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Interim infection prevention and control guidelines for the management of COVID-19 in healthcare settings

Note: This is an interim guideline and is subject to change.

Knowledge about COVID-19 is evolving therefore Queensland Health will continue to review and update these guidelines as new information becomes available.

Yellow highlighted sections in this guideline have changed since the last version.


Purpose

This guideline provides infection prevention and control recommendations for managing patients with suspect, probable or confirmed COVID-19 in healthcare settings.

These guidelines aim to prevent transmission of COVID-19 in healthcare settings through the implementation of appropriate infection prevention and control measures.

Scope

This guideline provides information for all Queensland Health Hospital and Health Service (HHS) employees (permanent, temporary and casual) and all organisations and individuals acting as its agents (including visiting Medical Officers and other partners, contractors, consultants and volunteers); and all Queensland licensed private health facilities.

Key points

• Ensure that travel history, history of contact with any suspect, probable or confirmed cases of COVID-19 and whether residence is in an area of community transmission* are assessed early for any patients presenting with symptoms of respiratory illness and/or fever.

  *for a geographically localised area with elevated risk of community transmission as defined by the Queensland Department of Health, refer https://www.qld.gov.au/health/conditions/health-alerts/coronavirus-covid-19/current-status

• Any person tested for COVID-19 should be isolated pending test results.

• Manage routine care of suspect, probable and confirmed cases of COVID-19 using droplet, contact and standard precautions.
Use **standard, contact and airborne precautions** for suspect, probable or confirmed COVID-19 cases:

- **when performing aerosol-generating procedures** (AGPs)
  - Airborne precautions are no longer recommended for the collection of oropharyngeal or deep nasal swab specimens for severely ill patients.
  - for the clinical care of patients who have cognitive impairment, are unable to cooperate, or exhibit challenging behaviours (such as shouting)
  - where there are high numbers of COVID-19 patients and a risk of challenging behaviours and/or unplanned aerosol-generating procedures
  - settings where there is a high density of COVID-infected patients, particularly in wards or cohorted areas without optimal ventilation, and where prolonged episodes of care are required;

- **In geographic areas without** community transmission standard infection prevention and control precautions should be observed for clinical care of patients who are not suspect, probable or confirmed COVID-19 cases.

- **In geographic areas with** moderate to high risk of community transmission, enhanced infection prevention and control precautions apply, including additional personal protective equipment (PPE) recommendations. Refer to Pandemic Response Guidance: Personal protective equipment in healthcare delivery for detailed information.

**Background**


**Standard precautions** are required for all patients regardless of known COVID-19 status. Standard precautions are the primary strategy for minimising the risk of infection and must be used as part of day-to-day practice when providing healthcare. This includes hand hygiene (as per the 5 Moments for Hand Hygiene) and risk assessment to determine the level of PPE required. **Standard precautions also include routine environmental cleaning and routine cleaning of high touch surfaces and shared patient equipment.**

**Cough etiquette and respiratory hygiene** must always be maintained.

**Physical distancing during the COVID-19 outbreak:** stay at least 1.5 metres away from other people including:

- patients, except when unavoidable, e.g. during physical examination and provision of care, and
• members of the public, hospital visitors and other staff in wards, clinics and nonclinical areas, e.g. during meetings, in offices and shared workplaces and during tea breaks etc.

Recognition of suspect and probable cases and immediate action

Early recognition and prompt implementation of appropriate infection prevention and control precautions are critical for preventing transmission of COVID-19.

Take steps to ensure that patients presenting with symptoms of respiratory infection are identified at triage and are directed to the fever clinic (where this is in place). For example:

• place alert signage at the entrance to the healthcare campus with directions to the fever clinic
• place alert signage at the entrance to the emergency department redirecting patients presenting with symptoms of respiratory infection to the fever clinic or to immediately make themselves known to triage
• provide symptomatic patients with a surgical mask to wear (in geographic areas of moderate to high risk of community transmission, all patients presenting to hospital should wear a surgical mask where tolerated, unless they are an inpatient in their own bed). Refer to Pandemic Response Guidance - Personal protective equipment in Healthcare delivery for further information. See below note about children and face masks.
• ensure that relevant questions are asked at the point of triage regarding possible contact with suspect, probable or confirmed cases of COVID-19, recent travel history, and whether the person has been directed to quarantine or isolate
• ensure that patients presenting with respiratory symptoms do not share the same waiting area with other patients and are immediately placed in an isolation room if COVID-19 infection is suspected
• ensure patients are directed to perform hand hygiene on arrival and there is a means for them to do so, and ensure patients are directed to practice respiratory hygiene and cough etiquette.

Case definition


Clinical and public health judgement should also be used to determine the need for testing in patients who do not meet the epidemiological or clinical criteria.
Immediate isolation and restriction of suspect, probable and confirmed cases

If a person is a suspect, probable or confirmed case of COVID-19, or is otherwise deemed by the attending clinician to possibly have COVID-19 infection, the following immediate infection control actions should be taken:

- **Provide a surgical mask for the patient** to put on, if they are not already wearing one. See below note about children and face masks.
- For routine care of probable or confirmed COVID-19 cases, use standard, contact and droplet precautions. Staff should wear a surgical mask, long-sleeved preferably fluid-resistant gown\(^a\) or apron\(^b\), gloves and eye protection. Head covers and shoe covers are not recommended unless gross contamination is anticipated, or they are required as standard attire in operating theatre or trauma room\(^c\).
- Immediately place the patient in a single room with the door closed.
- If transfer outside the room is essential, the patient should wear a surgical mask if their condition allows during transfer and follow respiratory hygiene and cough etiquette. Patients requiring oxygen therapy should be transitioned to nasal prongs where medically possible. Regardless of oxygen delivery method the patient should wear a surgical mask during transfer if their condition allows. See below note about children and face masks.
- **Standard, contact and airborne precautions** should be used for the care of patients with suspected, probable or confirmed COVID-19 when one or more of the following apply:
  - when performing an aerosol-generating procedure (refer to section on aerosol-generating procedures)
    - Where possible, AGPs should be performed in a single room with negative pressure air handling. If no rooms with negative pressure air handling are available, the AGP should be performed in a single room with the door closed.
  - for the clinical care of patients who have cognitive impairment, are unable to cooperate, or exhibit challenging behaviours (such as shouting)
  - where there are high numbers of COVID-19 patients and a risk of challenging behaviours and/or unplanned aerosol-generating procedures
  - settings where there is a high density of COVID-infected patients, particularly in wards or cohorted areas without optimal ventilation and where prolonged episodes of care are required
    - For standard, contact and airborne precautions staff should wear a P2/N95 respirator, long-sleeved fluid-resistant gown\(^a\) or apron\(^b\), gloves and eye protection. P2/N95 respirators must be fit checked every time they are put on. Head covers and shoe covers\(^c\) are not recommended unless gross contamination is anticipated or required as standard attire in operating theatre or trauma room.

**Note on children and face masks:** Children aged five years and under should not be required to wear a mask. This is based on the safety and overall interest of the child and the capacity to appropriately use a mask with minimal assistance. The decision to use a mask in older children should be based on the following factors:
• the child’s ability to safely and appropriately use a mask
• adequate supervision and instruction
• the presence of certain disabilities, including cognitive, intellectual, developmental, sensory and behavioural disorders that may make mask use difficult
• interaction of the child with those at high risk of developing serious illness, such as elderly people and those with other comorbidities.

Further investigation following recognition and isolation

Laboratory testing for COVID-19


Collection of respiratory specimens for suspect, probable or confirmed cases of COVID-19

• The collection of deep nasal or oropharyngeal swabs to test for COVID-19 can be performed using standard, contact and droplet precautions. Collection of a deep nasal and oropharyngeal swab is not considered to be an aerosol-generating procedure.

• When specimen collection is the only procedure required, the following infection prevention and control precautions apply:
  – patient placement in a single room with the door closed
  – use of PPE including a surgical mask, gloves and eye protection
  – the choice between a long-sleeved preferably fluid-resistant gown or apron is based on risk assessment
    • A long-sleeved, preferably fluid-resistant gown is worn for specimen collection during close physical contact with a symptomatic patient or when there is a foreseeable risk of exposure to blood or body fluids.
    • An apron is worn when there is minimal direct physical contact or risk of splash/spray of body substance is low.
    • A long-sleeved, preferably fluid-resistant gown or apron can be worn for specimen collections from consecutive patients in the same location and must be changed if they become visibly contaminated. Gloves must be changed between patients and hand hygiene performed.
• Standard protocols should be used for sample packaging and transport. Specimens may be sent in pneumatic tubes.

**Notification**

Healthcare organisations are to have mechanisms and policies in place to promptly alert key staff, including infection control staff, infectious diseases physician (if applicable), hospital leadership, clinical laboratory staff, frontline staff and the Hospital and Health Service public health unit about suspect, probable or confirmed COVID-19 patients.

COVID-19 is a controlled notifiable condition. This means that it is mandatory for the public health unit to be immediately notified on provisional and clinical diagnosis, pathology request and pathological diagnosis.

**Infection prevention and control management of suspect, probable and confirmed cases**

**Transmission-based precautions**

All hospitalised patients meeting the case definition of suspect, probable or confirmed COVID-19 infection should be managed in a single room under transmission-based precautions.

For the routine care of all patients with suspect, probable or confirmed COVID-19, use **standard, contact and droplet precautions including eye protection at a minimum**.

**Standard, contact and airborne precautions including eye protection** should be used for the care of patients with suspected, probable or confirmed COVID-19 when one or more of the following apply:

• when performing an aerosol-generating procedure
• for the clinical care of patients who have cognitive impairment, are unable to cooperate, or exhibit challenging behaviours (such as shouting)
• where there are high numbers of COVID-19 patients and a risk of challenging behaviours and/or unplanned aerosol-generating procedures
• settings where there is a high density of COVID-infected patients, particularly in wards or cohorted areas without optimal ventilation and where prolonged episodes of care are required.

Please see Appendix 3 PPE quick reference guide for brief information about appropriate PPE for different areas of care. See Appendix 5 Properties of PPE for use in healthcare for detailed information about different levels of fluid resistance of PPE and information that will assist in the risk assessment required when selecting PPE for different procedures.

Please see Pandemic Response Guidance: Personal protective equipment in healthcare delivery for guidance about escalation of PPE use in healthcare facilities based on assessment of risk of community transmission of COVID-19. Escalation of risk category will be informed by direction from the Chief Health Officer and the State Health Emergency Coordination Centre, taking into account the risk of community transmission.
PPE and patient placement

Droplet and contact transmission-based precautions

For droplet and contact transmission-based precautions, healthcare workers should wear PPE at all times while providing patient care. This includes:

- a surgical mask
- long-sleeved, preferably fluid-resistant gown or apron
  - an apron or a cloth gown is adequate when direct physical contact is minimal and/or the risk of splash or body substance contamination is low (e.g. specimen collection, observations, medication delivery)
- gloves
- eye protection (face shield, wrap-around safety glasses, visor or goggles).

Head covers and shoe covers are not recommended unless gross contamination is anticipated or required as standard attire in operating theatre or trauma room.

In accordance with the Australian Guidelines for the Prevention and Control of Infection in Healthcare, these patients should be managed in a single room with the door closed where it is safe to do so.


Aerosol-generating procedures should be undertaken using airborne and contact precautions. Refer to the section on Aerosol-generating procedures.

Airborne and contact transmission-based precautions

For airborne and contact transmission-based precautions, healthcare workers should wear PPE at all times while in the patient room.

