard precautions are required; additional PPE is not required. During the COVID-19 outbreak, PPE for the care of patients who are not suspected or confirmed cases of COVID-19 should be used in line with the *Australian Guidelines for the Prevention and Control of Infection in Healthcare* (2019). (<https://www.nhmrc.gov.au/about-us/publications/australian-guidelines-prevention-and-control-infection-healthcare-2019#block-views-block-file-attachments-content-block-1>). These guidelines should also be considered together with the COVID-19 specific advice from the Infection Control Expert Group on the use of PPE for inpatient care <https://www.health.gov.au/resources/publications/guidance-on-the-use-of-personal-protective-equipment-ppe-in-hospitals-during-the-covid-19-outbreak>

Interstate travel for tissue and organ retrieval and transplantation teams

To protect the health and safety of all involved in organ retrieval and transplantation during the COVID-19 pandemic, where possible, local teams should conduct surgical retrieval of organs within the donor hospital. Where this is not possible, organ and tissue retrieval and transplantation teams should not be restricted from interstate travel for the purpose of tissue and organ procurement or delivery.

Persons who have travelled interstate for organ and tissue retrieval and transplantation purposes should not be subject to quarantine measures, but should vigilantly self-monitor for symptoms for 14 days following their return and immediately isolate if they become unwell. These persons must continue to adhere to physical distancing measures, hand hygiene, respiratory hygiene and cough etiquette during and after travel.

Information for donation and transplant professionals

Knowledge about COVID-19 is rapidly evolving with advice and publications regarding the disease continually being updated. The guidance in this appendix will evolve due to changing circumstances, e.g. community prevalence of viral infection, viral test accessibility, and intensive care unit and hospital capacity.

Clinicians within the organ donation and transplantation sector should ensure that information utilised is in its most up to date form.

The donor risk assessment interview includes questions about travel and occupation (healthcare workers with direct patient contact) that is relevant to assessing epidemiological risk for COVID-19. In addition, it should be ascertained whether the donor has ever been tested or diagnosed with COVID-19, or has been in close contact with a person known to have confirmed, probable, or suspected COVID-19.

Routine testing of recipients prior to transplantation

Ideally, routine testing of organ recipients for SARS-CoV-2 will be undertaken, preferably within 48 hours of transplantation for recipients of living donor organs, and shortly prior to transplantation for recipients of deceased donor organs, if possible. Samples collected should include:

- Nose and throat swab (PCR test)
- Blood (for retrospective serology testing)

Testing of recipients is based on potential impact of COVID-19 during a highly-immunosuppressed post-transplantation phase. For intended recipients of living donor organs a negative result should be obtained prior to proceeding. For recipients of deceased donor organs, where possible obtain the PCR results prior to proceeding with transplantation although this should be at the discretion of the transplant team in time constrained circumstances.

Recipients (or their delegates) should be questioned to ascertain epidemiological risk and clinical features for COVID-19 prior to proceeding with transplantation. Where there is suspicion for recipient COVID-19 infection negative PCR results should be obtained prior to proceeding with transplantation. Careful consideration should be given to recipients who are at epidemiological risk and may be in the incubation period of COVID-19 where PCR tests may be negative.

Routine testing of living donors

It is recommended that routine testing of living donors (generally kidney donation) is undertaken for SARS-CoV-2 (virus causing COVID-19), preferably within the 48 hours prior to donation. Samples collected should include:

- Combined deep nasal and throat swab (PCR test), and
- Blood (for retrospective serology testing)

Obtain the PCR results prior to proceeding with donation.

Routine testing of deceased donors

Routine COVID-19 (SARS-CoV-2) virus testing should be undertaken in all deceased donors, before proceeding with donation in certain cases as described below, and generally within 72 hours of donation for all other cases. Samples collected should include:

- Combined nose and throat swab (PCR test), and
- Lower respiratory tract specimen, preferably endotracheal aspirate* (PCR test), and
- Blood (serology clotted) tube (for retrospective serology testing)

*Undertake endotracheal aspirate only if it can be done safely, as per local ICU policies. If it is not possible to collect a lower respiratory tract specimen, then a stool PCR (rectal swab) may be undertaken; SARS-COV-2 RNA may be detectable in stool for a longer duration than in respiratory tract specimens. Broncho-alveolar lavage is not currently recommended owing to the higher risk of aerosol generation and the need to conserve ICU bronchoscopes.

Where possible obtain the PCR results prior to proceeding with donation.

NOTE: Testing of donors is solely for the purpose of improving safety in transplantation and does not infer any suspicion of COVID-19 infection in these patients. Unless COVID-19 is suspected on epidemiological or clinical grounds, additional precautions to those usually employed for acquiring respiratory samples in standard, non-COVID-19 intensive care patients are NOT required. Specifically, there is no need for patient isolation or the use of non-standard ICU PPE in ongoing care of these patients. Handling of clinical specimens is as for all PC2 level organisms, as determined by [WHO recommendations current at March 2020 \(https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf\)](https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf).

Decision to proceed with donation and transplantation

- Where possible obtain COVID-19 (SARS-CoV-2) PCR results prior to proceeding with donation.
- Donors in whom COVID-19 is NOT suspected, probable or confirmed – donation can proceed without prospective PCR test results being available, noting that access to timely PCR testing is currently variable.
- In a suspect case of COVID-19 only proceed to organ retrieval and transplantation once negative PCR test results are received (donation workup can continue until this time).
- If a potential living donor has ARI symptoms, donation should be delayed until symptoms have resolved even if the test is negative. Only in time critical circumstances, and where the transplantation team has appropriately considered epidemiological and clinical risks, should transplantation proceed prior to resolution of ARI symptoms.

A **suspect case** is a patient satisfying epidemiological **AND** clinical criteria, as described in the [case definition](#).

If it is not possible to obtain PCR test results, do not proceed in a suspect case.

NOTE: COVID-19 tests may be negative in the incubation period of up to 14 days. Diagnostic sensitivity is improved by testing lower respiratory tract samples in addition to upper respiratory tract samples.

Obtain advice from an **Infectious Disease physician** where PCR tests are negative, there is a strong clinical suspicion of COVID-19 infection, and no other cause is identified.

- **Exclude as deceased donors:**

- If **confirmed COVID-19 positive** – do not work up for donation if known infection; stand down case if positive result obtained as part of donor workup.
- If **probable case of COVID-19**
- If **COVID-19 is suspected due to presence of severe bilateral community-acquired pneumonia** and no other cause is identified (irrespective of COVID-19 PCR test results).
- If the donor suffered unexplained respiratory failure leading to death (35).
- If prior infection, it may be safe to proceed to donation although information is limited at present. Consider only after discussion with an Infectious Disease physician and when the need for transplantation is urgent.