Coronavirus Disease- 2019 (COVID-19)

Infection Prevention and Control in the Hospital Setting

Version 6, 8 April March 2020
Revision History

<table>
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<th>Version</th>
<th>Date</th>
<th>Revised by</th>
<th>Changes</th>
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<tr>
<td>6</td>
<td>08/04/2020</td>
<td>PHEOC</td>
<td>Additional and updated information on care of the deceased, staff uniforms, HCW working requirements</td>
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<tr>
<td>5</td>
<td>18/03/2020</td>
<td>PHEOC</td>
<td>Added self-isolation for returned travellers from any country. Added isolation in separate area rather than single rooms</td>
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<td>03/03/2020</td>
<td>PHEOC</td>
<td>HCW who have travelled in or transited from countries listed as higher risk countries must not work in a HCF for 14 days since leaving the high risk country.</td>
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<td>28/02/2020</td>
<td>PHEOC</td>
<td>Addition to aerosol generating procedures, HCW management, PPE table included, obstetric and neonatal management</td>
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<td>2</td>
<td>17/02/2020</td>
<td>PHEOC</td>
<td>Update on breaches in PPE for HCWs</td>
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This document has been developed using the best available evidence and resources and is believed to be accurate at the time of publication. Information in this document is subject to change and it is essential that users of this document ensure they are accessing the most up to date online publication.
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Introduction

Coronaviruses are a large group of viruses that can cause illnesses ranging from a mild common cold to severe disease such as Severe Acute Respiratory Syndrome (SARS CoV). The novel coronavirus disease (COVID-19) was recently identified in December 2019 and is caused by the newly identified SARS CoV-2.

It is critical that healthcare workers (HCWs) use appropriate infection prevention and control (IP&C) precautions from point of entry to the healthcare setting when caring for patients with novel respiratory viruses to minimise the possibility of transmission between patients, visitors, HCWs and environmental surfaces. Early reports on the epidemiology of the COVID-19 have indicated that a large proportion of patients have acquired nosocomial infections. Therefore, HCWs and healthcare facilities (HCFs) have a critical role in reducing the spread of infection.

These guidelines are based on the current available knowledge of the transmission of coronaviruses and may change as more evidence becomes available specifically regarding COVID-19.

General Principles

There are two tiers of precautions to prevent the transmission of infectious agents; standard precautions and transmission-based precautions.

Standard precautions are intended to be applied to the care of all patients in a healthcare facility (HCF), regardless of whether the presence of an infectious agent is suspected or has been confirmed. Implementation of standard precautions is the primary strategy for the prevention of disease transmission in an HCF. Standard precautions include hand hygiene, respiratory hygiene, reprocessing of reusable medical devices, sharps/waste disposal and environmental cleaning.

Transmission-based precautions are implemented for patients known or suspected to be infected or colonised with an infectious agent, where transmission is not completely interrupted using standard precautions alone. The three categories of transmission-based precautions are contact, droplet and airborne precautions.

Detailed information on standard and transmission-based precautions can be found in the NHMRC Australian Guidelines for the Prevention and Control of Infection in Healthcare (2019).

Transmission of Respiratory Viruses

Respiratory droplets are generated when an infected person coughs, sneezes or talks, and during aerosol generating procedures (AGPs). Transmission of respiratory viruses occurs when large respiratory droplets (>5 microns) carrying infectious pathogens are expelled from the respiratory tract of the infectious individual and land on susceptible mucosal surfaces of the recipient.

Studies have shown that the nasal mucosa, conjunctivae, and less frequently the mouth, are susceptible portals of entry for respiratory viruses. These droplets can also contaminate environmental surfaces and be transmitted by direct and indirect contact.

AGPs are described in detail in Appendix 2.
Infection Prevention and Control

The minimum IP&C requirements for hospitalised patients are detailed in the Communicable Disease Network Australia (CDNA) *Coronavirus Disease 2019 (COVID-19)* National Guidelines for Public Health Units (CDNA Guidelines). In addition to the CDNA guidelines, the following interim guidelines are provided for those patients with suspected or confirmed COVID-19 who are admitted to a HCF in Western Australia (WA).