This includes:

- a fit checked P2/N95 respirator that has achieved an adequate seal
- long-sleeved, preferably fluid-resistant gown
- gloves
- eye protection (face shield, wrap-around safety glasses, visor or goggles).

Head covers and shoe covers are not recommended unless gross contamination is anticipated or required as standard attire in operating theatre or trauma room.

Where possible, AGPs should be performed in a single room with negative pressure air handling. If no rooms with negative pressure air handling are available, the AGPs should be performed in a single room with the door closed. Only essential health and care workers should be in the room during the procedures. The room must be left empty for at least 30 minutes after the procedures and then environmental cleaning performed.

Conduct environmental cleaning following these procedures as described in the environmental cleaning section. Note: the time required for adequate air changes varies;
Follow local procedures where they exist for the period of time a room must remain empty. Refer to Appendix 1 for information about required air changes per hour.


**Fit checking** is the minimum standard required each time a P2/N95 respirator is put on to ensure it is applied properly. Fit checking must be performed each time a respirator is used, regardless of whether previous fit testing has been performed. Healthcare workers are to be instructed about how to perform a fit check. No clinical activity should be undertaken until a satisfactory fit has been achieved. Fit checks ensure the respirator is sealed over the bridge of the nose and mouth and that there are no gaps between the respirator and face.

An adequate seal may be difficult to achieve in the presence of facial hair that underlies the edge of the respirator. The effectiveness of a tight fitting facepiece, such as half-face or full-face respirators that use straps, relies on achieving a protective seal with the wearer’s face. If an airtight protective seal is not achieved, the wearer will not get the expected level of protection. Facial hair that lies along the sealing surface of a tight fitting respirator will stop it sealing properly. Therefore, any hair growth between the skin and the facepiece sealing surface must be removed in order to achieve a fit. Please discuss local issues regarding any staff that decline to remove their facial hair with your local Human Resources department.

**Note:**

A A long-sleeved fluid-resistant gown is recommended when close physical contact with the patient is likely or there is a foreseeable risk of exposure to blood or body fluids.

B An apron is a suitable alternate when there’s minimal direct patient contact and the risk of blood or body fluid splash is low.

C The Infection Control Expert Group Guidance on the use of personal protective equipment (PPE) in hospitals during the COVID-19 outbreak does not include use of shoe and head covers. The Infection Control Expert Group’s guidance states that shoe or boot covers are not recommended for those caring for patients with COVID-19 unless gross contamination is anticipated, or they are required as standard attire in operating theatre or trauma room. Additionally, they state that a head covering is not required except as part of standard operating theatre attire or when performing a sterile/aseptic procedure.

**Patients being managed in ICU**

Patients who are being managed in ICU are likely to undergo frequent AGPs. A local risk assessment should be performed for each patient being managed in ICU to consider whether they should be routinely managed using standard, contact and airborne precautions or standard, contact and droplet precautions. Airborne precautions should always be used when an AGP is being undertaken.

Consideration should also be given to the recommendation that standard, contact and airborne precautions should be used for settings where there is a high density of COVID-infected patients, particularly in wards or cohorted areas without optimal ventilation and where prolonged episodes of care are required.

**Standard, contact and droplet precautions** are the minimum protection required for the routine care of suspected, probable or confirmed COVID-19 patients in ICU who:
• are not ventilated, nor on CPAP, high flow nasal prong therapy or regular nebulisers
• are intubated with a closed ventilator circuit, from which the risk of airborne transmission is minimal. However, during routine care when the circuit is opened (e.g. to change a heat-moisture exchanger) or if risk assessment indicates that inadvertent disconnection of the ventilator circuit may occur, use of a P2/N95 respirator should be considered.

Powered air-purifying respirators (PAPR)

Powered air-purifying respirators (PAPR) are an alternative type of PPE. If a healthcare 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 PAPR may be considered for additional comfort and visibility.

Removal of PAPR is associated with a risk of self-contamination, therefore, if a local decision is made to use PAPR, clear procedures and training for their fitting and removal should be made available to staff prior to use. PAPR should only be used by healthcare professionals trained in their use, including safe removal in the correct sequence. **PAPR designed for use in non-healthcare settings should not be used.** Only PPE marked as reusable should be reused, following reprocessing according to manufacturer’s instructions.

Fitting and removing PPE

PPE is one of the key elements in preventing the spread of communicable diseases to healthcare workers. Compliance with processes for fitting (putting on) and removing PPE is critical to staff safety.

The following PPE principles should be adhered to:

- Healthcare workers must have received training and instruction on the fitting and removal process and must have practiced fitting and removal.
- Healthcare workers must be given sufficient time to fit and remove PPE correctly without disturbances.
- PPE must remain in place and be worn correctly for the duration of exposure to potentially contaminated areas. PPE, particularly masks, should not be adjusted during patient care.
- The removal of used PPE is a high-risk process that requires a structured and systematic procedure. PPE must be removed slowly and deliberately in the correct sequence to reduce the possibility of self-contamination or other exposure to COVID-19. Therefore, healthcare organisations must ensure that a step-by-step process for removal of PPE is developed and documented.
- All personal items should be removed (e.g. jewellery, watches, lanyards, mobile phones, pagers, pens etc.) before fitting PPE. Staff should ensure they are **bare below the elbows.** Hair should be securely tied back out of the face and eyes.

**Fitting**

The healthcare worker should fit their PPE in the following order:

- Perform hand hygiene
- Long-sleeved, preferably fluid-resistant gown or apron
– an apron or a cloth gown or is adequate when direct physical contact is minimal and/or the risk of splash is low (e.g. specimen collection, observations, medication delivery)

- P2/N95 respirator (perform a fit check) / surgical mask
- Eye protection (face shield, wrap-around safety glasses, visor or goggles)
- Gloves which should be pulled over the cuffs of the gown

**Removal**

PPE should be removed in the following order once patient care is completed:

- Remove gloves, being careful to avoid contaminating bare hands underneath
- Perform hand hygiene
- Remove gown/apron, being careful to avoid contaminating clothing underneath
- Perform hand hygiene
- Remove the eye protection
- Perform hand hygiene
- Remove the P2/N95 respirator or surgical mask being careful not to touch the front of the respirator/mask
- Perform hand hygiene

**Important:** Only remove respirator after exiting the patient room.

**Additional recommendations**


- Gloves should be changed and hand hygiene performed in accordance with the 5 Moments for Hand Hygiene during an episode of patient care. Gloves should also be changed, and hand hygiene performed if gloves become torn or heavily contaminated.

- Gowns should be changed if they become soiled and hand hygiene should be performed.
- If re-useable PPE is used, such as protective eyewear, it must be cleaned and reprocessed according to the manufacturer’s instructions prior to re-use. Staff must be trained in this process.

**Considerations on choice of PPE**


Face masks and gowns are categorised on the level of protection offered, based on specifications set out in Australian and/or international standards.

The current global situation has meant that it has become necessary to use items of PPE that may be unfamiliar. Healthcare workers should familiarise themselves with the types of
PPE currently in use in the facilities in which they work and how to ascertain the levels of protection offered by each item.

As a matter of routine infection control and clinical practice it is necessary to perform a rapid risk assessment at point of care to guide the selection of PPE. The risk assessment should consider the type of patient interaction, the risk of transmission of the infectious agent, and the risk of contamination of the worker’s skin/mucous membranes by the patient’s blood, body substances, secretions or excretions and how long the PPE is likely to be required to be worn.

Further information about the properties of, and applicable standards for, the different types of PPE, particularly face masks and gowns, can be found in Appendix 5.

Patient placement options

The following patient placement options should be used in numerical order according to facility resources:

1. Single room with ensuite facilities, negative pressure air handling and dedicated anteroom
   - Preferred where person requires airborne precautions (as noted above).
   - Patients should be placed in a single room, with a negative pressure air handling system and an anteroom, containing an unshared bathroom and be managed under standard and transmission-based contact and airborne precautions.
   - Fitting and removing of PPE is to be undertaken in the anteroom with a clear separation between clean and potentially contaminated areas.

2. Single room with ensuite facilities without negative pressure air handling
   - When option one is not available or not required, patients should be placed in a single room with the door closed, containing an unshared bathroom and be managed under standard and transmission-based precautions as specified above.
   - An adjacent room or area for storage of and putting on clean PPE and a separate area of adequate size for the safe removal of PPE and the disposal of clinical waste are required.

3. Single room without ensuite facilities and without negative pressure air handling
   - When options one and two are not available, patients should be placed in a single room with the door closed and be managed under standard and transmission-based precautions as specified above.
   - Consider use of a commode. If the patient needs to use shared bathroom facilities, they should wear a surgical mask at all times when outside their single room and additional cleaning measures will be required.
   - An adjacent room or area for storage of and putting on clean PPE and a separate area of adequate size for the safe removal of PPE and the disposal of clinical waste are required.
4. Cohorting

- Cohorting of suspect, probable or confirmed cases must only be undertaken following consultation with local experts, such as infectious diseases physicians and local infection prevention and control service. Where practicable, managing patients with mild illness in their own home is the preferred approach rather than cohorting patients.

- When cohorting suspect, probable or confirmed cases, consideration must be given to the need to escalate to use of standard, contact and airborne precautions due to high numbers or density of COVID-19 patients. Refer to the section on Transmission-based precautions.

- Cohorting should not be undertaken in settings/for patients where a caregiver is required for patient support (e.g. in paediatrics where a parent will be present).

- Please see Appendix 2 for specific advice on cohorting suspect, probable or confirmed COVID-19 cases.

Patient care equipment

Where possible all equipment required for patient care should be dedicated for the use of an individual patient. If equipment cannot be dedicated to the patient for the duration of admission it should be thoroughly cleaned and disinfected before being used with other patients.

Aerosol-generating procedures

Please note: In areas without elevated risk of community transmission standard precautions, in addition to PPE appropriate for the procedure and setting (e.g. operating theatre), are adequate for the performance of AGPs on patients who are not suspected or confirmed cases of COVID-19.


Some procedures may be more likely to generate higher concentrations of infectious respiratory aerosols than coughing, sneezing, talking or breathing.
Although not quantified, the procedures that might pose an increased risk in healthcare include:

- **Respiratory tract instrumentation or surgery:**
  - bronchoscopy,
  - ear nose throat, **faciomaxillary or trans-sphenoidal** surgery
  - tracheal intubation and extubation
  - tracheotomy
  - open suctioning of airways
  - intercostal catheter insertion for relief of pneumothorax
  - thoracic surgery that involves entering the lung
  - transoesophageal echocardiography
  - certain dental procedures, including: use of triplex syringe, high and low speed drilling and ultrasonic scaling (this is not an exhaustive list, please refer to Australian Dental Association Managing of COVID-19 Guidelines and Dental Professionals portal for detailed dental practice guidance)
  - procedures in the oral cavity or respiratory tract involving high-speed devices (surgical or post-mortem)
  - bronchoalveolar lavage
  - other respiratory interventions:
    - high-flow nasal oxygen
    - administration of aerosolised/nebulised medication
    - manual ventilation
    - non-invasive ventilation
    - high-frequency oscillating ventilation
    - disconnecting/reconnecting the patient from a closed-circuit ventilator **(intentional or inadvertent)**
    - turning critically ill patients to the prone position (due to the high risk of inadvertent disconnection of ventilator circuits)
    - sputum induction.

Collection of a deep nasal or oropharyngeal swab is **not** considered an AGP.

**Cardiopulmonary resuscitation (CPR):**
- Chest compression and defibrillation during resuscitation is not considered an AGP.
- Airway management in the context of CPR is considered an AGP.

