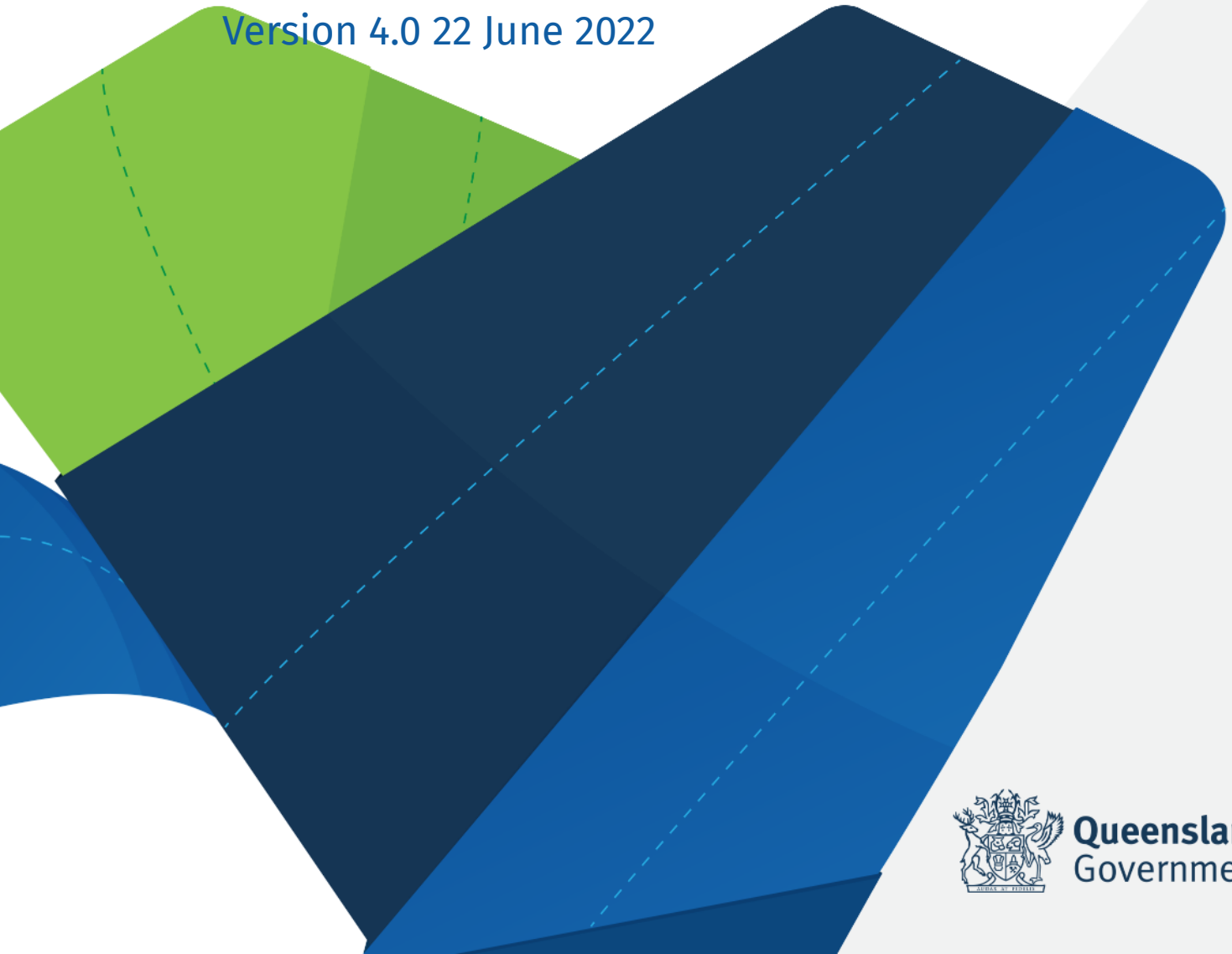
Infection prevention and control guidelines for the management of COVID-19 in healthcare settings

Version 4.0 22 June 2022



Queensland Government

Contents

Review

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

Printed copies are uncontrolled. The current version is available at Infection prevention and control guidelines for the management of COVID-19 in healthcare settings.

Business area contact

COVID-19 Public Health Incident Management Team

COVID-19.IMT@health.qld.gov.au

Approval and implementation

Document custodian:

COVID-19 Health System Response Lead, COVID-19 Response Division

Approving officer:

Deputy Chief Health Officer COVID-19, Prevention Division, Queensland Health

Approval date: 22 June 2022

Endorsements:

Endorsed by Queensland Infection Control Network

Endorsement date: 20 June 2022

Endorsed by COVID-19 Systems Response Group

Endorsement date: 22 June 2022

Summary of major review

Status: Revised document

Version	Date	Prepared by	Comments
3.1-4.0	22 June 2022	IMT ICP Review by: - 4 x IMT MOs - 1 x IMT PHN - 1 x IMT EHO - PPE WG CNC - CSRG ICP	Major Review: Major review conducted with aim of future-proofing Guidelines, with careful consideration of the existing suite of QH PPE Guidance, duplication reviewed, all links checked and updated. Current evidence, other State jurisdiction documents, CDNA SoNG, ICEG guidelines and complementary guidance reviewed. Summary of Review move to front – for ease of version review. Restructured sections in line with Australian Guidelines for the Prevention and Control of Infection in Healthcare 2019 – Standard Precaution detailed, followed by Transmission Based Precautions. ** CHANGE OF TERMS – "P2/N95 Respirator" has been replace throughout with the term "Particulate filter respirator"/"PFR" to be consistent with ICEG Guidance, with the exception of the term "P2/N95 Respirator" existing in another document referred to, or where a "P2" or "N95" respirator is specifically detailed. Additional Section: Mode of Transmission Additional Section: Signs and Symptoms of COVID-19 Additional Section: Close Contacts of COVID-19 Standard Precautions: addition of bare below the elbows definition, Management of Environment: Ventilation – addition of air filtration devices content, Waste – clarification on clinical waste, Paper Medical Records – updated and moved from Patient Management Considerations section, food services and cutlery processing section updated Transmission Based Precautions – addition introductory sentence, clarity on when to isolate, elaboration on mode of transmission in explanation of droplet and airborne precautions. NEW Patient Risk Assessment, PPE and Placement Section: Patient Risk Assessment, PPE and Placement sections incorporated to reduce duplication and increase readability, footnotes removed, update of close contact definition and symptoms (formerly epidemiological criteria), clarity on precautions required, include Optimising the supply of personal protective equipment (PPE) guidance, details on Australasian Health Facility Guidelines for negative pressure rooms, detail that spectacles are not protective eyewear. Staff Considerations section: Uniforms section removed, as PPE protects worker clothing. Outbreak Management section: addition of "Recommended approach to assessing close contact exposures to COVID-19 in the hospital setting (QICN)" guidance document and clarification on triggers, and staff requirements

			Considerations on Use of PPE Section: moved to Appendix 2, new information in Facial Hair subsection, including QH Position Statement on Facial Hair and Ensuring the Adequate Performance of Respiratory Protective Equipment (pre-published) Outbreak Management – updated Appendices reordered for improved flow. Appendix 1 – Patient Placement (Cohorting) Advice, section rewritten to reflect current practice, reference to PPE Escalation documents. Appendix 2 – Safe use information and staff considerations moved to this appendix for readability and consistency Appendix 6 – Factors increasing the risk of transmission - Addition – risk mitigation, clarity on cleaning between cases Appendix 7 – Management of deceased persons – humanistic approach applied with a view to 'living with covid', removed additional transport requirements (as body bag is decontaminated by clinical staff) Appendix 8 – Fever/Testing Clinics – reformatted, duplication and errors removed, need for long-sleeved gown removed. Definition of terms – Updated, particulate filter respirator included.