The minimum IP&C measures for suspected or confirmed cases of COVID-19 are the application of contact and droplet precautions for the routine care of patients with mild illness. Contact and airborne precautions are to be implemented for any AGPs or when managing a patient with severe symptoms suggestive of pneumonia (fever and breathing difficulty, or frequent severe or productive coughing episodes).

**Laboratory Specimens**

**Specimen collection**

When collecting respiratory specimens from patients with suspected or confirmed COVID-19, transmission-based precautions must be observed whether or not respiratory symptoms are present.

For most patients with mild illness, collection of upper respiratory specimens is a low risk procedure and should be performed using a single room with door closed and contact and droplet precautions.

Where patients have severe symptom suggestive of pneumonia, then contact and airborne precautions should be observed.

**Note:** Testing for other endemic respiratory viruses should also be included.

Samples for testing may include:

- a) Upper respiratory tract samples – nasopharyngeal and/or oropharyngeal flocked swabs or nasal wash/aspirates
- b) Lower respiratory tract samples (must be collected using contact and airborne precautions in a NPIR) – sputum, bronchoalveolar lavage, tracheal aspirate, pleural fluid
- c) Serum – to be stored pending serology availability

Refer to Appendix A Laboratory Testing information in the CDNA Guidelines for further details on samples, collection techniques.

**Handling of laboratory specimens**

- Standard precautions apply for handling and transport of specimens.
- It is preferred that specimens for COVID-19 testing are delivered direct to the laboratory and not transported via pneumatic tubes to ensure timely delivery.
Patient Presentations

Although it is not routine practice to utilise negative pressure isolation rooms (NPIRs) for droplet precautions, placement of all patients under investigation for COVID-19 in a NPIR is the preferred approach to patient management in WA HCFs, to minimise patient movement if a NPIR is ultimately required. This advice may change if there is widespread community transmission in WA and increasing pressure on the healthcare system.

The following actions should be undertaken when a patient presents to an emergency department or urgent care centre who may be a suspected or confirmed case of COVID-19:

- Place a single-use surgical mask on the patient.

- Isolate the patient in a NPIR, when available, or a single room with the door closed. If these options are not available, patients presenting with suspected COVID-19 should be cohorted in a designated isolation area that is separate from other patient areas and is not to be used as a thoroughfare. Patients in the designated isolation area are to be separated by a distance of at least 1.5 metres from other patients.

- The patient should be instructed to cover their mouth and nose with a flexed elbow or tissue when coughing or sneezing, dispose of the tissue immediately and perform hand hygiene.

- Any person entering the patient room or designated isolation area is to don personal protective equipment (PPE). Non-essential personnel are not to enter rooms or designated isolation areas of patients with suspected or confirmed COVID-19.

- Clear signage indicating the appropriate transmission-based precautions and required PPE is to be placed at the entrance of the patient room or in a prominent position at the entry to the designated isolation area.

- Conduct a medical assessment and collect respiratory specimens in accordance with current recommendations contained in the WA Clinical Alert Updates for Health Professionals and GPs.

- If a patient presents to an outpatient setting including mental health facility who meet the criteria and who report respiratory symptoms, the patient should be managed in conjunction with the closest emergency department. See WA Health COVID-19 Guidelines for Outpatient Clinics.

- If admission is not required and the patient can return to the community, ensure:
  - the patient knows to self-isolate at home, if not already, and to minimise contact with other people. Provide the patient with the Australian Government information on Home Isolation Guidance when unwell (suspected or confirmed cases).
  - the patient is aware that further testing may be required if they deteriorate or the illness persists beyond 72 hours and no other cause is found.
  - arrangements are in place for the patient to be contacted with the test result.

- If admission is required:
  - maintain IP&C precautions and implement the following procedures outlined in this document.
In-Patient Management

Patient Placement

- Patients are to be admitted to a NPIR, with ensuite facilities, if available. Alternatively, a standard single room with ensuite may be used with door closed.
- If an ensuite is unavailable, use a single room and allocate a dedicated bathroom/toilet. Toilet lids should be closed prior to flushing to minimise risk of aerosolisation.
- If there are hospital bed capacity issues, patients with symptoms suggestive of pneumonia e.g. fever, difficulty in breathing, or frequent, severe, productive cough, should be prioritised for NPIRs.
- Interdepartmental transfers should be restricted unless patient management will be compromised e.g. admission to intensive care or necessary procedural investigations are required.
- Transfers to other HCFs are to be limited unless necessary for medical care.