AGPs should be avoided in patients who are suspect, probable or confirmed cases of COVID-19 where possible. If AGPs can’t be avoided a combination of measures should be used to reduce exposures when performing these on suspect, probable or confirmed COVID-19 patients:
- Only perform AGPs when medically necessary.
- **Where possible, AGPs should be performed in a single room with negative pressure air handling. If no rooms with negative pressure air handling are available, the AGP should be performed in a single room with the door closed.**
• Use standard, contact and airborne precautions.
• Nebuliser use should be discouraged and alternative administration devices (e.g. spacers) should be used.
• Limit the number of healthcare workers present during the procedure to those essential for patient care and support.
• Conduct environmental cleaning following these procedures as described in the environmental cleaning section. The room must be left empty for at least 30 minutes after the procedures before environmental cleaning is performed. Staff performing the cleaning after these 30 minutes should wear PPE for contact and droplet precautions. Note: The time required for adequate air changes varies; follow local procedures where they exist for the period of time a room must remain empty. Refer to Appendix 1 for information about required air changes per hour.
• PPE should be worn as recommended. This should include an apron in addition to a long-sleeved preferably fluid-resistant gown if high volumes of fluid are expected.
• Visitors must not be present.

Patient movement

The transportation and movement of patients outside of the single room should be limited to medically essential purposes only. The use of designated portable x-ray equipment and other important diagnostic equipment may make this easier.

In situations where it is necessary for the patient to be transported outside of their designated room, the patient should wear a surgical mask to contain secretions and routes of transport that minimise exposures of staff, other patients and visitors.

Patients requiring oxygen therapy should be transitioned to nasal prongs where medically possible and wear a surgical mask during transfer. Refer to Children and face masks.

Transporting staff should maintain the PPE for contact and droplet precautions (long-sleeved preferably fluid-resistant gown or apron, gloves, surgical mask, eye protection).

If there is a risk of aerosolization, e.g. a ventilated patient being transported with risk of circuits being broken, a P2/N95 respirator should be worn by staff rather than a surgical mask. The decision to wear a P2/N95 respirator in these circumstances is to be made by the senior clinician involved in the transfer.

If operational staff transporting the patient are uncertain of the PPE required, they should seek advice from the clinical staff providing care to the patient, or the local infection prevention and control team.

Staff transporting the patient should remove PPE in the receiving ward/area, e.g. prior to returning to the Emergency Department, if the staff member is not remaining with the patient.

The receiving area should be informed of the patient’s suspect, probable or confirmed diagnosis and the necessary precautions required prior to the patient being moved.
Visitors

Hospitals and Health Services must align with the current Chief Health Officer Hospital Visitors Direction. Visitors to patients who are suspect, probable or confirmed cases of COVID-19 should be restricted and actively discouraged. Visitors should be limited to those family members essential for patient wellbeing, e.g. a parent of a patient who is a child, or for compassionate reasons, e.g. if a patient is not expected to survive. In addition to complying with the requirements in the current Chief Health Officer Hospital Visitors Direction, the following principles should be followed in relation to essential visitors who enter the patient care area:

- On entering the hospital, the visitor should perform hand hygiene.
- Visitors should be trained on the risk of transmission and the use of infection prevention measures including the use of PPE. Visitors should also be assisted to fit and remove PPE and supervised while in the patient room to ensure compliance with infection prevention measures.
- A log of all visitors who enter the patient room should be maintained.
- Visitors should not be allowed to be present during aerosol-generating procedures.
- Visitors should be instructed to limit their movements within the facility, to monitor their health and to report any signs or symptoms of acute illness for a period of 14 days after the last known exposure to the patient.
- Visitors or persons with acute respiratory illness or other influenza like illness symptoms should not visit.

Care of the deceased

For care of the body of the deceased in the hospital ward, continue standard, contact and droplet precautions. For mortuary care standard, contact and droplet precautions are recommended. For autopsy standard, contact and airborne precautions are recommended.

Transport of the deceased

When transporting the body of the deceased, the body must be placed and secured in a leak-proof body bag to prevent leakage of body fluids. Disinfect the outside of the bag with a product listed with the Therapeutic Goods Administration (TGA) as a hospital-grade disinfectant with claims against viruses.

Where the body bag or wrapping is not of a type that prevents the leakage of body fluids, the first bag must be disinfected with a TGA listed hospital grade disinfectant and placed inside a second body bag.

Viewing of the deceased

Hospital and Health Services should consider the local context in decision-making about feasibility of allowing family members to view the body of the deceased.

If a local decision is made to allow family members to view the body this should only be allowed in a single room. Although the infection risks are extremely low, family members should be clearly advised not to touch or kiss the body of the deceased. Family members
should wash their hands with running water and liquid soap or use an alcohol-based hand rub after the viewing. Gloves are not necessary for family members.

Duration of infection prevention and control precautions


Local infection control, infectious diseases and/or public health teams (as appropriate) will advise when it is appropriate to cease droplet/airborne and contact precautions.

Duration of transmission-based precautions for suspect cases

The local infection control unit, infectious diseases team and/or public health unit (as appropriate) will advise when transmission-based precautions may be ceased for a suspect case once a negative result for COVID-19 by PCR is obtained and they are no longer considered to be a suspect case.

Persons who are still within a period of quarantine should remain under droplet and contact precautions whilst in hospital or quarantine at home if discharged prior to the end of the quarantine period.

Duration of transmission-based precautions for probable and confirmed cases

The local infection control unit, infectious diseases team and/or public health unit (as appropriate) will advise when droplet and contact precautions may be ceased for a probable or confirmed case. They will confirm that the case meets all of the criteria for release for isolation set out in the CDNA National Guidelines for Public Health Units: Coronavirus Disease 2019 (COVID-19).

Transport considerations for patients being assessed

Patients travelling to or from a clinical facility for the purposes of COVID-19 assessment, must do so in a manner that will not increase risk of infection to others. In accordance with Self-isolation for diagnosed cases of COVID-19 Direction (No. 3), available at https://www.health.qld.gov.au/system-governance/legislation/cho-public-health-directions-under-expanded-public-health-act-powers/self-isolation-for-diagnosed-cases-of-covid-19-direction, a person who is diagnosed with COVID-19 in Queensland and is obtaining essential medical care must travel by private vehicle, taxi or ride share wearing a protective mask, or by ambulance service.

Note: If a person is travelling by taxi or ride share, they must not share the vehicle with other customers and should perform hand hygiene and wear a mask during transport.

Hospital and Health Services should put locally practicable arrangements in place for non-urgent transport of patients requiring infection prevention and control precautions who do not have access to private transport.
Considerations for patients who are under a quarantine direction that do not have symptoms suggestive of COVID-19

Quarantine directions are served on those who return to Queensland from overseas, from another state under certain circumstances or if a person is a close contact of a confirmed case. There may be other instances where these directions are used. Please see the most recent information about these directions at https://www.qld.gov.au/health/conditions/health-alerts/coronavirus-covid-19/protect-yourself-others/quarantine

The below requirements are to be applied for patients who require hospital care for reasons other than COVID-19 for the duration of the quarantine notice.

PPE requirements

Patients who have been served a quarantine direction and require treatment or admission in a healthcare facility should have, in addition to standard precautions, contact and droplet precautions applied.

Placement recommendations

Patients who are admitted while under a quarantine direction require placement in a single room with an unshared bathroom and cared for with the door closed. A patient who is under a quarantine direction should not be cohorted with suspect, probable or confirmed cases of COVID-19 unless they are confirmed to have COVID-19.

Staffing considerations


In addition, to minimise the risk of transmission of COVID-19, healthcare facilities should consider the following when allocating staff to care for patients with suspect, probable or confirmed COVID-19:

- Dedicate healthcare workers to minimise the risk of transmission and exposure to other patients and healthcare workers.
- Only allocate healthcare workers who have undergone appropriate training in the use of PPE, environmental cleaning and disinfection of equipment. This training should include all relevant categories of healthcare workers (including cleaning staff).
- Roster staff to include adequate numbers of staff to avoid staff fatigue. Wearing a P2/N95 respirator can be tolerated for only limited periods; regular breaks are required.
- Keep a log of all persons who care for or enter the room of patients with suspect, probable or confirmed COVID-19.
- All healthcare workers should have up-to-date influenza vaccination to minimise potential transmission of influenza to COVID-19 patients.
Healthcare worker monitoring

Healthcare workers who care for patients with COVID-19 should carefully monitor and document their own health until 14 days after the last known contact with a COVID-19 patient regardless of PPE use. If a healthcare worker who has cared for a patient with suspect, probable or confirmed COVID-19 develops any acute illness or symptoms of COVID-19 such as sore throat, fever, cough, loss of smell and/or taste, or shortness of breath they should immediately:

- stop work or not report for work
- notify their line manager and healthcare facility infection control unit
- seek medical evaluation and call ahead to notify the facility that they have cared for a patient with suspect, probable or confirmed COVID-19
- not return to the workplace until they have a clearance to do so. Please refer to the Communicable Diseases Network of Australia National Guidelines for Public Health Units: Coronavirus Disease 2019 for requirements for healthcare worker clearance.

Healthcare worker uniforms or personal apparel

The PPE used in healthcare is effective; however, healthcare workers should be aware that it is still possible for their uniforms or personal apparel to become contaminated. Even under normal circumstances, it is good practice to change out of your uniform/work clothes after you finish work and launder these clothes daily on the warmest appropriate water setting for the items and dry them completely (either air dry or tumble dry as appropriate for the item).

Healthcare facilities may consider providing facility laundered scrubs as an alternative to uniforms or personal apparel for healthcare workers working in areas such as fever clinics, emergency departments, infectious diseases wards, intensive care units or other areas where they are providing care for many patients suspected or confirmed to have COVID-19. Scrubs provided for this purpose should be laundered by the hospital linen service and should not be worn outside the healthcare facility, that is, the healthcare worker should wear their uniform or personal apparel to and from the healthcare facility.

The Australian Nursing and Midwifery Federation’s evidence brief COVID-19: Laundering of healthcare worker uniforms provides the following recommendation for the domestic washing of uniforms:

- wash uniforms separately from other items
- fill washing machine to no more than half capacity
- use standard laundry detergent according to manufacturer instructions
- run a full-length hot wash cycle between 40°C and 60°C
- tumble-dry uniforms or hang to dry in full sun (where conditions are warm and dry)
- iron uniforms at conclusion of drying
- wear fresh, clean uniform to each shift
- adhere to additional employer guidelines for uniform laundering.
General considerations around prevention of transmission for staff

In addition to considerations around the direct care of patients with suspected, probable or confirmed COVID-19, there are important workplace measures that should be considered. The implementation of such measures should be considered at all times during the COVID-19 pandemic but may be of particular importance in geographic areas of increased risk of community transmission and during the management of a facility outbreak.

Workplace measures to reduce the risk of transmission of COVID-19 include:

- Symptomatic screening of staff when presenting to work
- Ready access to testing for symptomatic staff
- Processes to support leave
- Frequent, clear communication and updates about infection prevention and control measures and PPE
- Consultation and engagement with all staff, including operational and administrative staff, and volunteers about implementation of infection prevention and control measures
- Reduce face-to-face contact between staff and support physical distancing between staff: virtual meetings, remote working where possible, stagger meal breaks, encourage breaks being taken outdoors, where possible provide additional areas for breaks to encourage physical distancing
- Ensure adequate ventilation in clinical areas where patients with COVID-19 are accommodated
- Rostering for clinical areas where patients with COVID-19 are being cared for should incorporate consideration of increased workload and fatigue associated with constant and sustained PPE usage.