See Version Control section at end for complete record.

Purpose

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

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.

Related documents

This guideline should be read in conjunction with the following:

PUBLIC HEALTH

- Communicable Diseases Network Australia: Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units
- Chief Health Officer Public Health Directions
- Managing healthcare workers exposed to or with COVID-19 | Queensland Health
- Queensland Health: COVID-19 and managing employee health risks
- Recommended approach to assessing close contact exposures to COVID-19 in the hospital setting

INFECTION CONTROL

- National COVID-19 Clinical Evidence Taskforce: Australian guidelines for SARS-CoV-2 infection prevention and control of COVID-19 in healthcare workers
- Australian Commission on Safety and Quality in Healthcare: Australian Guidelines for the Prevention and Control of Infection in Healthcare
- Infection Control Expert Group: Minimising the risk of infectious respiratory disease transmission in the context of COVID-19: the hierarchy of controls

PERSONAL PROTECTIVE EQUIPMENT (PPE)

- Infection Control Expert Group (ICEG) Guidance on the use of personal protective equipment (PPE) for health care workers in the context of COVID-19
- Queensland Health: Escalation of personal protective equipment usage in healthcare delivery, community health and care services, in-home care settings, and for healthcare delivery in correctional services
- Queensland Health: Escalation of personal protective equipment usage in residential aged care and disability accommodation services
- Queensland Health: Escalation of personal protective equipment usage in COVID-19 vaccine clinics

- Queensland Health: Fit testing of P2/N95 respirators in respiratory protection programs
- Optimising the supply of personal protective equipment (PPE)
- "QH Position Statement on Facial Hair and Ensuring the Adequate Performance of Respiratory Protective Equipment" (pre-published at time of Guidelines publishing, but will be found at Infection prevention and control guidance (including PPE advice))

OUTBREAK MANAGEMENT

- Management of COVID-19 outbreak in hospital settings (health.qld.gov.au)
- Management of COVID-19 exposure or outbreak in residential aged care facility | Queensland Health

Background

These infection prevention and control recommendations combine recommendations found in the Communicable Diseases Network Australia (CDNA) Series of National Guidelines (CDNA SoNG) Coronavirus 2019 (COVID-19), Infection Control Expert Group (ICEG) Guidance on the use of personal protective equipment for health care workers in the context of COVID-19, the World Health Organization (WHO) guideline, Infection prevention and control during health care when coronavirus disease (COVID-19) is suspected or confirmed, and other guidelines and papers (see references and Relevant Documents for full list).

Advice regarding the management of confirmed and suspected COVID-19 cases has evolved as further information associated with this disease has become known. As it has become available, this advice has been and will continue to be incorporated into this guideline.

For further background information on SARS-CoV-2 and COVID-19 please refer to the CDNA SoNG, which contains sections on the infectious agent, mode of transmission, case definitions, infectious period, incubation period, testing, contact tracing and more.

Key Principles

- SARS-CoV-2 is mainly spread between people when an infected person is in close contact (<1.5m) with another person. Factors affecting viral transmission are:
    - Amount of viable virus shed and expelled by the infected person as liquid particles (ranging from respiratory droplets to smaller aerosols)
    - Type of contact the infected person has with others; virus can enter via the mouth, nose or eyes
    - The characteristics of the setting of transmission and the infection prevention and control measures which are in place [8]
- Variants of Concern (VOCs) will continue to emerge, and this Guideline aims to mitigate risks pertaining to variants of differing infectivity and transmissibility
- Understanding standard and transmission-based precautions is essential in preventing the transmission of the virus in healthcare settings
- The application of the hierarchy of controls will significantly reduce healthcare transmission of the virus

- Assess any patients presenting with Symptoms or identified as a Close Contact of COVID-19 within the last 7 days.
- Manage routine care of suspected or confirmed cases of COVID-19 using personal protective equipment (PPE) as per ICEG Guidance on the use of personal protective equipment for health care workers in the context of COVID-19 and current Queensland guidance.

Mode of Transmission

Knowledge about SARS-CoV-2 and its transmission is constantly evolving and new evidence continues to accumulate. COVID-19 is predominantly spread through respiratory droplets, smaller particles (aerosols), direct physical contact with a case, and indirectly through contaminated objects and surfaces (fomites) [1 and 12]. Given the potential for aerosol transmission in indoor environments and the variety of aerosol generating procedures and behaviours that occur in healthcare settings, a precautionary approach has been implemented to prevent healthcare transmission events.

Symptoms of COVID-19

All people with symptoms of an acute respiratory infection (ARI, also known as influenza-like illness) should be considered to have "Symptoms of COVID-19" (previously known as Clinical Evidence in this and other QH documents) until an alternative diagnosis is determined, if in the last 14 days they have experienced:

- recent onset of new, or worsening symptoms, of ARI (e.g. cough, breathing difficulty, sore throat, runny nose/nasal congestion), with or without other symptoms
- other symptoms may include:
    - headache, myalgia, fatigue, diarrhoea, nausea/vomiting, loss of appetite loss of smell or loss of taste (less common with new VOC),
    - fever (≥37.5^{c}) or history of fever (e.g. night sweats, chills), less common in elderly
    - in the elderly consider, new or increased confusion, change in baseline behaviour, falling, exacerbation of underlying chronic illness [1].

Clinical judgement should be applied where there are alternative clinical explanations for symptoms or non-specific symptoms are present.

For consistency, throughout this Guideline, the term "Symptoms of COVID-19" will be used, acknowledging that the CDNA SoNG uses the term "Symptoms of Acute Respiratory Infection".

Close Contacts of COVID-19

For the purposes of identifying patients who may present an infection risk to others in the healthcare setting, the definition of a "Close Contact of COVID-19" is a person who has been identified as a close contact of a case of COVID-19 in the last 7 days, as defined in the current version of the Communicable Diseases Network Australia COVID-19 National Guidelines for Public Health Units (The CDNA COVID-19 SoNG) [1].

Hierarchy of controls

Guidance on consideration of the hierarchy of controls in the context of minimising the risk of COVID-19 transmission has been produced by the Infection Control Expert Group.

Standard precautions

Standard precautions should be used when providing care to all patients [2], whether or not they are suspected of having COVID-19 and are necessary to help prevent exposure/infection by asymptomatic or pre-symptomatic carriers of COVID-19.

Standard precautions include hand hygiene, appropriate and correct use of PPE, respiratory hygiene and cough etiquette, reprocessing of reusable medical devices, cleaning of shared equipment, aseptic technique, sharps/waste handling and disposal, appropriate handling of linen and routine environmental cleaning [2].

Standard precautions apply to all settings where care is provided or where there is a risk of blood or body fluid exposure including acute and subacute care facilities, residential care facilities, home care settings, community settings and other settings such as mortuaries.

Healthcare workers should perform hand hygiene in accordance with the National Hand Hygiene Initiative program, *5 Moments for Hand Hygiene*. All healthcare workers having direct contact with patients or a patient's environment should ensure they are bare below the elbows. As per the QH Guideline for Bare Below the Elbows, all Healthcare workers should observe the following:

- bracelets, wrist watches and rings with stones or ridges should not be worn. A single flat ring or band may be worn but should not interfere with effective hand hygiene practice; and
- long sleeves should be avoided. If worn, sleeves should be rolled or pushed up above the elbow so as not to interfere with effective hand hygiene practice; and
- fingernails should be kept short and clean and nail polish should not be worn. Artificial nails (gel or acrylic) should not be worn; and
- any breached skin (cuts, dermatitis or abrasion) should be covered with a waterproof film dressing. Staff with dermatitis should report for evaluation as per local procedures; and
- long ties and lanyards are not recommended. Retractable (or similar) ID card holders are recommended in place of lanyards and should be cleaned regularly. If ties are worn, they should be tucked in or secure.