Cohorting

- Cohorting can be considered only when the availability of NPIRs and single rooms is exhausted.
- The decision to cohort patients must be discussed with the IP&C team and on call ID Physician/Clinical Microbiologist.
- Patients with confirmed COVID-19 are not to be cohorted with patients who have NOT yet been diagnosed with COVID-19.
- HCFs may consider creating cohort wards, especially in those facilities where heating, ventilation air conditioning (HVAC) systems can be isolated. Cohort wards should be separate from other patient areas and are not to be used as a thoroughfare.
- Clear signage indicating the appropriate transmission-based precautions and required PPE is to be placed at the entrance of the cohort ward.
- In a cohorted unit, gowns, masks and eye protection may remain insitu between patients providing they are not soiled. Gloves must be changed between patients and adherence to the 5 Moments of Hand Hygiene is essential. Upon leaving the cohorted unit all PPE must be removed and discarded.

Visitors

- All HCFs are to have a visitor restriction policy that minimises visitors.
- Signage must be clearly visible to the public.
- Any person who is unwell is not to visit any patient within a HCF.
- The decision to allow visitors to a suspected or confirmed COVID-19 positive patient is to be managed on a case by case basis in conjunction with the treating medical team and the IP&C team. The decision should be based upon a risk assessment dependant on patient condition and visitor profile.
- If a visitor is allowed, they must wear a surgical mask, protective eyewear and perform hand hygiene using either soap and water or alcohol-based hand rub (ABHR) prior to entering and leaving the patient’s room.
- Clinical staff are required to instruct visitors on how to don and doff the PPE correctly.
Patient Care Equipment

- Disposable, single-use patient care equipment should be used when possible and disposed of into appropriate waste streams after use.
- Dedicate non-critical items to the patient's room for the sole use of the patient for the duration of their admission e.g. stethoscope, tourniquet.
- Minimal stocks of non-critical disposable items e.g. dressings, gloves, kidney dishes, are to be stored in the room. On patient discharge, these items are to be disposed of appropriately.
- Patient charts shall be left in the anteroom of a NPIR or outside of single or multi-bed rooms. Gloves must be removed, and hand hygiene performed prior to any documentation.
- All reusable medical devices/equipment must be cleaned and disinfected following use and prior to removal from the room.
- Impregnated disinfectant wipes, as per HCF policy, may be used for specialised medical equipment such as X-ray equipment, ECG and ultrasound machines. The manufacturers' recommendations for compatible products must be followed.
- ICUs must ensure mechanical ventilation equipment is protected with viral filters and utilisation of inline suction systems.
- Please refer to the Safe use of oxygen and ventilatory devices for adults and paediatrics during the COVID-19 outbreak

Environmental Cleaning

- Each HCF is responsible for ensuring documentation is readily available on the specific product/s to be used including instructions for use and that safety data sheets (SDS) are accessible.
- Generally, staff performing cleaning shall wear PPE in accordance with droplet precautions (gown, gloves, eyewear and a surgical mask). The exception to this relates to cleaning of NPIRs.
- Disinfectant must be TGA approved, hospital grade with viricidal properties.
- Cleaning regimens must ensure all items in the room are cleaned and disinfected both daily and on patient discharge i.e. terminal cleaning. An increase in cleaning schedules may be advised by IP&C teams.
- Cleaning regimens must include all horizontal surfaces, any walls that are visibly contaminated and frequently touched items e.g. door handles, bed rails, IV poles, light switches, call bells, bedside lockers, over-bed tables.
- Damp dusting procedures are to be utilised. Vacuums, if utilised, must be fitted with a HEPA filter.
- The HCF may choose to increase cleaning frequency e.g. twice daily, to reduce environmental contamination, especially in shared and public areas and for frequently touched items.
Daily Cleaning

- The room and patient care equipment are to be cleaned using a combined cleaning and disinfection procedure such as a 2-step clean or a 2 in 1 product, which has both a detergent and disinfectant agent.
- Disposable cleaning cloths are to be discarded after each use.
- If reusable cloths are used, they are to be laundered according the Linen Standards AS/NZS 4146:2000
- Re-useable mop heads can be used but must be bagged and sent for laundering at the completion of each use. Mop handles are to be cleaned and disinfected after each use. Alternatively, disposable mop heads with a detachable cleanable handle may be used.
- All cleaning equipment is to be cleaned and stored dry.