Environmental cleaning and disinfection

Environmental cleaning and disinfection are crucial to preventing transmission of infection in the healthcare environment. Coronaviruses can persist on surfaces but can be effectively inactivated by appropriate disinfectants.


Routine cleaning and disinfection

Cleaning tasks of the COVID-19 patient care environment should be undertaken using an appropriate detergent and disinfectant solution. Contact and droplet precautions (as above) should be observed while cleaning. Frequently touched surfaces (such as doorknobs, bedrails, tabletops, light switches, patient handsets) in the patient’s room should be cleaned at least daily or more frequently in high intensity or high traffic areas.
Consideration should be given to increased frequency of routine cleaning and disinfection of environmental surfaces and frequently touched surfaces in clinical areas where suspected, probable or confirmed COVID-19 cases are being accommodated.

Cleaning environmental surfaces and patient care equipment with water and detergent and applying commonly used disinfectants is an effective and sufficient procedure.

The preferred routine cleaning process should involve either a:

- 2-step clean. Physical cleaning with detergent followed by disinfection with a TGA-listed hospital-grade disinfectant with activity against viruses (according to label/product information) or a chlorine-based product such as sodium hypochlorite.
- 2-in-1 clean. A physical clean using a combined detergent and TGA-listed hospital-grade disinfectant with activity against viruses (according to label/product information) or a chlorine-based product such as sodium hypochlorite, where indicated for use, i.e. a combined detergent/disinfectant wipe or solution.

If a chlorine-based product is used, it should be made up daily to 1,000ppm from a concentrated solution, following label/product information.


**Final disinfectant clean**

Following discharge or transfer of the patient, prior to cleaning the room, the patient’s personal effects should be removed, and fabric privacy curtains and window curtains, if present, should be removed for laundering. For disposable curtains, follow local policy or follow manufacturer’s instructions including checking the expiry date. Remove when visibly soiled, torn, expired or during a local outbreak. Handle used textiles and fabrics with minimum agitation to avoid contamination of air, surfaces and persons. PPE for contact and droplet precautions should still be used.

The room and all patient care equipment remaining in the room should be physically cleaned. All furniture, patient equipment items, horizontal surfaces, frequently touched surfaces, e.g. light switches and call buttons, and bathroom, toilet and shower area should be thoroughly cleaned and disinfected. All consumables that are unable to be cleaned should be discarded.

**Patient care equipment**

Patient care and patient assessment devices, e.g. electronic thermometers, sphygmomanometers, glucometers, hoists, pat slides, may transmit COVID-19 if devices are shared between patients. To reduce the risk of transmission, disposable or patient-dedicated equipment is preferred. Equipment that is unable to be dedicated should be
cleaned and disinfected after use, allowed to dry and stored clean. See above in the routine cleaning section for advice on cleaning and disinfectant solutions.

**Cleaning in the context of an outbreak in a health facility**

Refer to Outbreak Management section

**Waste management**

Unsoiled PPE can be discarded into general waste (if this is acceptable within local council regulation and local facility waste management procedures). If visibly soiled e.g. with blood or faeces, PPE should be disposed of as clinical/infectious waste.

The need for frequent emptying of waste bins used for the disposal of PPE in clinical areas should be considered. Anecdotal evidence suggests that when such bins become full, healthcare workers may start to tamp down the waste when discarding used PPE, potentially leading to self-contamination.

Existing procedures for the management of general and clinical waste should be used.

**Linen management**

Used linen from a patient with suspect, probable or confirmed COVID-19 should be managed as foul or infectious linen (for example, immediately placed in an alginate bag and then into an appropriate laundry receptacle).

A long-sleeved gown and disposable gloves should be worn during handling of soiled linen to prevent skin and mucous membrane exposure to blood and body substances. The long-sleeved gown and disposable gloves should be removed, and hand hygiene performed following the handling of used linen.

Used hospital linen must not be rinsed or sorted in patient-care areas or washed in domestic washing machines.

**Food services**

Non-essential staff should be restricted from entering the COVID-19 patient care area. Food services staff should deliver all food and beverages to the designated clean area. These should then be delivered into the patient room by healthcare workers directly caring for the patient and removed by the healthcare workers directly caring for the patient once the meal is consumed.

Standard precautions should always be used when handling used crockery and cutlery. No additional precautions are required for the reprocessing of crockery and cutlery.

**Implementation of precautions in primary and community care settings**

- For patients in quarantine or isolation, outpatient therapy and non-urgent appointments should be postponed until after the end of their period of quarantine or isolation.
• Alert signage should be placed in a prominent position so that patients presenting with travel history, contact with a suspect, probable or confirmed case, who are in quarantine or with symptoms of COVID-19 are aware they must alert staff immediately so that infection prevention and control precautions can be taken.

• **Standard, contact and droplet precautions** should be used for routine consultation with patients presenting with symptoms of respiratory infection. This should include a surgical mask, long-sleeved gown/apron, gloves, and eye protection and placement of the patient in a single room with the door closed (ensuring air does not circulate to other areas). The patient should not remain in a shared waiting area.
  − Deep nasal or oropharyngeal swabs may be collected using standard, contact and droplet precautions, regardless of the severity of symptoms.

• A surgical mask should be placed on the patient and the healthcare worker should wear the same PPE as that recommended for hospital-based healthcare workers.


**Implementation issues for residential care facilities**


• Residential aged care facilities (RACF) should refer to the current Queensland Health Chief Health Officer public health directions webpage for advice about public health directions that apply to aged care in Queensland.

• All residents transferred to hospital from an RACF with a case or outbreak of COVID-19 must be managed under droplet and contact precautions while in hospital regardless of whether they are a case, suspected case or contact.

• Clear communication between RACF, Public Health Units, Hospitals and Queensland Ambulance Service is required when there is an outbreak or suspected COVID-19 case in an RACF.

**Outbreak management**

outbreaks.pdf, for general advice around outbreak management, outbreak plans and outbreak control teams (OCT).

All health facilities should ensure their outbreak control plans are up-to-date and specific plans have been formulated for a response to COVID-19 outbreaks.

An outbreak of COVID-19 in a healthcare facility and the decision to convene an OCT should be triggered by one confirmed case only (unless the patient is admitted with COVID-19 and being managed under droplet and contact precautions). For example (but not limited to):

- a confirmed case of COVID-19 in a staff member, contractor, student or volunteer who was at the facility during their infectious period
- a patient with a confirmed case of COVID-19 that went initially unrecognised and droplet and contact precautions were not in place for some or all of their admission
- a confirmed case of COVID-19 in a patient with onset of illness while an inpatient, or within 48 hours of discharge, and droplet and contact precautions were not in place for some or all of their infectious period.

An OCT should be convened as soon as possible on the same day an outbreak is identified, with the early involvement of the local public health unit.

Planning for the management of a COVID-19 outbreak in a health facility

Health facilities should include the following in their planning for COVID-19 outbreaks:

- **Staffing contingency plans**
  - In the event of an outbreak in a health facility, large numbers of staff may be quarantined or isolated. Planning for a surge workforce should be undertaken. Clinical and non-clinical surge staff should be considered. Additional staffing may be required for cleaning and administrative tasks as a result of the outbreak.

- **Training**
  - Just-in-time training in use of PPE and infection control procedures may be required for redeployed staff.

- **Consumables**
  - There is likely to be an increased demand for PPE, cleaning and disinfectant products, and hand hygiene products.

- **Cohorting**
  - Consideration should be given to the location and requirements for quarantine and isolation wards and separate staffing for these.

- **Screening**
  - Staff and patients should undergo regular, routine screening for symptoms and risk factors.

- **Testing**
  - Once an outbreak is detected, broad pathology testing of patients and staff is likely to be required. Plans should be in place to facilitate the safe collection, transport and testing of bulk amounts of specimens, and communication of the results.

- **Communication**
All relevant stakeholders should be identified and a communication plan for an outbreak should be formulated as part of planning.

**PPE in the context of a COVID-19 outbreak in a health facility**


**Cleaning in the context of a COVID-19 outbreak in a health facility**

Enhanced environmental cleaning and disinfection is required in the event of an outbreak. This applies to all areas in the outbreak zone including patient care areas and communal areas, and areas that are for staff only.

The following are key points for cleaning in the context of an outbreak:

- The frequency of routine cleaning should be increased (minimum twice daily).
- Routine cleaning of all surfaces and all areas in the outbreak zone should be carried out using either a 2-step clean (detergent followed by disinfectant) or a combined detergent and disinfectant product. Refer to the section on environmental cleaning and disinfection.
- There should be an increased frequency of the cleaning and disinfection of frequently touched surfaces.
- All patient care equipment must be dedicated as much as practicable and cleaned and disinfected between patients.
- After an AGP is performed the room must be left empty for at least 30 minutes after the procedure and then environmental cleaning performed. Note: The time required for adequate air changes varies; follow local procedures where they exist for the period of time a room must remain empty. Staff performing the cleaning after these 30 minutes should wear PPE for contact and droplet precautions. Refer to Appendix 1 for information about required air changes per hour.
- Ensure adequate communication with the cleaning team. Ensure cleaning services are represented on the OCT. Additional staffing may be required for cleaning.
- The need for frequent emptying of waste bins used for the disposal of PPE in clinical areas should be considered. Anecdotal evidence suggests that when such bins become full, healthcare workers may start to tamp down the waste when discarding used PPE, potentially leading to self-contamination.

**Review**

This is an interim guideline and will be reviewed as new information becomes available.

**Business area contact**

Communicable Diseases Branch
## Definitions of terms used in the policy and supporting documents

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition/Explanation/Details</th>
<th>Source</th>
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<tbody>
<tr>
<td>Aerosol-generating procedures (AGPs)</td>
<td>Any medical procedure that can induce the production of aerosols of various sizes, including small (&lt;5µm) particles. See section on <a href="#">aerosol-generating procedures</a> in this document</td>
<td>WHO</td>
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<td>Cohorting</td>
<td>Placing together in the same room patients who are infected with the same pathogen and are suitable roommates.</td>
<td>NHMRC</td>
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<td>Negative pressure room</td>
<td>A single-occupancy patient care room used to isolate persons with a suspect, probable or confirmed airborne infectious disease. Environmental factors are controlled in negative pressure rooms to minimise the transmission of infectious agents that are usually transmitted from person to person by droplet nuclei associated with coughing or aerosolisation of contaminated fluids.</td>
<td>NHMRC</td>
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<tr>
<td>Personal protective equipment (PPE)</td>
<td>A variety of barriers used alone or in combination to protect mucous membranes, skin and clothing from contact with infectious agents. PPE includes gloves, masks, respirators, protective eyewear, face shields and gowns.</td>
<td>NHMRC</td>
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</tbody>
</table>
## Approval and implementation

**Document custodian:**
Public Health Incident Controller, State Health Emergency Coordination Centre COVID-19

**Approving officer:**
Dr Heidi Carroll, Specialist Public Health Advisor, State Health Emergency Coordination Centre COVID-19