Respiratory hygiene and cough etiquette

All staff and patients should follow, or be instructed to follow these principles:

- Cover the nose/mouth with disposable single-use tissues when coughing, sneezing, wiping and blowing noses.
- Use tissues to contain respiratory secretions.
- Dispose of tissues in the nearest waste receptacle or bin after use.
- If no tissues are available, cough or sneeze into the inner elbow rather than the hand.

- Practice hand hygiene after contact with respiratory secretions and contaminated objects/materials.
- Keep contaminated hands away from the mucous membranes of the mouth, eyes and nose.
- In healthcare facilities, patients with symptoms of respiratory infections should sit as far away from others as possible and be provided with a surgical mask to wear. If available, healthcare facilities may place these patients in a separate area while waiting for care [2].

Physical distancing is recommended and should be maintained as much as practicable [1]. It is recommended to stay at least 1.5 metres [1] 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.

Management of environment

Ventilation

Facilities that provide care for diagnosed COVID-19 patients should make use of local heating, ventilation, and air conditioning (HVAC) expertise to determine suitability of accommodations and minimum time required to enable a minimum of six air changes per hour (ACH) [2, 7, 8, 14].

Air-cleaning devices (air scrubbers, air purifiers, air filters)

While evidence about the efficacy of air-cleaning devices continues to emerge, the National COVID-19 Clinical Evidence Taskforce has not provided a guideline or advice regarding this issue. Regardless, air-cleaning devices are currently utilised in many healthcare facilities and evidence suggests that these devices are easy and inexpensive to deploy and have the potential to reduce airborne SARS CoV-2 and augment existing HVACs [14, 15, 16, 17]. Consider the use of portable or built-in air-cleaning devices with high efficiency particulate air (HEPA) filtration in areas where existing HVAC systems are sub-optimal in providing fresh air and circulation, and where negative pressure facilities have been exhausted.

When selecting an appropriate air cleaner for a space:

- ensure the unit has a HEPA filter, which is managed in accordance with local protocols and manufacturer advice;
- ensure the unit is the appropriate size for the space; and
- develop local policies for use and maintenance of devices.

Placement of portable air cleaners may include:

- close to the patient in single rooms without negative pressure air handling
- close to the patient in cohort rooms without negative pressure air handling
- in corridors of high-risk areas, such as COVID-19 wards without negative pressure rooms
- in procedure/ treatment rooms following aerosol-generating procedures
- where there is an increased risk of transmission such as staff tea rooms, patient communal dining areas, reception areas and nurses' stations.
- dead zones or areas where there are stagnant pockets or air that cannot be ventilated.

Cleaning

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. All cleaning processes should comply with the Queensland Health Strategic Operational Services Unit Environmental Cleaning Guidelines and the ICEG Coronavirus (COVID-19) environmental cleaning and disinfection principles for health and residential care facilities. Also refer to Hygiene and cleaning for the health workforce during COVID-19 .

Routine cleaning

Cleaning tasks in the COVID-19 patient care environment should be undertaken using appropriate detergent and disinfectant product/s that have been entered into the Australian Register of Therapeutic Goods with specific claims against SARS-CoV-2.

The routine cleaning process should involve either:

- A physical clean using a combined detergent and 1,000ppm available chlorine solution, or combined detergent/disinfectant product that has been entered into the Australian Register of Therapeutic Goods with specific claims against SARS-CoV-2 (2-in-1 clean).
- A physical clean using detergent, followed by a clean with 1,000ppm available chlorine solution or disinfectant product that has been entered into the Australian Register of Therapeutic Goods with specific claims against SARS-CoV-2 (2-step clean).

Manufacturer instructions must be followed for dilution and/or use of products.

When cleaning, staff are to wear the same level of PPE as for the care of the patient and comply with the appropriate transmission-based precautions.

Daily cleaning of inpatient areas should be undertaken at a minimum according to Strategic Operational Services Unit guidelines and/or local facility procedures. The Strategic Operational Services Guidelines also provides recommended frequency of cleaning for different surfaces and items. Frequently touched surfaces particularly in common areas such as entrances, waiting rooms, foyers, around staff stations and lifts should be cleaned with increased frequency.

Discharge clean

Discharge cleaning of rooms occupied by patients or residents who have COVID-19 requires both thorough cleaning and disinfection. Refer to the ICEG Coronavirus (COVID-19) environmental cleaning and disinfection principles for health and residential care facilities for further detailed information.

- Staff who are cleaning should wear the same level of PPE as for the care of the patient.
- Following discharge or transfer of the patient, the patient's personal effects should be removed, and fabric privacy curtains and window curtains and coverings, if present, should be removed for laundering prior to cleaning the room, and all consumables unable to be cleaned should be discarded
- For disposable curtains, follow local policy or follow manufacturer's instructions including checking the expiry date
- Handle used linen and fabrics with minimum agitation to avoid contamination of air, surfaces and persons
- The room and all patient care equipment remaining in the room should be physically cleaned
  - Follow or combine cleaning with a disinfectant process (see 2-step clean and 2-in-1 step clean) as per the Australian Guidelines for the Prevention and Control of Infection in Healthcare.

- All furniture, patient equipment items, horizontal surfaces, frequently touched surfaces, e.g. light switches and call buttons, bathroom, toilet and shower area should be thoroughly cleaned and disinfected
- For procedural rooms with short patient stays (e.g. CT scan, MRI, fever/testing clinics) clean and disinfect surfaces that have been used during the procedure and frequently touched surfaces between cases and terminally clean the area as per local policies e.g. at the end of the session/day. Where available and practicable, consider designating procedural rooms as COVID-19 and non-COVID-19.

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.

Preferably, equipment should be disposable and either single-use or single-patient-use. Reusable equipment should be dedicated for the exclusive use of the case until the end of their admission where possible. Reusable equipment must be cleaned and disinfected according to manufacturer's recommendations using a suitable disinfectant prior to use on another patient. Equipment used in clinical areas should have a smooth, non-porous, intact surface to facilitate cleaning/disinfecting. Equipment that cannot be cleaned/disinfected between patients should not be reused.

Handling of paper health records

The risk of paper health record contamination and subsequent exposure to SARS-CoV-2 in the absence of a spill (or similar) is considered low risk. However, care should still be taken to manage this risk.

A local process should be implemented to manage these health records and the following steps may assist in reducing the risk of cross contamination of these items:

- Hand hygiene before/after contact with notes (patients and healthcare workers)
- Attending administration areas with clean hands and no gowns or gloves
- Frequently clean workstations, mobile computer workstations, pens and accessories.
- Move to electronic notes where able
- Zone/modelling to reduce paper health records going directly into the patient care zone

Paper records do not need to be held for any period prior to scanning. This may increase the risk of delay in the documentation and communication of patient information.

It is acknowledged that some paper records/forms may require handling by patients during their hospital journey. The risk of contamination can be mitigated by asking patients to perform hand hygiene before touching records/forms and placing them into a plastic sleeve following patient handling.

Waste

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

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

The correct disposal of used PPE is dependent upon local council and facility requirements:

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

Disposable components of equipment and other consumables are considered general waste unless they are contaminated with body fluids. For example, PCR and RAT swab sticks and containers are clinical waste, whereas the packaging and uncontaminated components are general waste [19].

Linen

Used linen from a patient with suspected 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). This reduces the risk of exposure for operational and laundry workers.

Food services and cutlery reprocessing

Any staff appropriately trained to use the PPE required for COVID-19 patients may enter a COVID-19 patient care area, including food services staff. Local facility processes will detail how meals and beverages to patients in COVID-19 patient care areas, based on PPE availability, staff training and workflow considerations.