Terminal Cleaning

- Cleaning staff are to wear PPE in accordance with droplet precautions
- Single rooms or vacant bed areas can be cleaned as soon as the patient has been discharged.
- The room and patient care equipment are to be cleaned using an approved combined cleaning and disinfection procedure such as a 2-step clean or a 2 in 1 product that has both a detergent and disinfectant agent.
- All disposable items in the room are to be discarded on patient discharge.
- Patient bed screens, privacy curtains (and window curtains, if fitted) are to be sent for laundering/dry cleaning or disposed of (if disposable).
- The room or area can be used following completion of cleaning and all surfaces are dry.

Cleaning of Negative Pressure Isolation Rooms

Cleaning of NPIRs between patient use

- When a NPIR is required to enable AGPs to be performed on multiple patients, on the same day, the following procedure is to apply:
  - ensure all equipment in the room is kept to a minimum
  - once the patient has left the NPIR, any non-used disposable supplies are to be discarded
  - all re-useable medical equipment is to be cleaned and disinfected
  - the room is to be cleaned and disinfected as per a terminal clean
  - cleaning staff are to wear PPE in accordance with airborne precautions that includes a N95 or P2 mask.
  - once all surfaces are dry the NPIR can be utilised for the next patient
  - the negative pressure function must remain on at all times.

Terminal cleaning of NPIRs

- Following patient discharge a NPIR must be left vacant for 30 minutes prior to commencing the cleaning process.
• Cleaning staff are to wear PPE in accordance with droplet precautions

**Use of disinfectants**

• All solutions need to be prepared and used in accordance with the manufacturers’ instructions for use.

• As disinfectants are inactivated by organic material, cleaning with a neutral detergent solution prior to disinfection is required if visible soiling is evident. The use of a 2 in 1 detergent and disinfectant solution or pre-impregnated combination detergent and disinfectant wipes meets these criteria.

**Food Services**

• Non-essential staff should be restricted. All food and beverages are to be delivered by HCWs directly caring for the patient.

• Standard precautions should be used when handling used crockery and cutlery.

• The combination of hot water and detergents used in automatic dishwashers is sufficient to decontaminate these items.

• Unopened food items or food waste is to be discarded into general waste.

**Linen Services**

• Standard precautions apply. Laundry practice is to conform to AS/NZS4146:2000.

• A linen skip is to be dedicated to the room and lined with a soluble bag.

• Ensure the linen bag is securely tied prior to transporting from the patient room to collection area.

• Stockpiling supplies of linen in the patient rooms is not to occur and any unused linen is to be sent for laundering and not returned to general use.

**Medical Records / Patient Charts**

• Standard precautions apply to the management of all patient charts/ medical records.

• No patient chart / record is to be left in the patient rooms.

• HCWs should not perform any documentation, either paper based or electronic, without first removing PPE and performing hand hygiene.

• HCFs that utilise electronic systems are to ensure shared computer equipment can be cleaned and disinfected.

• There is no requirement to quarantine medical records prior to returning to health information / medical record management services.

**Waste Management**

• Standard precautions apply.

• All waste shall be bagged and securely sealed prior to exiting patient room.

• Waste that is contaminated with blood and or body fluids is classified as clinical waste.

• WA Health and the HCFs guidelines for classification and disposal of general, clinical and sharps waste are to be followed.
Patient Transport

Patient transport within HCF’s

- The receiving department must be notified prior to patient transfer.
- Patients are to wear a surgical mask, if their medical condition allows, when transported within the HCF.
- Patients on oxygen therapy should be transitioned to nasal prongs and wear a surgical mask for transport if their medical condition allows.
- The HCWs accompanying the patient must don fresh PPE prior to transfer, so they are not wearing the same PPE they had on in the patient room. The HCW is to wear a surgical mask, gown, gloves and protective eyewear.
- HCWs must remove PPE prior to leaving the receiving department.

Patient transport between HCF’s

- If transfer to another HCF is required for medical management, the inter-hospital patient transport provider and receiving facility must be advised of the patient’s status and condition prior to transport.