**Approval date:** 4 October 2020

### Version control

<table>
<thead>
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<th>Version</th>
<th>Date</th>
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<th>Comments</th>
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<tr>
<td>1.14</td>
<td>4 October 2020</td>
<td>CDB Infection Management</td>
<td>Addition of outbreak management section. Additional of cleaning in the context of an outbreak in a health facility section. Revision of key points to include information regarding areas of community transmission. Revision of section isolation and restriction of suspect, probable and confirmed cases, transmission-based precautions advice and PPE and patient placement in accordance with the Department of Health <em>Guidance on the use of PPE in hospitals during the COVID-19 outbreak</em> published 31 July 2020 and 17 September. Revision of patient movement section. Addition of advice about use of face masks in children. Clarification and minor wording changes throughout.</td>
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<td>1.13</td>
<td>24 June 2020</td>
<td>CDB Infection Management</td>
<td>Revision of advice on precautions required for the collection of upper respiratory swab specimens. Standard, droplet and contact precautions required regardless of disease severity (i.e. no requirement for airborne precautions for patients with severe disease). Based on revised advice in the CDNA SoNG published 13 May 2020. Wording in this section simplified. Added advice regarding use of an apron or cloth gown as alternatives to long-sleeved fluid-resistant gown.</td>
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<td>Link to further information on fit checking added to PPE and patient placement section.</td>
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<td>Reference to Bare Below the Elbows added to Fitting and removing PPE section.</td>
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<td>Clarification added to Transport considerations section.</td>
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<td>Link to COVID-19 SoNG for further information about clearance for healthcare workers added to Healthcare worker monitoring section.</td>
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<td>Added advice regarding disposable privacy curtains.</td>
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<td></td>
<td>Revision of advice for patients being managed in ICU – a local risk assessment should be performed for each patient being managed in ICU. Airborne precautions should always be added when an aerosol-generating procedure is being undertaken. This section wording clarified and simplified. Reference to KN95 masks removed.</td>
</tr>
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</table>
| 1.12   | 11 May 2020| CDB Infection Management | Addition of Appendix 5: Properties of PPE for use in healthcare Revision of advice on droplet versus airborne precautions and PPE throughout based on revised Australian Department of Health Guidance on the use of personal protective equipment (PPE) in hospitals during the COVID-19 outbreak published 27 April 2020:  
• Previous advice to use airborne precautions has been rescinded for: routine care of cases with severe respiratory symptoms suggestive of pneumonia (e.g. fever and difficulty breathing), with severe or productive coughing episodes, and clinically ill patients requiring high-level/high-volume care outside of ICU.  
• Plastic apron as a suitable alternative to a long-sleeved gown for patients being managed using standard, contact and droplet precautions in situations in
which the risk of splash is low.

Major update to:
- aerosol-generating procedures
- patients being managed in ICU.

Minor revisions to:
- background
- patient movement
- visitors
- routine cleaning
- final disinfectant clean.

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<th>Inclusion of advice for probable cases throughout.</th>
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<td>Minor revisions to the following:</td>
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<td>- key points</td>
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New section:
- Considerations for patients who are under a quarantine order that do not have symptoms suggestive of COVID-19.
- Linen management
- Healthcare worker uniforms and personal apparel
- Considerations on choice of PPE
  - surgical masks
  - gowns.

Major update to:
References


Appendix 1 – Airborne contaminant removal

The following guidance has been adopted from the Centers for Disease Control and Prevention, Healthcare Infection Control Practices Advisory Committee (HICPAC): Guidelines for Environmental Infection Control in Health-Care Facilities, available at http://www.cdc.gov/hicpac/pdf/guidelines/eic_in_HCF_03.pdf

Table 1. Airborne Contaminant Removal. Air changes/hour (ACH) and time required for airborne-contaminant removal efficiencies of 99% and 99.9%*

<table>
<thead>
<tr>
<th>ACH+ § ¶</th>
<th>99% efficiency</th>
<th>99.9% efficiency</th>
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* This table is revised from Table S3-1 in reference 4 and has been adapted from the formula for the rate of purging airborne contaminants presented in reference 1435. Please use the following link: http://www.cdc.gov/hicpac/pdf/guidelines/eic_in_HCF_03.pdf

+ Shaded entries denote frequently cited ACH for patient-care areas.

§ Values were derived from the formula:

\[ t_2 - t_1 = - \left[ \ln \left( \frac{C_2}{C_1} \right) / (Q / V) \right] \times 60, \]

with \( t_1 = 0 \) and where:

- \( t_1 = \) initial timepoint in minutes
- \( t_2 = \) final timepoint in minutes
- \( C_1 = \) initial concentration of contaminant
- \( C_2 = \) final concentration of contaminant
- \( C_2 / C_1 = 1 - (\text{removal efficiency} / 100) \)
- \( Q = \) air flow rate in cubic feet/hour
- \( V = \) room volume in cubic feet
- \( Q / V = \) ACH

§Values apply to an empty room with no aerosol-generating source. With a person present and generating aerosol, this table would not apply. Other equations are available that include a constant generating source. However, certain diseases (e.g., infectious tuberculosis) are not likely to be aerosolised at a constant rate. The times given assume perfect mixing of the air within the space (i.e., mixing factor = 1). However, perfect mixing usually does not occur. Removal times will be longer in rooms or areas with imperfect mixing or air stagnation. Caution should be exercised in using this table in such situations. For booths or other local ventilation enclosures, manufacturers’ instructions should be consulted.
Appendix 2 – Patient placement (cohorting) advice

Confirmed cases

Cohorting of confirmed cases of COVID-19 must only be undertaken following consultation with local experts, such as infectious disease physicians, the local infection prevention and control service and public health unit as relevant. Where practicable, managing patients with mild illness in their own home is the preferred approach rather than cohorting patients in hospital.

Cohorting patients who are infected with COVID-19 confines their care to one area and prevents contact with other patients.

The following principles apply when making decisions about patient placement:

- Prioritise patients who have severe pneumonia symptoms for placement in single rooms with negative pressure air handling.
- Consider the patient’s ability to perform hand hygiene and follow appropriate cough and personal hygiene etiquette.
- Care should be taken to ensure that probable and suspect cases are not cohorted with confirmed cases.
- Care should be taken to ensure that confirmed COVID-19 cases co-infected with influenza or other respiratory viruses are not cohorted.

A suitable ward should be identified for the exclusive use of cohorting confirmed COVID-19 patients. When determining the location of the cohort ward, the following should be considered:

- the ability to isolate the ward air handling system (if aerosol-generating procedures are to be performed anywhere on the ward)
- the ventilation of the ward area:
  - in heating, ventilation and air conditions (HVAC) systems with modulating outside air systems, or where manual adjustment is possible, increasing outside air rates to provide increased dilution should be considered. It is recommended that ventilation or air conditioning systems that normally run with a recirculation mode should be set up to run on full outside air where this is possible. This will also require increasing the system’s exhaust air rate and will help dilute any contaminants in the circulating air.
  - It should be noted that increasing outside air rates and or ventilation rates will generally result in increased energy usage and in some circumstances may result in difficulties in the system maintaining the desired internal temperature and humidity conditions.
  - Early engagement with local engineering experts (BEMS) is advised. These local experts understand the way the systems have been designed, operated and perhaps modified over the years and can...
the ability to limit entry/access to the ward

- the ward contains the necessary equipment

- spatial separation of greater than 1.5 metres between bed spaces

- patient populations of adjacent areas. The cohort ward should be separated from patients who are potentially at greater risk of complications from COVID-19, for example, haematology, oncology and transplant services

- wherever possible, curtains, privacy screens or barriers should be used to physically separate patients to help reduce the transmission of infection.

Management of cohort areas should incorporate the following:

- When cohorting cases, consideration must be given to the need to escalate use of PPE in line with the advice to use standard, contact and airborne precautions in:
  - settings where there is a high density of COVID-infected patients, particularly in wards or cohorted areas without optimal ventilation and where prolonged episodes of care are required, and
  - where there are high numbers of COVID-19 patients AND a risk of challenging behaviours and/or unplanned aerosol-generating procedures. Refer to the section on Transmission-based precautions.

- Standard and transmission-based precautions must be maintained. The following options can be used:
  - Gowns and gloves must be changed and hand hygiene performed between contact with each patient in the cohort area.
  - A plastic apron is worn over the long sleeve gown when providing care with minimal patient contact. The plastic apron and gloves must be changed, and hand hygiene performed between contact with each patient.

- When using one of the above options, surgical mask and eye protection can stay in place between patients. Once a mask is removed it must be discarded. Once eye protection is removed it must be either discarded or cleaned and disinfected appropriately (according to whether it is a single use or reusable item).

- Where there is extensive patient contact, in addition to the apron and gloves, the gown must also be changed at the end of the procedure and hand hygiene performed. Examples of extensive contact are providing care such as dressing large or complex wounds; hygiene cares for incontinent clients; hygiene cares or pressure area care when a client is fully dependent; urinary catheter cares.

- Whenever possible, healthcare workers assigned to cohorted patient care units should be experienced healthcare workers and should not float or be assigned to other patient care areas. Separate staffing arrangements for COVID-19 and non-COVID-19 patients may also assist in protecting patients, as well as staff members, at particular risk of COVID-19 complications.

- The number of persons entering the cohorted area should be limited to the minimum number necessary for patient care and support.
• Records of persons entering the cohort area are to be maintained.
• Patient transport should be limited by having necessary equipment, e.g. portable X-ray, available in cohort areas.
• The frequency of environmental cleaning and disinfection should be increased in cohort areas.
• The need for frequent emptying of waste bins used for the disposal of PPE in clinical areas should be considered. Anecdotal evidence suggests that when such bins become full, healthcare workers may start to tamp down the waste when discarding used PPE, potentially leading to self-contamination.
• During aerosol-generating procedures, contact and airborne precautions should be followed for at least the duration of the procedure. Where available the procedure should be undertaken in a negative pressure room. Where this is not available, the procedure should be undertaken in a treatment room with the door closed, away from other patients. In all cases, leave the room vacant with the door closed for 30 minutes after the procedure and the patient has vacated the room. The room may be cleaned by a worker wearing the correct PPE during this period.

Suspect cases

The decision to cohort suspect cases needs to be taken following consultation with local experts, such as infectious diseases physicians and infection control practitioners. **Cohorting suspect cases is not recommended if it can be avoided.**

Where suspect cases must be cohorted, epidemiological and clinical suspicion should be considered when deciding which suspect case are placed together. Physical distancing measures must be adhered to with a minimum of 1.5 metres distance maintained between patients at all times.

In addition to the requirements outlined above for cohorting suspect cases, curtains, privacy screens or barriers should be used at all times to physically separate patients. This will help to reduce the potential for transmission of infection. The curtains or barriers between patients must remain in place whenever a patient is present. Probable and suspect cases should not be cohorted with confirmed cases.

Version control – Appendix 2

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<td>1 September 2020</td>
<td>Inclusion of requirement to maintain records of all persons entering cohort areas.</td>
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<tr>
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<td></td>
<td>Inclusion of further advice to consider ventilation of cohort areas, PPE escalation, increasing frequency of environmental cleaning and emptying of waste bins.</td>
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<tr>
<td>V1.1</td>
<td>23 April 2020</td>
<td>Inclusion of advice for probable cases. Revised: confirmed cases.</td>
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<td>V1.0</td>
<td>6 March 2020</td>
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Appendix 3 – PPE quick reference guide

Please note this is a quick reference guide only on the recommended PPE for the care of suspect, probable and confirmed COVID-19 cases. Staff should be familiar with the comprehensive advice available in the Queensland Health Interim infection prevention and control guidelines for the management of COVID-19 in healthcare settings.

**Please refer to the Queensland Health Pandemic Response Guidance: Personal protective equipment in Healthcare Delivery** for information regarding escalation of PPE in geographic areas with an increased risk of community transmission.

Always use standard precautions for all patients regardless of the known or presumed infectious status.