Standard precautions should always be used when handling used crockery and cutlery. No additional precautions are required for the reprocessing of crockery and cutlery or other items such as meal trays.

Transmission-based precautions

Transmission-based precautions (TBP) are implemented in addition to Standard Precautions for patients suspected of, or confirmed with, COVID-19, including close contacts. This section includes advice on general considerations, patient risk assessment, patient placement and PPE.

The Australian Guidelines for the Prevention and Control of Infection in Healthcare (2019) provides detailed explanations of routes of transmission:

- Indirect or direct CONTACT transmission: when a healthcare workers' hands or clothing become contaminated, patient-care devices are shared between patients, infectious patients have contact with other patients, or environmental surfaces are not regularly decontaminated.
- DROPLET transmission: when healthcare workers' hands become contaminated with respiratory droplets and are transferred to susceptible mucosal surfaces such as the eyes; when infectious respiratory droplets are expelled by coughing, sneezing or talking, and come into contact with another's mucosa (eyes, nose or mouth), either directly or via contaminated hands.
- AIRBORNE transmission: when attending healthcare workers or patients inhale small particles that contain infectious agents [2].

The use of contact, droplet and airborne precautions in COVID-19 care acknowledges the complex interplay of modes of transmission discussed in that section of this Guideline, and decisions about PPE are made in the context of this continuum of risk.

General considerations

In accordance with the Infection Control Expert Group *Minimising the risk of infectious respiratory disease transmission in the context of COVID-19: the hierarchy of controls* and the Infection Control Expert Group *Guidance on the use of personal protective equipment for healthcare workers in the context of COVID-19* an assessment of risk of transmission of COVID-19 to workers should be undertaken when providing direct care to patients. The assessment of risk of transmission should consider the following:

- the individual patient's pre-existing likelihood of COVID-19
- patient factors
- physical location of care

When the risk is unknown, is yet to be assessed, or is unable to be assessed, a patient should be managed as a suspected COVID-19 case. More generally, any symptomatic person or close contact tested for COVID-19 should be isolated pending test results, excepting asymptomatic people undergoing routine surveillance COVID-19 screening for other purposes (eg. employment or pre-procedure screening) [1].

Workers in less controlled settings such as fever/testing clinics and triage settings in Emergency Departments should consider the use of particulate filter respirators (PFRs, eg. P2/N95 respirators) in addition to other PPE when having face to face contact or providing direct patient care. This should particularly apply when the risk of COVID-19 infections in the community is high. This is because the ability to conduct an individual risk assessment prior to having contact with patients may be constrained in these settings. Such environments may be less controlled with multiple patients with symptoms consistent with COVID-19 requiring review and testing concurrently. Additionally, a local assessment should be conducted to determine current risk in areas with highly vulnerable patient cohort groups, and where continuous aerosol generating procedures are undertaken.

Patient Risk Assessment, Placement and PPE

These sections have been addressed separately in previous versions of this document, which resulted in duplication and decreased readability of the Guidelines. Therefore, these sections have been incorporated in line with the holistic management of the patient during their episode of care.

All patients presenting to a hospital and health service should be assessed as per HHS protocol to determine if transmission-based precautions are required.

Healthcare facilities across the State possess varying types and quantities of patient accommodations. The risk assessment process should involve local ICP experts and consider infection prevention and control principles, including transmission-based precautions and the hierarchy of control. The use of negative pressure isolation rooms, single rooms and others should be based on availability, non-COVID-19 isolation requirements (eg. patients with other airborne pathogens) and the risk assessment.

This PPE advice describes requirements for the management of patients during periods of low risk of community transmission of COVID-19, where source control is not required. For PPE requirements during periods of increased risk of community transmission refer to *Escalation of personal protective equipment in healthcare delivery, community health and in-home care settings, correctional services*, or *Escalation of personal protective equipment in residential aged care and disability accommodation services*

Standard Precautions

Patients with:

- **NO** Signs and Symptoms of COVID-19 (in the past 7 days)

AND

- **NOT** identified as a Close Contact of COVID-19

AND

- **NO** other indication for transmission-based precautions

Room Placement and PPE

Standard room placement and PPE applied as per existing indications in Standard Precautions.

Standard + Contact + Droplet + Airborne Precautions

Patients who:

- Are Confirmed Cases of COVID-19
- Have Signs and Symptoms of COVID-19 (in the past 7 days)
- Are identified as a Close Contact of COVID-19

Room Placement

Patients should be placed in a single Class N – Negative Pressure Respiratory Isolation room (Type 5) with dedicated ensuite and anteroom where available [2 & 18]. Accommodation resources should be allocated in the following descending order thereafter;

- Single Class N – Negative Pressure Respiratory Isolation room (Type 5) with dedicated ensuite without anteroom [18];
- Single Class S – Standard Isolation room (Type 4) with ensuite, door remains closed (negative airflow preferred), consider use of portable air filter [18];
- Cohort room (for confirmed cases only), door closed, consider use of portable air filter, see Appendix 1: Patient Placement (Cohorting) Advice.

For use of single rooms without anterooms and cohort rooms, 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, see Appendix 3: PPE Fitting and Removal Decision Tree.

For further information on the principles for allocating Class N -Negative Pressure Respiratory Isolation rooms in the context of limited supply, see Appendix 1.

Do not use 'Class P' Positive Pressure Patient Protection rooms (Type 3) that are specifically designed for the management of profoundly immunocompromised patients [3 &18]. Use of 'Class P' rooms may result in corridor spaces being inadvertently contaminated.

PPE

- Long-sleeved, preferably fluid-resistant gown
- An apron or a non-fluid-resistant gown may be used in situations where physical contact is minimal and there is little chance of body fluid splash [3] (e.g. medication delivery, observations, fever clinics)

- Gloves
- PFR
- Protective eyewear/face shield (spectacles are not considered protective eyewear)

A TGA-listed powered air-purifying respirator (PAPR) may be considered instead of a Particulate filter respirator (PFR) if a suitable PFR cannot be fitted, when the fit of a PFR is compromised, or when use for an extended time is required [3, 4]. During periods of high PPE escalation, a surgical mask may be required beneath a loose-fitting PAPR for source control. Similarly, during periods of high PPE escalation, an exhalation valve filter must be applied to the CleanSpace HALO, or surgical mask fitted over the outside of the device for source control. Consult with local ICP and WHS for further information.

Refer to the ICEG Guidance on the use of personal protective equipment for health care workers in the context of COVID-19, the Queensland Health Guidance on Fit testing of P2/N95 respirators in respiratory protection programs and Queensland Health Pandemic Response Guideline for CleanSpace HALO for further guidance on selection and use of PAPR.

Standard + Contact + Droplet Precautions

Patients:

- With Signs and Symptoms of COVID-19 (in the past 7 days)

  AND

- Who are confirmed to be COVID-19 **negative**

AND

- Who are **NOT** identified as a Close Contact of COVID-19

Note: Consult with local infectious diseases, public health and/or infection prevention and control practitioners for patient management guidance following confirmation of a negative COVID-19 combined deep nasal and oropharyngeal swab/ rapid antigen test (RAT) for patients meeting the "remaining patients" classification.

Room Placement

Patients being managed using standard, contact and droplet precautions should be placed in a Single Class S – Standard Isolation room (Type 4) with ensuite, and where the door remains closed (negative airflow preferred) [2, 18]. Consider use of portable air filter.

For use of single rooms without anterooms, 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, see Appendix 3: PPE Fitting and Removal Decision Tree.

Do not use 'Class P' positive pressure 'protective isolation' rooms that are specifically designed for the management of profoundly immunocompromised patients [3].

