

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.

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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.