Patient Discharge

- The treating team may consider managing the patient at home through Hospital in the Home services if the following criteria are met:
  - the treating clinician determines the patient is clinically improved and well enough to be managed in the community, and
  - the patient has been afebrile for the previous 24 hours, and
  - a risk assessment has been undertaken to determine whether there is any risk to household members.
- If the patient is discharged while still infectious, ensure the patient and family members are instructed on appropriate IP&C in the home. The Australian Government Department of Health Fact sheets must be provided Home Isolation Guidance when unwell (suspected or confirmed cases) and Isolation Guidance for their close contacts.
- A confirmed COVID-19 case convalescing at home must remain in isolation until the criteria for duration of precautions are met.

Patients who are confirmed COVID-19 and are ready for discharge and have not yet completed the clearance criteria, can be transported home by

- family / friend/ support person and both the patient and driver to wear a surgical mask during transport. HCFs will need to supply the surgical mask and instructions on how to don and doff. On completion of transport, cleanable surfaces in the vehicle can be wiped over with a detergent / disinfectant wipe
- alternatively, the HCF transport service can be used and the HCFs vehicle cleaning procedure followed.

Duration of Precautions

All confirmed COVID-19 patients are to remain under transmission-based precautions until the patient is discharged or the criteria for clearance are met. Discontinuation of precautions must be discussed with the HCFs IP&C team.

The CDNA Guidelines are to be referenced for clearance criteria.
Management of the Deceased

- There is no evidence of an increased risk of transmission of the virus that causes COVID-19 to those managing the deceased. Standard Precautions apply.
- HCWs are to wear PPE consistent for droplet precautions when preparing the body for transport.
- A surgical mask is to be placed on the deceased prior to movement of the body.
- Deceased persons must be placed in a leak proof body bag for transport.
- Inform mortuary staff of the deceased persons suspected or confirmed status prior to transfer.
- Mortuary HCWs are to follow routine institutional guidelines for management of the deceased.
- Advice for funeral directors can be found here.

Personal Protective Equipment (PPE)

Standard precautions, including hand hygiene (5 Moments) are to be implemented for all patients in conjunction with the following transmission-based precautions:

- Contact and droplet precautions are recommended for routine care of the patient suspected or confirmed to have COVID-19 with mild illness or asymptomatic. The following PPE is required to be donned prior to entering the patient’s room or designated isolation area: a long-sleeved gown, surgical mask, face shield/goggles and gloves.
- Contact and airborne precautions are recommended when managing a patient with symptoms suggestive of pneumonia, or who requires frequent interventions outside the Intensive Care Unit (ICU). Contact and Airborne precautions are also required for any AGPs. The PPE required includes a long-sleeved gown, P2 or N95 mask (fit check required), face shield/goggles and gloves.
- Patients admitted to the ICU with severe COVID-19 are likely to have a high viral load. Contact and airborne precautions are required. The use of the powered air purifying respirator (PAPR) could be considered, if available, for additional comfort and visibility of the wearer if the HCW is anticipating care for long periods of time e.g. greater than one hour.
- Stock rationalisation is essential and the use of P2 or N95 masks are only to be used when required as above.
- Table 1 details the PPE that is required for direct patient care.

Note: PPE is only protective when used correctly. Training in the use of the PAPR, fit checking of P2 or N95 respirator masks and donning and doffing procedures is essential to reduce the risk of self-contamination.
Table 1: Guidance for PPE use by HCWs providing direct patient care

<table>
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<tr>
<th>Inpatient Precautions</th>
<th>Close contact asymptomatic</th>
<th>COVID-19 is suspected or confirmed in patient with mild symptoms</th>
<th>COVID-19 is suspected or confirmed in patient with symptoms of pneumonia</th>
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<td>Contact &amp; Droplet</td>
<td>Contact &amp; Airborne</td>
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<td>NPIR preferred, single room with ensuite or single room with dedicated facilities are required or designated isolation area</td>
<td>NPIR</td>
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<td>Surgical mask</td>
<td>P2/N95 mask</td>
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<td>Long sleeved Gown, protective eyewear, gloves</td>
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<td></td>
<td>In NPIR</td>
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<td>In NPIR</td>
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See Appendix 1 for donning and doffing sequence and fit checking procedure.