If cohorting is to be considered, a local, contemporaneous risk assessment is required. See Appendix 1: Patient Placement (Cohorting) Advice

PPE

- Long-sleeved, preferably fluid-resistant gown
- An apron or a non-fluid-resistant gown may be used in situations where physical contact is minimal and there is little chance of body fluid splash [3] (e.g. medication delivery, observations, fever clinics)

- Gloves
- Surgical mask
- Protective eyewear/face shield (spectacles are not considered protective eyewear)

For advice on recommendations for escalation of PPE use in areas of moderate or high community transmission refer to Pandemic response guidance: Escalation of personal protective equipment usage in healthcare delivery, community health and care services, in-home care settings, and for healthcare delivery in correctional services or Pandemic response guidance - PPE in residential aged care and disability accommodation | Queensland Health.

Patient management considerations

Patient movement

Movement of patients within a facility should be limited to essential purposes.

If a patient being managed under droplet or airborne precautions needs to be transferred to another department within the facility:

- The patient should wear a surgical mask wherever possible if tolerated.
- The receiving department should be notified in advance.
- Healthcare workers transferring the patient should wear clean PPE during transit.
- If transferring via a lift, ensure the route is clear and the lift is used for the sole purpose of transferring the patient. Cleaning and disinfection must be completed after the transfer to reduce potential environmental contamination. All high touch lift surfaces (such as buttons and handrails) must be cleaned and disinfected prior to the lift becoming operational again. See the "Management of environment" section for more information about cleaning and disinfection.
- Do not place paper medical records on the patient's bed.

Management of bathroom and personal care

Bathrooms are wet and enclosed and may be poorly ventilated; being in this environment over a prolonged period should be avoided.

- In the case of patients who require minimal assistance with personal hygiene, the risk of transmission of SARS-CoV-2 to staff may be reduced by minimising the time spent in the bathroom with a case.
- In the case of patients who requires direct support with their personal hygiene, alternative hygiene care (e.g. bed bath) may be provided outside of the bathroom environment, if the risk of showering is deemed unacceptably high, until they are released from isolation.

Care of the deceased

Staff are to wear the same level of PPE and comply with the appropriate transmission-based precautions, as per above section, when handling the body of a deceased person who has suspected or confirmed COVID-19. Refer to Appendix 6 for detailed information.

Staff considerations

Education

All healthcare workers should be educated in the application of standard precautions, transmission-based precautions, the use of the hierarchy of controls, and the correct selection and use of PPE including safe fitting and removal.

PPE fatigue

The combination of PPE required in the care of suspected or confirmed COVID-19 cases can cause fatigue. The impact of PPE fatigue on staff comfort and potential PPE breaches should be monitored.

A PPE spotter or valet can aid in monitoring workers who are in PPE and the use of a PPE spotter can assist in guiding staff safely through the PPE removal process to avoid self-contamination.

Testing

All healthcare workers are to self-monitor for signs and symptoms consistent with COVID-19 infection. If healthcare workers experience signs or symptoms consistent with COVID-19 they should self-exclude from work until symptoms resolve and seek testing for COVID-19 as advised by local HHS protocols.

Vaccination

The Health Employment Directive No. 12/21: Employee COVID-19 vaccination requirements and the Workers in a healthcare setting (COVID-19 Vaccination Requirements) Direction (No. 4) set out requirements for COVID-19 vaccination of healthcare workers.

Physical distancing

Physical distancing of staff during work and during breaks should be facilitated by engineering and administrative controls, including signage, wherever possible. Example control measures can be found in the ICEG guidance on minimising the risk of infectious respiratory disease transmission in the context of COVID-19: the hierarchy of controls.

Outbreak management

Refer to the Management of COVID-19 outbreaks in hospital settings and Guideline for the management of outbreaks of communicable diseases in healthcare facilities, for advice around outbreak management, outbreak plans and outbreak control teams (OCT) and roles and responsibilities during an outbreak of COVID-19 in a healthcare setting.

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:

- a previously unidentified case, cluster or outbreak has been identified involving staff, patients or visitors of a Queensland Health hospital setting; or

- significant and systemic PPE failure, eg. recall of PPE batch

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.

Individual cases are managed using the QICN Managing healthcare workers exposed to or with COVID-19 guidance document and would not generate an OMT.

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 symptomatic and isolated. Planning for a surge workforce should be undertaken. Clinical and non-clinical surge staff should be considered. As a result of the outbreak, additional staffing may be required for cleaning and administrative tasks and contact tracing.
  - Staff who work across healthcare and aged care settings should discuss their requirements with their line manager.
- Consumables
  - There is likely to be an increased demand for PPE, cleaning and disinfectant products, and hand hygiene products. Engage with your local procurement and stores staff early.
- Cohorting
  - Consideration should be given to the location and requirements for isolation wards
- Screening
  - Staff should be reminded and encouraged to self-monitor for symptoms
  - Patients should undergo regular, routine screening for symptoms and risk factors
- Testing
  - Once an outbreak is detected, enhanced pathology testing of patients and staff is likely to be required. Plans should be in place for early communication with the laboratory and 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.

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:

- Consider whether the frequency of routine cleaning should be increased, based on outbreak epidemiology

- 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.
- Consider 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.
- Ensure adequate communication with the cleaning team. Ensure cleaning services are represented on the OCT. Additional staffing may be required for cleaning.

Appendix 1: Patient placement (cohorting) advice

Suspected cases

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

Where suspected cases must be cohorted, epidemiological and clinical suspicion should be considered when deciding which suspected cases 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 suspected 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 and where clinically appropriate.

Suspected cases should not be cohorted with confirmed cases.

Confirmed cases

There are a number of risk factors for transmission in hospital settings, including multiple patients with COVID-19 within the same clinical space and older ventilation systems that are less effective at recirculating air [9].

Therefore, cohorting of confirmed cases of COVID-19 in shared bed areas must only be undertaken following consultation with local experts and hospital executive after risk assessment of the environment and ventilation characteristics [8] in the intended area.

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, coinfection with other respiratory viruses and patients early in the course of infection 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 suspected cases are not cohorted with confirmed cases.
- Avoid cohorting confirmed cases with different VOCs, if whole genome sequencing is available during infectious period [10].
- 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 from other areas of the hospital
- the ventilation of the ward area is to be assessed by a qualified engineer:

  - early engagement with local engineering experts (BEMS) is advised. These local experts understand how systems have been designed, operated and modified over time and can help to ensure the understanding of the movement of airflows and that sharing of return air is allocated across the facility
  - in 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.
- the ward is in a separate area from the rest of the hospital (if HVAC system is not considered)
- the ward has an entry and exit exclusively for the COVID-19 ward and measures in place to monitor and record who is entering the ward
- the ward is clearly signed/identified as COVID-19 ward
- the ability to limit entry/access to the ward
- the ward contains the necessary equipment
- 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 within shared bed areas to help reduce the transmission of infection.

Management of cohort areas

Standard and transmission-based precautions must be maintained, and further detail on PPE selection can be found in Table 3 of Pandemic response guidance: Escalation of personal protective equipment usage in healthcare delivery, community health and care services, in-home care settings, and for healthcare delivery in correctional services.

The following infection prevention and control principles should be considered:

- Gloves must be changed, and hand hygiene performed as per the 5 Moments of Hand Hygiene,
- Plastic apron may be used when providing care with minimal patient contact, eg. delivering meals, taking observations. The plastic apron and gloves must be changed, and hand hygiene performed between contact with patients.
- PFR and eye protection can stay in place between patients. Removed PFR, must be discarded. Removed eye protection 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, consider the use of a gown, which must 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 patients; hygiene cares or pressure area care when a patient is fully dependent; urinary catheter cares.
- Limit persons entering the cohorted area to the minimum number necessary for patient care and support and maintain records of all persons who enter the area.
- 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.