### Table 1. Recommended PPE for the care of suspect, probable and confirmed COVID-19 cases

<table>
<thead>
<tr>
<th>PPE Item</th>
<th>No direct patient physical contact and &gt;1.5 metres</th>
<th>Patient contact &lt;1.5 metres</th>
<th>Patients in ICU</th>
<th>Aerosol-generating procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disposable gloves</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Disposable plastic apron</td>
<td>No</td>
<td>Yes²,³</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Long-sleeved gown</td>
<td>No</td>
<td>Yes³</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Surgical mask (Level 1, 2 or 3)</td>
<td>No</td>
<td>Yes</td>
<td>Yes⁴ when droplet precautions are to be routinely applied</td>
<td>No</td>
</tr>
<tr>
<td>P2/N95 respirator</td>
<td>No</td>
<td>No</td>
<td>Yes⁴ when airborne precautions are to be routinely applied</td>
<td>Yes</td>
</tr>
<tr>
<td>Eye protection</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

1. Use standard precautions when a distance of >1.5 metres can be maintained between the healthcare worker and patient. In this instance, no physical patient contact is to occur, and a minimum distance of >1.5 metres from the patient is strictly observed.

2. For wards where patients with confirmed COVID-19 are being cohorted, please refer to Appendix 2 – patient placement (cohorting) for PPE advice regarding the appropriate use of plastic aprons in cohort environments.

3. As noted from Australian Department of Health Guidance on the minimum recommendations for the use of personal protective equipment (PPE) in hospitals during the COVID-19 outbreak.
a plastic apron or a cloth gown is adequate for patients being managed using **standard, contact and droplet precautions** in situations when direct physical contact is minimal and/or the risk of splash is low (e.g. specimen collection, observations, medication delivery)

4. Patients who are being managed in ICU, whether ventilated, receiving non-invasive ventilation or other respiratory support, are likely to undergo frequent AGP. Therefore, a local risk assessment should be performed for each patient who is a suspect, confirmed or probable case of COVID-19 being managed in ICU to consider whether they should be routinely managed using **standard, contact and airborne precautions**, or **standard, contact and droplet precautions**. Airborne precautions should always be added when an aerosol-generating procedure is being undertaken.

5. Aerosol-generating procedures include tracheal intubation, non-invasive ventilation, tracheotomy, **active airway management during** cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy (and bronchoalveolar lavage), high-flow nasal oxygen. For a comprehensive list of aerosol-generating procedures please refer to the Australian Department of Health **Guidance on the minimum recommendations for the use of personal protective equipment (PPE) in hospitals during the COVID-19 outbreak** published 17 September 2020.

References

## Version control – Appendix 3

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<td>Inclusion of link to Queensland Health <em>Pandemic Response Guidance: Personal protective equipment in Healthcare Delivery</em>. Revision of list of aerosol-generating procedures to direct readers to Australian Department of Health <em>Guidance on the use of personal protective equipment (PPE) in hospitals during the COVID-19 outbreak</em>.</td>
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<td>Revision of advice based on revised Australian Department of Health <em>Guidance on the use of personal protective equipment (PPE) in hospitals during the COVID-19 outbreak</em> published 26 May 2020. Revision of advice regarding management of patients in ICU – a local risk assessment should be performed for each patient. Addition of advice that a plastic apron or cloth gown may be used in situations when direct physical contact is minimal and/or the risk of splash is low (e.g. specimen collection, observations, medication delivery).</td>
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<td>11 May 2020</td>
<td>Revision of advice based on revised Australian Department of Health <em>Guidance on the use of personal protective equipment (PPE) in hospitals during the COVID-19 outbreak</em> published 27 April 2020. Advice to use airborne precautions has been rescinded for: routine care of cases with severe respiratory symptoms suggestive of pneumonia (e.g. fever and difficulty breathing), with severe or productive coughing episodes, and clinically ill patients requiring high-level / high-volume care outside of ICU.</td>
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<td>V1.0</td>
<td>26 March 2020</td>
<td>New appendix</td>
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Safe fitting and removal of personal protective equipment (PPE) for healthcare staff

**CORRECT PROCESS FOR FITTING PPE**

**IMPORTANT:** Maintain standard precautions when fitting and removing PPE when caring for confirmed, probable or suspected cases of COVID-19!

1. **Perform hand hygiene**

2. Put on long-sleeved, preferably fluid-resistant gown or apron
   - Button the back of the gown/apron at the neck and waist.

3. Put on surgical mask or P2/N95 respirator
   - Secure mask (for surgical mask) or elastic bands (for respirators) at the middle of the head and neck.
   - Fit flexible band to nose bridge.
   - Extend width to reach ears and below the chin.
   - For respirator use, perform a fit check according to manufacturer’s instructions.
   - Plastic face mask (Fit Check for P2/N95 respirator)

4. Put on protective eyewear/face shield
   - Place protective eyewear/face shield over eyes, face and adjust to fit.

5. Put on gloves
   - Exceed to cover wrist of long-sleeved gown, if worn.

**CORRECT PROCESS FOR REMOVING PPE**

**IMPORTANT:** Only remove mask after exiting the patient room!

1. Remove gloves
   - The outside of gloves is contaminated. Remove gloves being careful not to contaminate hands during glove removal.
   - Discard gloves into clinical waste.

2. Perform hand hygiene

3. Remove gown or apron
   - The gown and sleeves are contaminated. Use or break fasteners and pull gown away from body, touching the inside of the gown only.
   - Discard gown into clinical waste.

4. Perform hand hygiene

5. Remove protective eyewear/face shield
   - The outside of protective eyewear/face shield is contaminated.
   - Remove protective eyewear/face shield by lifting the head forward and lifting the headband of all pieces, avoiding touching the front surface of the eyewear/face shield.
   - Replace items should be placed in a designated receptacle for reprocessing.
   - Place disposable items in clinical waste.

6. Perform hand hygiene

7. Remove P2/N95 respirator or surgical mask
   - Do not touch the front of the P2/N95 respirator or surgical mask.
   - Remove respirator or surgical mask by holding the elastic strap of the mask and remove without touching the floor.
   - Discard P2/N95 respirator or surgical mask into clinical waste.

8. Perform hand hygiene

*Current as of 3 June 2020*
### Recommended personal protective equipment (PPE) for healthcare staff

#### PPE RECOMMENDED FOR:

**Routine care of confirmed, probable or suspected COVID-19 cases**

<table>
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<th>Patient</th>
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<tr>
<td>• Perform hand hygiene</td>
<td>• Place the patient in a single room with the door closed (a room from which the air does not circulate to other areas is preferred) if available</td>
</tr>
<tr>
<td>• Recommended PPE for contact and droplet precautions:</td>
<td>• Move patient within facility only when medically necessary</td>
</tr>
<tr>
<td>1. Long-sleeved, preferably fluid-resistant gown or apron</td>
<td>• Place a surgical mask on patient during transfer out of their single room if possible</td>
</tr>
<tr>
<td>2. Surgical mask</td>
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<td>3. Protective eyewear /faceshield</td>
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</tr>
<tr>
<td>4. Gloves</td>
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#### PPE RECOMMENDED FOR:

**Aerosol-generating procedures performed on confirmed, probable or suspected COVID-19 cases**

<table>
<thead>
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<th>Patient</th>
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</thead>
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<tr>
<td>• Perform hand hygiene</td>
<td>• Place the patient in a single room with negative pressure air handling</td>
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<td>• Recommended PPE for contact and airborne precautions:</td>
<td>• Move patient within facility only when medically necessary</td>
</tr>
<tr>
<td>1. Long-sleeved, preferably fluid-resistant gown</td>
<td>• If possible, place a surgical mask on patient during transfer out of their single room</td>
</tr>
<tr>
<td>2. P2/N95 respirator</td>
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<tr>
<td>3. Protective eyewear /faceshield</td>
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<td>4. Gloves</td>
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Appendix 4 – Infection control guidance for fever clinics for COVID-19

Background

Hospital and Health Services (HHS) should have in place systems to rapidly assess and manage symptomatic people for COVID-19. Depending on demand and capacity, this may be through current emergency department procedures or through special assessment areas, referred to as ‘fever clinics’ in this document.

It is anticipated that public and private hospitals and general practices (GPs) may quickly exceed capacity for a potentially high volume of patients. Fever clinics may relieve the diagnostic burden on hospitals and GPs by providing rapid triage and assessment of symptomatic patients and allowing hospital emergency departments to continue to focus clinical services on patients requiring emergency care.

HHS may also consider increasing local telehealth options to decrease demand on emergency department services. Patients could be assessed via telehealth consultation with a clinician to decide whether any clinical management is required, or whether they meet the criteria for testing. This could provide reassurance to the ‘worried well’ and potentially prevent unnecessary presentations.

The criteria for establishment of a hospital fever clinic will depend on the number of patients presenting for assessment, the need and capacity for assessment and management of these patients, and the capacity of the emergency department to appropriately isolate these patients from others.

Aim of fever clinics

The aim of establishing a fever clinic is to reduce the burden on emergency departments and reduce the risk of transmission of COVID-19 to other vulnerable patients presenting to the hospital.

Objectives of fever clinics

The objectives of fever clinics are to:

- rapidly assess and refer (where indicated) people presenting with COVID-19 symptoms
- reduce the impact on scarce health resources through use of a controlled triage system
- initiate isolation for confirmed, probable or suspect cases and quarantine of close contacts
- collect clinical and epidemiological data on cases to inform clinical management and public health decisions
- identify and refer the need for home support services.
General principles

The HHS should develop clear guidance for the model of care for patients presenting to the fever clinic, including guidance for triage, assessment, management, referral and documentation.

It should be recognised that patients with varying needs may present to the fever clinic. Clear local procedures should be developed and communicated for:

- efficient transfer to the emergency department where required or directly to a dedicated inpatient unit
- referral for other health or social services.

Infection prevention and control principles

Standard precautions, particularly good hand hygiene practice and attention to appropriate environmental cleaning and disinfection, should be strictly implemented by all staff working in the fever clinic. All staff working in a fever clinic must have completed training on safe fitting and removal of PPE.

People who present for screening should be considered to be infectious and should be provided with a surgical mask on arrival and asked to perform hand hygiene with alcohol-based hand rub. The use of signage or recorded message to guide patients on expected actions should also be considered.

While the patient is wearing a surgical mask, there is no need for staff to be wearing respiratory protection if they are in the same room or greater than 1.5 metres away from the patient, or where staff do not provide direct physical care or have face-to-face consultation.


For most interaction with patients in a fever clinic the patient should be managed using contact, droplet and standard precautions. This means:

**For patients:**

- Patients should wear a surgical mask for their entire visit while they are in the waiting area and in consultation (unless it needs to be removed as directed by a healthcare professional to perform assessment or care, or to collect a pathology specimen).
- Hand hygiene and respiratory hygiene should be encouraged.
- Patients should maintain physical distancing (at least 1.5 metres) from others in the clinic.

**For staff:**

- Maintain hand hygiene.
- Staff should maintain physical distancing (at least 1.5 metres) from others in the clinic where possible.
- While having face-to-face contact or providing care, staff should wear a surgical mask, eye protection, gloves and long-sleeved gown/apron.
• Standard and transmission-based precautions must be maintained. The following options can be used:
  − Gowns/aprons and gloves must be changed, and hand hygiene performed between contact with patients in the fever clinic, or
  − a plastic apron must be worn over the long-sleeved gown when providing care with minimal patient contact. The plastic apron and gloves must be changed, and hand hygiene performed between contact with patients.

• When using one of the above options, surgical mask and eye protection can stay in place between patients. Once a mask is removed it must be discarded. Once eye protection is removed it must be either discarded or cleaned and disinfected appropriately (according to whether it is a single use or reusable item).