See Appendix 2 for AGPs.
Healthcare Worker Management

- Healthcare workers who are not well are not to attend the workplace and are to exclude themselves until asymptomatic.
- HCWs with any influenza like illness are to self-isolate and be tested for SARS-CoV-2 if they meet the suspect case definition i.e. fever OR acute respiratory illness.
- HCFs are to minimise exposure of staff to suspected or confirmed cases of COVID-19 by ensuring non-clinical staff are located in non-patient care areas e.g. moving staff to office areas away from wards, or initiate working from home. Consider installing impermeable screens at reception/ward clerk desks or providing other means of maintaining social distancing for staff required to greet patients and public.
- The Australian Health Principle Protection Committee (AHPPC) recommends that special provisions apply to essential workers who are at higher risk of serious illness and, where the risks cannot be sufficiently mitigated e.g. using PPE, should not work in high risk settings.
- The AHPPC considers that, based on limited current evidence, the following people are, or are likely to be, at higher risk of serious illness if they acquire COVID-19:
  - Aboriginal and Torres Strait Islander people 50 years and older with one or more chronic medical conditions
  - people aged 65 years and older with chronic medical conditions
  - people aged 70 years and older
  - people with compromised immune systems
- There is limited evidence currently regarding the risk in pregnant women.
- Refer to the Australian Government website for detailed information on at risk groups.
- The HCF will need to undertake a risk assessment for any vulnerable HCWs.
- HCWs that are returned travellers, including interstate travel or returning WA residents, or have had close contact with a confirmed COVID-19 patient must self-isolate for 14 days on return to WA and not undertake work in a HCF during this period. This includes those HCWs coming from interstate.
- HCFs are to ensure HCWs have access to adequate uniform supplies to enable HCWs to wear a clean uniform each shift. A number of small prospective trials have demonstrated that the uniforms of HCWs can become contaminated with a variety of pathogens and therefore HCWs should avoid wearing their uniforms home from hospital and utilise the HCF laundry facilities wherever possible. If home laundering is required, a hot wash is preferred and uniforms should be washed separately from other household items.
- Only essential staff are to enter the patient room.
- Where possible, dedicated staff should manage the patient suspected or confirmed with COVID-19 to minimise risk to other HCW’s and patients. Consideration of rostering to avoid fatigue of HCWs is to be considered. The wearing of PPE, especially if the wearing P2/N95 is required is only tolerated for limited periods of time.
- A staff log shall be maintained of all staff entering the room of a suspected or confirmed case of COVID-19 to allow for monitoring of potential IP&C breaches and contact.
tracing. This document should be managed with consideration for staff privacy. See Appendix 3: Staff Register.

- HCWs working across multiple sites must inform their line manager if they have been caring for a patient with suspected or confirmed COVID-19.
- HCWs who have taken recommended IP&C measures, including the correct use of PPE, while caring for a confirmed case of COVID-19 are not considered close contacts unless there has been a breach of PPE.
- If there is a breach in PPE when managing a patient with confirmed COVID-19, the breach must be assessed according to the close contact definitions. Please refer to the CDNA Guidelines for definitions of contacts and the management of contacts. If a HCW meets the definition of a close contact then the HCW requires self-quarantine at home (see Contact Management below).
- All HCWs caring for confirmed cases should carefully monitor their own health. If the HCW develops signs and symptoms of acute illness i.e. fever, cough or shortness of breath they are to:
  - cease work immediately or not report to work
  - contact their line manager and their HCF infection prevention and control unit
  - seek medical attention, including informing their health care provider they have cared for a patient with suspected or confirmed COVID-19.
- IP&C teams should consider the need for contact tracing based on the CDNA guidelines for close contacts and HCW close contacts.

**Contact Management**

Due to the emerging information regarding the infectivity and transmission of COVID-19 refer to the CDNA Guidelines for definitions of contacts and the management of contacts.

Contact tracing will need to be undertaken by the HCF IP&C unit for inpatients and HCWs. Close contacts require self-isolation for 14 days and further advice can be found here. If a contact is required to seek medical care for any reason they must telephone their GP, clinic or hospital emergency department prior to presenting.