Appendix 2: 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), and the Infection Control Expert Group have provided an overview of risk management in infection prevention and control. The use of personal protective equipment (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.

For information pertaining to the regulation of PPE, refer to TGA: https://www.tga.gov.au/behind-news/regulation-personal-protective-equipment-and-covid-19

Considerations on use of PPE

PPE should be available in sufficient amounts and different sizes and easily accessible by healthcare workers. In the context of a disrupted supply chain, recommendations to support optimising the supply and rational use of PPE can be accessed in the guidance in Optimising the supply of personal protective equipment (PPE).

PPE used in healthcare for the prevention of transmission of disease is regulated as a medical device by the Therapeutic Goods Administration [5]. These products must be included on the Australian Register of Therapeutic Goods before they can be supplied [5]. Refer to the TGA website for further information.

For reusable items such as PAPR, face shields, eye protection etc., each organisation should develop a local procedure for reprocessing these items, including which products are to be used, where cleaning and disinfection will occur, and the products and process to be used for cleaning and disinfection. Where an item of PPE is labelled as single use it must not be reused.

Follow the manufacturer's instructions for reprocessing, including the number of times an item can be reprocessed.

Safe use of PPE

As it is possible that PPE may be worn for extended periods of time, staff preparation and care is vital. Health services should consider PPE fatigue (see below) and the need for PPE valets/spotters.

Prior to donning PPE, it is important that the staff member is:

- nourished, hydrated and toileted,
- hair should be tied back and/or kept away from the face to not interfere with the mask and eye-protection,

- bare below the elbows

Respiratory Protective Equipment

For information about facial care while wearing PFRs and masks, please refer to Facial Injury and Respiratory Protective Equipment Guidance. Please note that the use of some of these methods of skin care may change the effectiveness of the fit of a PFR. Fit testing should be conducted with protective dressings in place if they are to be used.

PPE should be removed in a manner that prevents contamination of the healthcare worker's clothing, hands and the environment. For guidance on the correct procedures and sequence of safe fitting and removal of PPE refer to Safe fitting and removal of PPE poster and Correct use of PPE video.

For guidance on risk assessment for locations for fitting and removal of PPE refer to Appendix 3: PPE fitting and removal decision tree.

Safety considerations

The following recommendations are to be followed in relation to PFR or surgical mask use:

- PFR and masks must be worn to cover the mouth and nose fully to be effective.
- PFR and masks should be changed when they become damaged, soiled or wet.
- PFR and masks should never be reapplied after they have been removed.
- PFR and masks should not be left dangling around the neck or loosely from one ear.
- Avoid touching/adjusting the front of the respirator or mask while wearing it.
- Hand hygiene should be performed upon touching or discarding a used respirator or mask.
- PFR and masks need to be removed for eating and drinking and this is permitted, necessary and safe. It is important to limit the duration that the mask is removed to help minimise any potential risk of exposure. Staff must practice physical distancing when on meal breaks when mask is not in place.
- Staff must dispose of used PFR and masks in waste receptacles as soon as they are removed.

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 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, however, can provide some source control for expelled particles.

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 PFRs below for more information about PFR 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 mask's 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 masks is used.

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 most situations where droplet precautions are required, a single use surgical mask is appropriate (minimum level 1 barrier).

Table 1. Characteristics of level 1, level 2, and level 3 surgical masks. Information adapted from AS 4381:2015

Characteristics	Level 1	Level 2	Level 3
Bacterial filtration efficiency %	≥95	≥98	≥98
Differential pressure (mm H_2O/cm^2)	<4.0	<5.0	<5.0
Resistance to penetration by synthetic blood (minimum pressure in mm Hg for pass)	80 mm Hg	120 mm Hg	160 mm Hg
Standard precautions	Yes	Yes	Yes
Droplet precautions	Yes	Yes	Yes
Suitable uses (as per AS 4381:2015)	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.	For use in emergency departments, dentistry, changing dressings on small wounds or healing wounds where minimal blood droplet exposure may possibly occur.	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.
Examples of use	Suitable for droplet precautions, or as part of standard precautions when the likelihood of exposure to body fluid is low. 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.	Suitable for droplet precautions or as part of standard precautions 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.	These should be reserved for operating theatre use and trauma use where able. Suitable for droplet precautions or as part of standard precautions for 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.

Particulate filter respirators (PFRs)

PFRs 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. PFRs have been tested for particulate filtration to ensure they remove a minimum of 95% solid and liquid aerosols that do not contain oil. PFRs are a single use item.

PFRs 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.

NB: 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 PFR that are not fluid resistant should be avoided for major trauma and surgical procedures.

Respiratory protection programs that include fit testing and fit checking should be implemented as per Fit Testing of P2/N95 respirators in respiratory protection programs.

Fit checking must be performed each time a PFR is used, regardless of previous fit testing. 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. No clinical activity should be undertaken until a satisfactory fit has been achieved. Fit checks ensure the PFR is sealed over the bridge of the nose and mouth and that there are no gaps between the PFR and face. Generic instructions for performing a fit check are available in this poster. Manufacturers of PFRs also provide instructions for fit checking.

Surgical PFR are of a similar structure and design to standard PFR 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 PFR is important to ensure optimal protection of staff while maintaining supply of PFR where PPE supplies are constrained.

Appendix 5: Quick reference information about PFRs has detailed information about the types of PFRs and manufacturer user instructions where available. This appendix represents the range of PFR that may be available in Queensland Health. Stock levels of different masks may vary. Consult with your local stocks and stores personnel for current availability.

Facial hair

As per the "QH Position Statement on Facial Hair and Ensuring the Adequate Performance of Respiratory Protective Equipment" (pre-published at time of Guidelines publishing, but will be found at Infection prevention and control guidance (including PPE advice)) the fitting of all types of respiratory protective equipment must always be in accordance with the manufacturer's instructions.

Particular attention must be paid to the presence of facial hair during the fitting process as an adequate seal with a tight-fitting respirator may be difficult to achieve for people with facial hair. Excessive stubble, moustaches or beards may prevent a satisfactory seal between the respirator and skin. This may result in inadequate protection being provided.

When a worker is required in the performance of employment duties to use tight-fitting respiratory protective equipment as a risk control measure, unless alternative risk control measures are approved following a risk assessment, the worker must ensure that any facial hair between the skin and the facepiece sealing surface is removed, so as achieve a suitable fit. This requirement is to be undertaken in accordance with AS/NZS 1715. Please discuss local issues regarding any staff that decline to remove their facial hair with your local Human Resources department, consult the QH Position Statement on Facial Hair and Ensuring the Adequate Performance of Respiratory Protective Equipment (pre-published at time of Guidelines publishing, but will be found at Infection prevention and control guidance (including PPE advice))

Table 2. PFRs

PFR type	Indication for use	Requirement of PFR
PFR (P2/N95)	Airborne 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.	Meet AS/NZS 1716:2012, AS/NZS 1715:2009
Surgical PFR (P2/N95)	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.	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

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, to prevent direct transfer of micro-organisms. A long-sleeved, preferably fluid-resistant gown are the current recommendations for contact precautions for COVID-19. A cloth/non-fluid-resistant gown or apron may be worn when direct physical contact is minimal and/or the risk of splash is low (e.g. medication delivery, observations, fever clinics).

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

Fluid barrier level (ANSI/AAMI PB70)	Examples of use
Cloth gown or apron (no ANSI/AAMI PB 70 rating)	Minimal contact with patients with COVID-19 where the risk of splash with blood or body fluid is low. For example, delivering medications.
Level 1 **OR** **Level 2**	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.
Level 3	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.
Level 4	Surgery or major trauma

Eye protection

Eye protection can consist of face shields, goggles, visors or wrap-around safety glasses. These may be single use or reusable devices. Eye protection prevents respiratory droplets entering the mucous membrane of the eye and is required for all patient-facing healthcare workers. Options include face shields, goggles and safety glasses. Spectacles are not considered protective eyewear.