Staffing considerations

Refer to the Queensland Health Interim infection prevention and control guidelines for the management of COVID-19 in healthcare settings for advice about staffing allocation and healthcare worker health monitoring.

In the fever clinic setting, it is recommended that healthcare workers are dedicated to fever clinics to minimise risk of transmission and exposure to other patients and healthcare workers. That is, staff should not alternate between the fever clinic and other clinical areas where vulnerable patients are managed.

Review the influenza vaccination status of staff providing direct care and encourage all staff to have up-to-date influenza vaccination and COVID-19 vaccination when available.

Site and layout of fever clinic

The site and layout of the space used for the fever clinic should be carefully considered and planned. The layout should allow enough space to maintain physical distancing.

• The location of the fever clinic should have direct external access and not require presenting patients to travel through a hospital or healthcare facility. Careful consideration should be given to ensuring patients presenting to the fever clinic do not have contact with other vulnerable patients.

• Consider the use of markings on the floor (e.g. tape) to indicate physical distancing requirements.

• The reception station should be the first point of contact for patients presenting to the clinic. There should be clear signage directing patients to stand at least 1.5 metres back from the reception desk.

• Chairs in the waiting area should be placed greater than 1.5 metres apart. Patients should be directed not to move the chairs.

• Alcohol-based hand rub should be placed at all stations and made available to patients. Wall-mounted or free-standing alcohol-based hand rub dispensers should be considered. Facilities for hand washing (using running water and liquid soap, and paper towels to dry hands) should also be available to staff with visually contaminated hands.
• The space should not be carpeted, and all surfaces should be impermeable and easily cleaned.

• Unless aerosol-generating procedures are being undertaken, there are no specific air-conditioning or air-handling requirements. However, if a space is used that is not air-conditioned there should be good natural ventilation. For further information about management of aerosol-generating procedures refer to the Queensland Health Interim infection prevention and control guidelines for the management of COVID-19 in healthcare settings.

Clinic flow

Reception

This station should be situated at the entrance to the clinic and provide the first point of contact with healthcare personnel.

The role of this station is to:

• provide a surgical mask and alcohol-based hand rub upon entry

• identify people presenting for non-COVID-19-related issues and redirect to appropriate services

• collect and record initial identifying information

• provide information to clients on clinic operations, requirements for physical distancing within the clinic and wearing of surgical mask throughout the assessment process.

• provide a waiting number to ease processing through triage and registration

• direct the person to the triage station.

Staff in this area could be non-health-professional staff with good communication skills and basic training in infection control. These staff will need to be able to gather initial health information and personal details using a consistent tool/script.

Triage and nursing assessment

All people presenting to the fever clinic should be triaged on arrival by a specifically trained member of a clinical assessment team. Staff in this area should be registered nurses who are skilled in triage and clinical assessment.

Further consultation

Depending on the physical and human resources available and the volume of patients being seen in the fever clinic, the functions of the fever clinic could be combined into one consultation, i.e. one healthcare worker who performs the assessment, testing and referral, or separated for further efficiency.

Clinical assessment

Following triage, patients may require further prompt clinical assessment. These patients should be seen for assessment according to local procedures as soon as possible. If required, transfer to
the emergency department or direct transfer to a designated inpatient unit should be arranged as soon as possible.

Testing


- Testing should be performed as per the most up-to-date version of the Public Health Laboratory Network guidance on laboratory testing for SARS-CoV-2, available at https://www.health.gov.au/resources/publications/phln-guidance-on-laboratory-testing-for-sars-cov-2-the-virus-that-causes-covid-19

Samples for testing may be collected by a registered nurse. Training in the collection of deep nasal and oropharyngeal swabs may be required.

Registered nurses in Queensland HHS may request and order testing for COVID-19.

Patient information following testing

Patients who have samples collected for testing must be advised to isolate until they are notified of their results.

Information regarding isolation requirements are available at: https://www.health.qld.gov.au/__data/assets/pdf_file/0026/951055/covid19-self-isolation-requirements.pdf

Referral for social support or community-based home assistance

People presenting to the fever clinic may require healthcare assistance at home or access to social support while unwell or in isolation. If so, established processes for referral to these services should be followed.

Staff responsible for assessing and referring patients for home health support or social support could come from a variety of nursing or allied health background.

A clear local referral process is needed for communication with community services and to ensure a timely response.

Notification of COVID-19 testing results

Positive results

Patients who test positive to COVID-19 will need to be notified by telephone and directed to isolate immediately. This means they must:

- stay indoors
- monitor symptoms and contact their doctor or 000 if symptoms are worsening
• reduce the chance of spread to others in their household by staying in a different bedroom/bathroom, not sharing household items and wearing a mask where necessary.

Further details on isolation requirements can be found here:

The patient should be advised that they will be contacted by their local public health unit for further management.

Negative results

Telephone or SMS communication can be used to convey results to those patients who have tested negative to COVID-19. The following examples can be used to notify individuals of their negative result.

Template SMS script

Your test for COVID-19 was negative. Call (insert number) if further information is needed.

If you have been issued with a quarantine direction, you must remain in quarantine until the end date written on the direction regardless of this result. This is because you may still develop COVID-19 infection.

If you have any concerns about your symptoms, call your doctor or 13 HEALTH (13 43 25 84).

Call 000 if you have serious symptoms such as difficulty breathing and please tell them if you are in quarantine.
Template telephone call flow chart

Confirm patient details:
Hi (name), your test for COVID-19 was negative. Have you been issued with a quarantine direction?

Yes

You must remain in quarantine until the end date written on the direction because you may still develop COVID-19 infection.

If you have any concerns about your symptoms during this time, you must call your doctor or 13 HEALTH.

Call 000 if you have serious symptoms such as difficulty breathing and tell them that you are in quarantine.

No

Are you currently unwell?

Yes

You must stay home until all your symptoms have resolved. You may then return to work. Continue to practice physical distancing and good hand hygiene.

No

You are able to return to work. Continue to practice physical distancing and good hand hygiene.
Bibliography and further information


Supporting and related documents


Definitions

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<tr>
<td>CDB</td>
<td>Communicable Diseases Branch</td>
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<td>CDIM</td>
<td>Communicable Diseases Infection Management</td>
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<td>CE</td>
<td>Chief Executive</td>
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<td>CHO</td>
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<td>HHS</td>
<td>Hospital and Health Service</td>
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<td>PHU</td>
<td>Public health unit</td>
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Standard precautions: They are the basic level of infection control precautions which are to be used, as a minimum, in the care of all patients.

Transmission based precautions: Transmission-based precautions are applied in addition to standard precautions. Transmission-based precautions are applied to patients confirmed, probable or suspect to be infected with agents transmitted by the contact, droplet or airborne routes.

Version control – Appendix 4

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| V1.2    | 28 April 2020 | Revised: Template SMS script  
|         |             | Revised: Template telephone call flow chart                             |
| V1.1    | 23 April 2020 | Revised: Objectives of fever clinic.  
|         |             | Revised: Clinical assessment.  
|         |             | Revised: SMS template.  
|         |             | Revised: Template Telephone call flowchart.                              |
| V1.0    | 3 April 2020  | New appendix                                                            |
Appendix 5 – Properties of PPE for use in healthcare

The hierarchy of control is a system for controlling risks in the workplace. The Australian Guidelines for the Prevention and Control of Infection in Healthcare (2019), available at https://app.magicapp.org/goto/guideline/Jn37kn/section/LkzVWj, has an overview of risk management in infection prevention and control. The use of PPE is the lowest in the hierarchy of control measures and is also considered the least reliable. All other measures should be taken to remove or control the risk to workers and patients where it is practicable to do so without the need for PPE. Healthcare workers must perform a local risk assessment prior to fitting PPE to inform their use and selection of PPE.

This risk assessment should consider the type of patient interaction, the risk of transmission of the infectious agent, and the risk of contamination of the healthcare worker skin/mucous membranes by patients’ blood, body substances, secretions or excretions and how long the PPE is likely to be required to be worn.

Any examples included in this appendix are not exhaustive and are intended to illustrate potential uses for each type of protection.

The Therapeutic Goods Administration (TGA) provides advice for alternative use of PPE when supply levels reach crisis supply levels. This information can be found at https://www.tga.gov.au/media-release/advice-surgical-masks-and-gowns-during-covid-19. Items of PPE that are labelled or promoted for use in surgical or hospital environments require inclusion in the Australian Register of Therapeutic Goods (ARTG).

Standards Australia have published the relevant Australian or joint Australian/New Zealand standards that PPE must meet, including the applicable conformance test methods. This information is available at https://www.standards.org.au/summary-information-on-standards-and-conformance-for-ppe-products.

Masks

Surgical masks

Surgical masks are single use, fluid-resistant, disposable and loose fitting protection devices that create a physical barrier between the mouth and nose of the wearer and the immediate environment but do not achieve a close seal to the wearer's face. When used, surgical masks should cover both the mouth and the nose and be secured using the ear loops or ties at the back of the head. Surgical masks are graded as barrier level 1, 2 or 3 based on the level of protection provided and fluid resistance and are used for blocking splashes and large particle droplets or sprays which may occur (see below). They do not provide complete protection from pathogens and other small particle contaminants.

Australian Standard 4381:2015 Single use face masks for use in health care (AS 4381:2015) sets out the requirements for single use face masks which are used in healthcare. Masks intended by the manufacturer for use in an Australian hospital setting to reduce the transmission of pathogens should be included on the Australian Register of Therapeutic Goods (ARTG). These masks are used to minimise mucous membrane exposure to infectious microbial droplets.
Surgical masks are suitable for droplet precautions and are **not** suitable for use to protect the wearer from **airborne** infectious agents. Please see the section for respirators (P2/95 respirators) below for more information about respirators that are suitable for airborne precautions.

Face masks are categorised as level 1 barrier, level 2 barrier or level 3 barrier. The barrier protection levels refer to the characteristics of the masks based on three characteristics (see Table 1). The masks' resistance to penetration by synthetic blood at different pressures is the characteristic that is most relevant when considering whether a level 1, 2 or 3 barrier mask is used.

The COVID-19 pandemic has led to worldwide shortages of level 3 barrier protection masks. All three levels of surgical masks are fluid-resistant; however, the level of fluid resistance increases with each level of mask. Please refer to the Australian Standard 4381:2015 Single use face masks for use in health care for detailed information.

In the majority of situations where standard respiratory protection is needed, a single use surgical mask is appropriate (minimum level 1 barrier).