**Management of Pregnant Women and Neonates**

There is limited data on the effects of COVID-19 in pregnancy and neonates. There is also limited information on the transmission of the virus through breast milk. Other members of the coronavirus family (SARS CoV, MERS CoV) are known to cause severe complications in pregnancy and the neonate.⁴

The management of neonates and pregnant women with suspected or confirmed COVID-19 is to be managed on a case by case basis with discussion between obstetric, neonatal, ID Physician/clinical microbiologist and IP&C teams and consideration of the HCF capacity to manage such a situation. Asymptomatic infants born to mothers with confirmed COVID-19 are considered close contacts.

Detailed clinical guidance has been endorsed by the WA Department Health and is available at the following links:

- Management of COVID-19 Infection in Pregnant Women
- COVID-19 Guidelines for Neonatal Services
Appendix 1: Personal Protective Equipment

Note: The sequencing of donning and doffing PPE varies internationally and between Australian States and Territories. The sequence detailed in this document takes a conservative approach and is supported by reports of poor adherence to donning and doffing procedures and the risk of self-contamination. The procedure has been agreed to by senior IP&C practitioners and Infectious Diseases Physicians within WA.

Staff can view a video on the correct sequencing here
Staff can view a PPE donning and doffing poster here
Conservation of PPE is essential and information can be found here

General
• PPE is to be available outside patient room or in the anteroom.
• Donning of PPE should occur in the anteroom or outside the single room
• HCWs must be diligent not to touch their eyes, nose, mouth or hair while wearing PPE. Loose hair must be tied back securely prior to donning PPE.
• Wearing gloves is not a substitute for hand hygiene. Hand hygiene must always be performed on glove removal.
• Hand hygiene products and gloves must be available in the room to facilitate compliance with the 5 Moments of Hand Hygiene
• When gloves are worn, avoid touching environmental surfaces such as light switches and door handles to minimise environmental contamination.
• Doffing of PPE should occur in the anteroom or at the door of the single room, just prior to leaving. Eyewear and masks are to be removed outside the room followed by hand hygiene.

Protective eyewear
• Designated protective eyewear e.g. combined mask/shield, visor or goggles, are to be utilised.
• Eyewear should be single use where possible.
• Personal prescription spectacles are inadequate and must be used in conjunction with a face shield.
• Eyewear is to be worn on entering a patient room or cohort ward.
• If reusable eyewear is used it must be cleaned and disinfected with approved HCF products.
• Long sleeved, fluid repellent, cuffed gowns are preferred. If these are not available, cloth gowns can be used with the addition of a plastic apron.
• Gowns are to be worn once and then placed in waste or laundry receptacle as appropriate.
• Gowns must be changed between each patient contact.
Masks

- Masks used include surgical and P2 or N95 disposable respirators/masks.
  - P2 respirators are those that comply with the Australian Standard AS/NZS 1716: Selection, use and maintenance of respiratory protective devices
  - N95 respirators are those that comply with the United States National Institute for Occupational Safety and Health (NIOSH) 42 CFR part 84, which is a less stringent standard.
- Surgical masks are utilised to contain respiratory secretions of the wearer and to prevent droplet inhalation of the wearer. Surgical masks are currently recommended for HCWs for most contacts with suspected or confirmed COVID-19 cases, excepting the following dot point.
- P2 or N95 masks are utilised to protect the HCW when there is a risk of airborne transmission. This can occur following AGPs when virus particles may remain suspended in the air for long periods. P2/N95 masks should be used by HCWs attending a patient with symptoms of pneumonia.
- Masks can be worn for more than one patient if cohorting of patients occurs.
- Masks should be removed when soiled, or they become moist or when it is difficult to breathe through.
- Masks are to be removed only by touching the ties/loops.
- All HCWs must receive education, in accordance with the manufacturers’ advice, in relation to donning a P2 or N95 mask and the procedure to perform a fit check for each specific mask worn. A fit check must be performed after donning a P2 or N95 mask prior to entering the patient’s room and each time a new mask is put on. An effective seal will not be achieved when facial hair is present.
- Where the HCW fails a fit check after appropriate education and assessment, an alternative size or style of mask must be sourced prior to the HCW caring for a suspected or confirmed case of COVID-19.
- If P2 or N95 masks are in limited supply, they should be prioritised for HCWs undertaking AGPs.