When wearing a PFR, it is important to select the proper eye protection to ensure that the respirator does not interfere with the correct positioning of the eye protection, and that the eye protection does not affect the fit or seal of the respirator.

Face shields should be well designed and should extend below the chin anteriorly, to the ears laterally, and there should be no exposed gap between the forehead and the shield's headpiece. All should provide a clear plastic barrier that covers the face. Face shields which have a gap between

the forehead and the headpiece are unsuitable for use in the operating theatre, birthing suite, or when certain aerosol-generating procedures are performed on COVID-19 cases (unless additional eye protection is worn under the face shield). These shields are however an appropriate form of eye protection in non-high-risk areas.

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.

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.

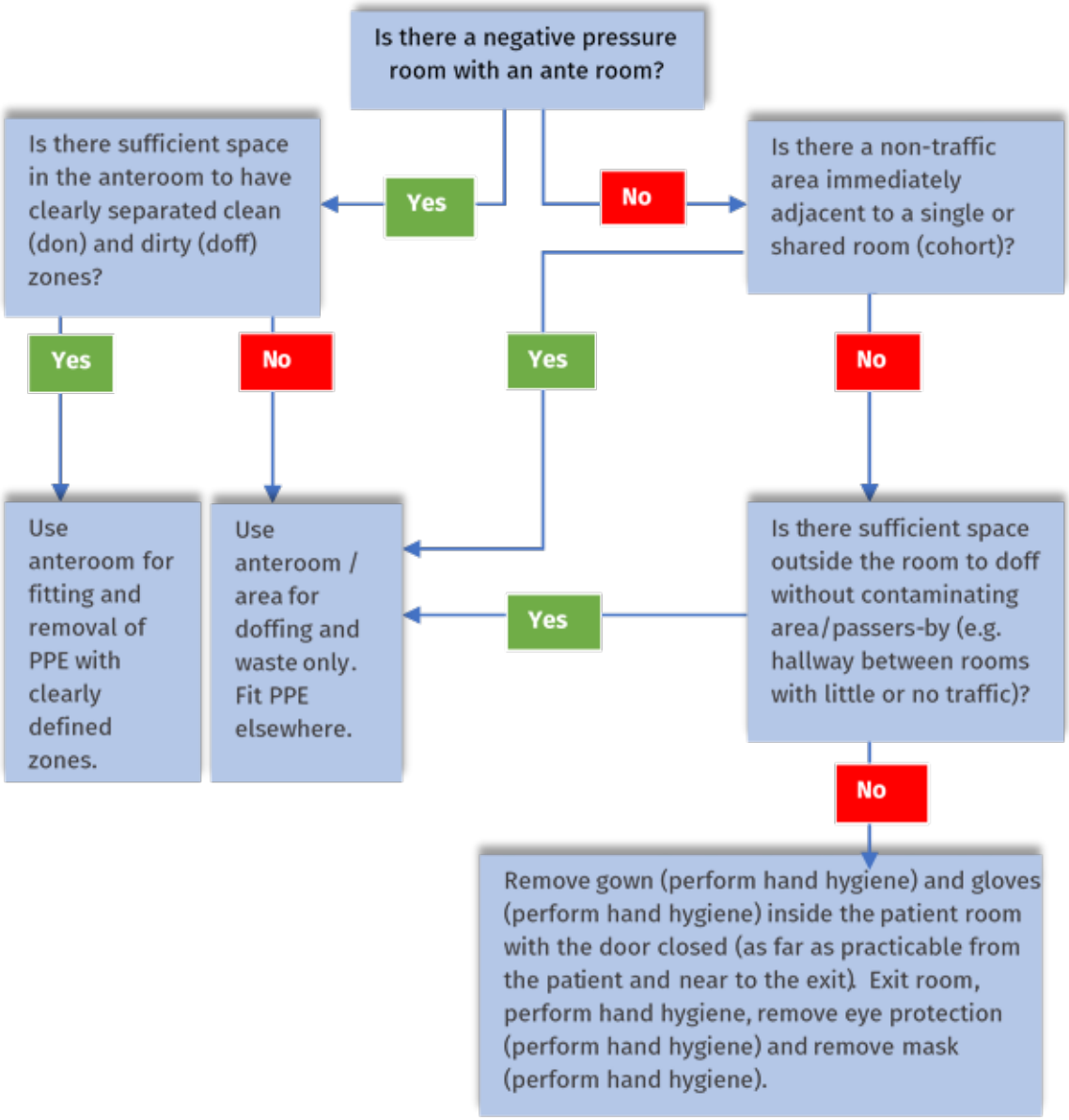
The World Health Organization (WHO) recommends that examination gloves be powder free to avoid reactions with alcohol-based hand rubs used in healthcare facilities. If there are no other gloves available, powdered gloves may be used and healthcare workers should be instructed to perform hand hygiene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

Vinyl gloves are not recommended in the context of COVID-19. Powder-free latex or nitrile gloves are accepted as superior in clinical care and are less likely to be breached compared with vinyl gloves. (refer Infection Control Expert Group COVID-19 Infection Prevention and Control for Residential Care Facilities https://www.health.gov.au/resources/publications/coronavirus-covid-19-guidelines-for-infection-prevention-and-control-in-residential-care-facilities)

Appendix 3: PPE fitting and removal decision tree



Key principles:
HCW should keep masks and protective eyewear on until they have exited the patient care area.
Gowns and gloves should be removed in an area which reduces the risk of contaminating environment or persons passing by.
Masks/PFR and protective eyewear may remain on in between care areas
Hand hygiene must be performed after removing each item of PPE to reduce the risk of self-contamination.

Appendix 4: Guide for PPE selection

Recommended PPE for healthcare settings during times of low risk of unexpected COVID-19 infections in hospital patients or healthcare workers.

Risk level		Precautions						
			Frequent hand hygiene	Surgical mask	PFR	Protective eyewear or face shield	Fluid-resistant gown	Gloves
NON-COVID-19 PATIENTS: Patients with **NO** Symptoms of COVID-19 (in the past 7 days) **AND** not identified as a Close Contact of COVID-19 **AND** no other indication for transmission-based precautions	STANDARD PRECAUTIONS FOR ALL PATIENTS	Standard precautions	✓	As per Standard Precautions	⊘	As per Standard Precautions	As per Standard Precautions	As per Standard Precautions
REMAINING PATIENTS: Patients with Symptoms of COVID-19 (in the past 7 days) confirmed to be COVID-19 negative **AND** who are **NOT** identified as a Close Contact of COVID-19		CONTACT and DROPLET	✓	✓	For AGP, AGB or other factors increasing the risk of transmission	✓	✓	✓
CONFIRMED, SUSPECTED OR CLOSE CONTACT OF COVID-19: • All patients with confirmed COVID-19 • All patients with Symptoms of COVID-19 (in the past 7 days) • All patients with identified as a Close Contact of COVID-19		CONTACT and DROPLET and AIRBORNE	✓	⊘	✓	✓	✓	✓

Adapted from NSW Government Clinical Excellence Commission (2021) *COVID-19 Infection Prevention and Control Manual COVID-19* Risk assessment guide for PPE selection for direct care of patients. Available: https://www.cec.health.nsw.gov.au/keep-patients-safe/COVID-19/COVID-19-IPAC-manual

For advice on escalation of PPE requirements during times of increased risk of unexpected COVID-19 infections in hospital patients or healthcare workers refer to Personal protective equipment (PPE) and infection control guidance.