Considerations when using a surgical mask include:

- Masks should be changed when they become soiled or wet.
- Masks should never be reapplied after they have been removed.
- Masks should not be left dangling around the neck.
- Touching/adjusting the front of the mask while wearing it should be avoided.
- Hand hygiene should be performed upon touching or discarding a used mask.
<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bacterial filtration efficiency %</strong></td>
<td>≥95</td>
<td>≥98</td>
<td>≥98</td>
</tr>
<tr>
<td><strong>Differential pressure (mm H₂O/cm²)</strong></td>
<td>&lt;4.0</td>
<td>&lt;5.0</td>
<td>&lt;5.0</td>
</tr>
<tr>
<td><strong>Resistance to penetration by synthetic blood (minimum pressure in mm Hg for pass)</strong></td>
<td>80 mm Hg</td>
<td>120 mm Hg</td>
<td>160 mm Hg</td>
</tr>
<tr>
<td><strong>Standard precautions</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Droplet precautions</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Suitable uses (as per AS 4381:2015)</strong></td>
<td>For general purpose medical procedures where the wearer is not at risk of blood or body fluid splash or to protect staff and/or the patient from droplet exposure to microorganisms.</td>
<td>For use in emergency departments, dentistry, changing dressings on small wounds or healing wounds where minimal blood droplet exposure may possibly occur.</td>
<td>For all surgical procedures, major trauma first aid or in any area where the health care worker is at risk of blood or body fluid splash.</td>
</tr>
<tr>
<td><strong>Examples of use</strong></td>
<td>When the likelihood of exposure to body fluid is low, in routine care of suspected, probable, confirmed cases of COVID-19: suitable for the collection of nasopharyngeal swabs, interventions such as a patient interview, physiotherapy, nursing observations, administering most medications, assisting with most ADLs or encounters at a reception counter. Suitable to be provided to symptomatic patients or carer/s of those with respiratory symptoms. If only a level 1 mask is available and splash or spray of body fluid is anticipated, the level 1 mask may be used in combination with a full-face shield.</td>
<td>Use when there is a risk of blood or body fluid exposure/splash. Procedures where moderate to low blood or body fluid splash or spray or droplets are possible such as endoscopic procedures, IVC insertion, IDC emptying or phlebotomy.</td>
<td>These should be reserved for operating theatre use and trauma use where able. All interventions or situations where a blood or body fluid splash is more likely to occur such as during surgical procedures or obtaining an arterial blood specimen or there is or are likely to be large volumes of bodily fluids present.</td>
</tr>
</tbody>
</table>
P2/N95 respirators (respirators)

Respirators are used to reduce the transmission of pathogens in healthcare and must comply with the Australian and New Zealand Standard 1715:2009 Respiratory protective devices. When intended or marketed for use in clinical settings they must be included on the ARTG. The TGA advises that AS/NZS 1716:2012 Respiratory protective devices, the standard for P2 respirators, can be used as a functional standard for both medical devices and for respirators that are not medical devices.

Devices that meet AS/NZS 1716:2012 may not be fluid resistant, particularly if they are not intended or marketed for use in clinical settings. Where devices are not fluid resistant, they should be used in conjunction with a full-face shield where there is a risk of exposure to droplets, splash or spray. Use of respirators that are not fluid resistant should be avoided for major trauma and surgical procedures.

Respirators are designed to form a very close seal around the nose and mouth to protect the wearer from exposure to airborne particles, including pathogenic biological airborne particulates such as viruses and bacteria. These respirators have been tested for particulate filtration to ensure they remove a minimum of 95% solid and liquid aerosols that do not contain oil. P2/N95 respirators are a single use item.

The wearer of these devices must be trained in their application and removal, be able to obtain a suitable fit and perform a fit check of the device. A fit check is required each time a P2/N95 respirator is put on to ensure it is applied properly. Fit checking is the minimum standard for each occasion of use of a P2/N95 respirator. Fit checks ensure the respirator is sealed over the bridge of the nose and mouth and that there are no gaps between the respirator and face creating an airtight protective seal. No clinical activity should be undertaken until a satisfactory fit has been achieved.

Surgical respirators are of a similar structure and design to standard respirators and therefore meet the same testing requirements to achieve a minimum 95% filtration against airborne particulates but have also been tested for fluid resistance against penetration by synthetic blood under different pressures, such as may occur during certain high-risk medical procedures. Correct selection of respirators is important to ensure optimal protection of staff while maintaining supply of respirators where PPE supplies are constrained.
Table 2. Respirators

<table>
<thead>
<tr>
<th>Respirator type</th>
<th>Indication for use</th>
<th>Requirement of respirators</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2/N95 respirator</td>
<td>Aerosol-generating procedures on patients under droplet precautions where splash or spray of body fluids is not anticipated, OR in conjunction with a face shield if splash or spray of body fluids is anticipated.</td>
<td>Meet AS/NZS 1716:2012, AS/NZS 1715:2009</td>
</tr>
<tr>
<td>Surgical P2/N95 respirator</td>
<td>Aerosol-generating procedures in an operating theatre setting or setting where splash or spray of blood or body fluids is likely and fluid resistance is indicated.</td>
<td>Meet AS/NZS 1716:20012, AS/NZS 1715:2009 and fluid-resistant properties in accordance with 4381:2015 and ATSM F1862/F1862M-13 or ISO 22609</td>
</tr>
</tbody>
</table>

In circumstances when P2/N95 respirators included in the ARTG cannot be procured, it may be necessary to assess the suitability of respirators that meet international standards. Please refer to the Standards Australia Summary information on standards and conformance of PPE products for detailed information regarding the test method standards that PPE for use in Australian healthcare must meet [https://www.standards.org.au/summary-information-on-standards-and-conformance-for-ppe-products](https://www.standards.org.au/summary-information-on-standards-and-conformance-for-ppe-products). International standards that have similar specifications to AS/NZS 1715:2009 include:

- N95 (United States NIOSH-42CFR84)
- FFP2 (Europe EN 149-2001)
- Korea 1st class (Korea KMOEL - 2017-64)
- DS (Japan JMHLW-Notification 214, 2018).

Gowns

The purpose of a gown when used for droplet, airborne and contact precautions is to prevent direct contact between the healthcare worker’s skin or clothing and the patient/care area, in order to prevent direct transfer of micro-organisms. A long-sleeved, preferably fluid-resistant, gown or apron are the current recommendations for contact precautions for COVID-19. A cloth gown or apron is adequate when direct physical contact is minimal and/or the risk of splash is low (e.g. specimen collection, observations, medication delivery).

Surgical gowns are single use items intended for use in the operating room to protect operating room personnel from the transfer of body, fluids, micro-organisms and particulate material. These are usually sterile.
Single use isolation gowns are intended to protect either the patient or healthcare providers and visitors from the transfer of infectious agents when they are in contact with each other. They must have long sleeves and cuffs or thumb loops so that they cover the wearer to the wrist.

Fluid-resistant gowns can be further categorised based on the level of protection from fluid. The standards referring to fluid-resistant properties of gowns used in healthcare are ANSI/AAMI PB70:2012. These provide standards for liquid barrier performance. There are levels 1 to 4 for gowns in this standard.

All gowns meeting ANSI/AAMI PB70:2012 can be used for the care of COVID-19 patients. The level of fluid resistance should determine which gown should be used. The choice of gown should be made based on the level of risk of fluid contamination:

- If the risk of blood or body fluid exposure is low or minimal, gowns that claim minimal or low levels of barrier protection (ANSI/AAMI PB70 Level 1 or 2) can be used.
- If there is a medium to high risk of blood or body fluid exposure gowns that claim moderate to high barrier protection (ANSI/AAMI PB70 Level 3) can be used.
- For surgical procedures or a high risk of blood or body fluid exposure gowns that claim high level barrier protection (ANSI/AAMI PB70 Level 4) should be used.

A level 1 gown is suitable for contact and droplet precautions where the risk of blood or body fluid exposure is low or minimal. When choosing a gown, healthcare workers should undertake a risk-based assessment in line with standard precautions. If a gown is required to protect against anticipated splash or spray of blood or body fluids in line with standard precautions, in an environment outside of operating theatres, a level 3 gown or the addition of a plastic apron over a level 1 or level 2 gown may be required. Level 4 gowns are only required for surgical procedures or major trauma response, where large volumes of blood are anticipated.

**Table 3. Possible use cases for barrier levels of gowns**

<table>
<thead>
<tr>
<th>Fluid barrier level (ANSI/AAMI PB70)</th>
<th>Examples of use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloth gown or apron (no ANSI/AAMI PB 70 rating)</td>
<td>Minimal contact with patients with COVID-19 where the risk of splash with blood or body fluid is low. For example, delivering medications, specimen collection or taking nursing observations.</td>
</tr>
<tr>
<td>Level 1 OR Level 2</td>
<td>Close contact with patients with COVID-19 including any routine care where the risk of spray or splash of blood or body fluid is minimal. For example: assisting with ADLs, dressing small wounds or insertion of a peripheral intravenous cannula.</td>
</tr>
<tr>
<td>Level 3</td>
<td>Suctioning, large dressings or dressings with high levels of exudate, emptying or inserting a urinary catheter or inserting an intravenous catheter. Aerosol-generating procedures outside of a major trauma or operating theatre setting.</td>
</tr>
<tr>
<td>Level 4</td>
<td>Surgery or major trauma</td>
</tr>
</tbody>
</table>
Table 4. Adapted from AAMI/ANSI PB70:2012

<table>
<thead>
<tr>
<th>Test type</th>
<th>Level of protection</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact penetration</td>
<td>1, 2, 3, 4</td>
<td>As measured using AATC 42</td>
</tr>
<tr>
<td>Hydrostatic pressure</td>
<td>2, 3 and 4</td>
<td>As measured using AATC 127</td>
</tr>
<tr>
<td>Resistance to penetration by blood-borne pathogens</td>
<td>4</td>
<td>As measured using ASTM F1671</td>
</tr>
</tbody>
</table>

Eye protection

Eye protection can consist of face shields, goggles, visors or wrap-around safety glasses. These may be single use or reusable devices. Their use is designed to prevent the mucous membranes of the wearer coming into contact with respiratory droplets. Where these devices are reusable, they must be reprocessed in accordance with manufacturer’s instructions. If they require disinfection, a suitable TGA-listed medical device disinfectant or sterilant must be used as per AS/NZS 4187:2014. Further guidance about cleaning of protective eyewear can be found in the ICEG guidelines on cleaning and disinfection of protective eyewear in health and residential care facilities, available at [https://www.health.gov.au/resources/publications/iceg-guidelines-on-cleaning-and-disinfection-of-protective-eyewear-in-health-and-residential-care-facilities](https://www.health.gov.au/resources/publications/iceg-guidelines-on-cleaning-and-disinfection-of-protective-eyewear-in-health-and-residential-care-facilities).

As with other items that are intended for use in a health environment and make claims to protect the wearer or others from the transmission of diseases or micro-organisms, eye protection must be included in the ARTG as a Class I medical device. AS/NZS 1337.1:2010, particularly Appendix V, lists the required testing methods that determine the splash resistance of face or eye protection. Please note that if impact resistance is required, testing against other appendices of the standard may be required to be shown.

Gloves

All gloves used in the provision of healthcare should be disposable and include examination gloves, sterile gloves and medical gloves for handling chemotherapy.

The World Health Organization (WHO) recommends that examination gloves be powder free to avoid reactions with alcohol-based hand rubs used in healthcare facilities. If there are no other gloves available, powdered gloves may be used and healthcare workers should be instructed to perform hand hygiene using running water and liquid soap.

The wearing of gloves is not a substitute for hand hygiene. Gloves should be changed between episodes of care for different patients, and during the care of a single patient to prevent transmission of microorganisms from different body sites. Hand hygiene should be performed before putting gloves on and after removing gloves.

The standards applicable to medical gloves are AS/NZS 4011 and ISO 11193, and for sterile gloves AS/NZS 4179 and ISO 10282.
### Version control – Appendix 5

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1.2</td>
<td>2 September 2020</td>
<td>• Clarification on use of P2/N95 respirators that are not fluid resistant</td>
</tr>
</tbody>
</table>
| V1.1    | 31 May 2020  | • Inclusion of Standards Australia Summary information on standards and conformance for PPE products  
|          |             | • Minor revision to: Table 1 examples of use, fit checking of respirators and use of gowns.  
|          |             | • Minor revision to Table 3 examples of use for non-fluid-resistant gowns or aprons. |
| V1.0    | 10 May 2020  | • New Appendix                                                            |