Process for fitting and removing P2 or N95 mask

### Fitting a P2 respirator

P2 respirators are available in several different designs, and only one is shown here.

- Position respirator over mouth and nose
- Position tapes above and below ears at back of head
- Fit snugly at bridge of nose and under chin by using the adjusters
Fit Checking

HCWs are to perform a fit check every time they put on a P2/N95 respirator/mask to ensure it is properly applied and a correct seal is obtained. The P2/N95 mask must be sealed over the bridge of the nose and mouth and there are no gaps between the mask and the face. HCWs with facial hair (including 1 – 2 days growth) must be aware that an adequate seal cannot be guaranteed and must be clean shaven.

A good seal is indicated where the P2/N95 mask is drawn in towards the face, when a deep breath is taken, indicating a negative pressure seal.

Qualitative or quantitative fit testing is currently not recommended in WA during the COVID-19 pandemic. This is due to the fact it would consume large amounts of P2 or N95 respirators that are already in short supply, the limited equipment available in WA to provide the testing and lack of adequately trained persons to undertake the testing:

Sequence for donning and doffing PPE

**Donning PPE**
- Perform hand hygiene
- Gown
- Mask
- Protective eyewear/visor
- Gloves

**Removing PPE**
- Gloves
- Perform hand hygiene
- Gown/apron
- Perform hand hygiene
- Protective eyewear/visor
- Perform hand hygiene
- Mask
- Perform hand hygiene
Appendix 2: Aerosol Generating Procedures

AGPs are those that stimulate coughing and promote the generation of fine airborne viral particles (aerosols) resulting in the risk of airborne transmission. Procedures include tracheal intubation, non-invasive ventilation, cardiopulmonary resuscitation (CPR), manual ventilation before intubation, bronchoscopy, airway suctioning, high flow nasal oxygen. Limit the performance of AGPs on COVID-19 patients unless medically indicated. Table 3 classifies common procedures and risk of aerosol generation.

- Perform AGPs in a NPIR, alternatively, use a single room with the door closed.
- Limit the number of HCWs in the room when AGPs are performed.
- Anyone who enters the room must adhere to contact and airborne precautions.

Nebulisers are not recommended for use and should be replaced by dedicated single patient use spacers.

Specific surgical procedures that involve combined organs and tissues of the respiratory tract and the upper part of the digestive tract upper including the lips, mouth, tongue, nose, throat, vocal cords, and part of the oesophagus and windpipe may result in aerosol production. When these aerodigestive procedures are performed on suspected or confirmed COVID-19 patients the use of airborne precautions is required.

Table 3 Risk of aerosol generation

<table>
<thead>
<tr>
<th>Specimen type</th>
<th>Patients with no fever, and mild or no respiratory symptoms</th>
<th>Patients with fever and mild symptoms e.g. mild cough and/or rhinorrhea</th>
<th>Patients with fever and symptoms of pneumonia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nasopharyngeal swab</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Oropharyngeal swab</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
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<tr>
<td>Sputum (not induced sputum)</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
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<tr>
<td>Nasal wash/aspirate</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
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<tr>
<td>Bronchoalveolar lavage</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Induced sputum</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Non-invasive ventilation</td>
<td>N/A</td>
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<td>Yes</td>
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<tr>
<td>High flow intranasal oxygen</td>
<td>N/A</td>
<td>No</td>
<td>Yes</td>
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<tr>
<td>Aero-digestive procedures</td>
<td>Yes</td>
<td>Yes</td>
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## Appendix 3: Staff Register

<table>
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<tr>
<th>DATE</th>
<th>FULL NAME</th>
<th>JOB DESCRIPTION</th>
<th>TIME IN</th>
<th>TIME OUT</th>
<th>CONTACT NUMBER (mobile preferred)</th>
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References

1. Australian Guidelines for the Prevention and Control of Infection in Healthcare, Canberra: National Health and Medical Research Council (2019)


5. Interim advice on non-inpatient care of persons with suspected or confirmed Coronavirus Disease 2019 (COVID-19), including use of personal protective equipment (PPE)

6. Updated Respiratory Infectious Diseases Emergency Response (RIDER) plan

7. Infectious Diseases Emergency Management Plan (IDEMP), WA Health System

Resources

Western Australia Department of Health

Australian Department of Health Coronavirus