An apron or a non-fluid-resistant gown may be used in situations where physical contact is minimal and there is little chance of body fluid splash (e.g. medication delivery, performing observations, fever clinics).

Aerosol generating procedures (AGP), aerosol generating behaviours (AGB) and other factors increasing the risk of transmission are outlined in Appendix 6 of the Queensland Health infection prevention and control guidelines for the management of COVID-19 in healthcare settings.

Appendix 5: Quick reference information about PFRs

The purpose of this appendix is to assist in decision-making about appropriate selection of a PFR. It is important to note that inclusion in this appendix does not guarantee that the specific PFR are in stock and available for immediate dispatch. Please check with your local stock and supply coordinator for availability.

Table 1 outlines details of the PFRs' specifications, the standards the PFR meet, the Australian Register of Therapeutic Goods (ARTG) number and respirator indications for use. Please refer to Appendix 2 for more detail about fluid resistance and standards.

Table 1. PFR range available to order in Queensland Health

PFR	Description	P2 OR N95	Fluid resistance rating	Standard	Indication for use	Specifications and additional information
 **<u>Available sizes:</u>** **Medium: 10019056 (72509-10)** **Small: 10038091 (72509-09)**	BSN Medical Surgical Proshield N95 respirator	N95	Level 3	NIOSH N95 Approval number 84A-3348 ATSM F1862-98 and ATSM F1862-00a At 21.3kPa	Surgical respirator suitable for use where a PFR is indicated and high-level fluid resistance is required, e.g. in some surgeries or trauma settings and where there is potential for high velocity splash	**Item was part of normal stock prior to February 2020** **Available in two sizes** **Manufacturer user instructions:** BSN N95 application.pdf **ARTG ID: 342557**

PFR	Description	P2 OR N95	Fluid resistance rating	Standard	Indication for use	Specifications and additional information
 **Available sizes:** **Regular: 10015580** **Small: 10063756**	Halyard FLUIDSHIELD N95 Particulate Filter Respirator and Surgical Mask	N95	Level 3	NIOSH N95 TC-84A-7521 ATSM Level 3	Surgical respirator suitable for use where a PFR is indicated and high-level fluid resistance is required, e.g. in some surgeries or trauma settings and where there is potential for high velocity splash	**Item was part of normal stock prior to February 2020** **Available in two sizes** **Manufacturer user instructions:** HalyardHealth.pdf **ARTG ID: 351812**
 **Available sizes:** **Universal: 10038088**	3M™ Flat Fold Particulate Respirator & Surgical Mask 1870+, N95/P2 with Fluid Resistance	N95	Level 3	NIOSH N95 Approval number 84A-5726	Surgical respirator suitable for use where a PFR is indicated and high-level fluid resistance is required, e.g. in some surgeries or trauma settings and where there is potential for high velocity splash	**Item was part of normal stock prior to February 2020** **Manufacturer user instructions:** 3M 1870+.pdf **ARTG ID: 255656**

PFR	Description	P2 OR N95	Fluid resistance rating	Standard	Indication for use	Specifications and additional information
 **Available sizes:** **Universal**	Trident	P2	Level 3	AS/NZS 1716: 2012 AS 4381: 2015 Level 3, 160 mmHg	Surgical respirator suitable for use where a PFR is indicated and high-level fluid resistance is required, e.g. in some surgeries or trauma settings and where there is potential for high velocity splash	**Manufacturer information** TRIDENT® P2 Level 3 Surgical Disposable Respirator – Trident Safety
 **Available sizes:** **Regular: 10401026**	3M™ Cupped Particulate Respirator & Surgical Mask 1860 (standard size), N95/P2 with Fluid Resistance	N95	Level 2	NIOSH N95 Approval number 84A-0006	Appropriate for use in a setting where a PFR is indicated and a blood or body fluid splash is likely. **Not** suitable in a trauma or a procedure where high velocity splashes are likely. Please note: this item has an exposed metal nose piece and should be checked for suitability of use in some areas, such as MRI rooms.	**Manufacturer user instructions** **Data sheet** 3m-disposable-respirator-1860-1860s-te 3m-healthcare-respirator-1860-and-186(**Stock is sourced from the Commonwealth pandemic stockpile.** **Please note: the small size of this mask has a different fluid resistance rating to the regular size.**

PFR	Description	P2 OR N95	Fluid resistance rating	Standard	Indication for use	Specifications and additional information
 **Available sizes:** **Universal: 10401710**	Molnlycke duckbill respirator Model 42904	FFP2 (~ P2 or N95)	Level 2	EN 149:2001+A1:200 ASTM F18629	Appropriate for use in a setting where a PFR is indicated and a blood or body fluid splash is likely. **Not** suitable in a trauma or a procedure where **high velocity** splashes are likely.	**ARTG ID: 342901**
 **Available sizes:** **Small: 10401027**	3M™ Cupped Particulate Respirator & Surgical Mask 1860S (small size), N95 with Fluid Resistance	N95	Level 1	NIOSH N95 TC-84A-0006	Appropriate for use in a setting where a PFR is indicated but a blood and body fluid splash are unlikely to occur. Please note: this item has an exposed metal nose piece and should be checked for suitability of use in some areas, such as MRI rooms.	**Manufacturer user instructions** **Data sheet** 3m-disposable-respirator-1860-1860s-te 3m-healthcare-respirator-1860-and-186(**Stock is sourced from the Commonwealth pandemic stockpile. Please note: the small size of this mask has a lower fluid resistance rating to the regular size.**

PFR	Description	P2 OR N95	Fluid resistance rating	Standard	Indication for use	Specifications and additional information
 **Available size Universal**	**BYD**	**N95**	**Level 1**	**NIOSH N95 TC-84A-9221**	**Appropriate for use in a setting where a PFR is indicated but a blood and body fluid splash are unlikely to occur.**	**Use instructions** N95 RESPIRATOR - BYD.care

Appendix 6: Factors increasing the risk of transmission

Aerosol generating procedures

Some procedures may be more likely to generate higher concentrations of infectious respiratory aerosols than coughing, sneezing, talking or breathing.

For additional advice on recommendations for escalation of PPE for the performance of AGPs in areas of moderate or high community transmission refer to Pandemic Response Guidance: Personal protective equipment in healthcare delivery.

Although not quantified, the following inexhaustive list includes procedures that may 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 [11].
- Airway management in the context of CPR **is considered** an AGP [11].

Refer to the National COVID-19 Clinical Evidence Taskforce *Cardiopulmonary resuscitation of adults with COVID-19 in healthcare settings* for additional information.

AGPs should be avoided in patients who are suspected 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 suspected 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. Do not use 'Class P' positive pressure 'protective isolation' rooms that are specifically designed for the management of profoundly immunocompromised patients [3].
- Use standard, contact, droplet and airborne precautions.
- Nebuliser use should be discouraged and alternative administration devices (e.g. spacers) should be used [11].
- Limit the number of healthcare workers present during the procedure to those essential for patient care and support.
- The air changes per hour (ACH) of the room should be considered when determining the time required for a room to remain vacant (if required) following an AGP. Consult local ICP and HVAC facility experts for individual room capacities and clearly communicate local protocols to clinical and environmental services staff.
- Conduct environmental cleaning as per Discharge Clean section. Environmental cleaning may be performed during air change time by staff in full PPE with door closed.
- Other risk mitigation strategies may reduce 'fallow time', which include but are not limited to:
  - For dental procedures:
    - High Volume Evacuation (Dental Assistant support)
    - Use of dental dam
  - Where possible open windows and doors (to external)
  - Exhaust fan to external
  - Portable HEPA filtration units
- Consideration of contemporaneous COVID-19 prevalence in local community, use of screening tool and RAT prior to procedure may allow relaxation of 'fallow time'
- PPE should be worn for cleaning as recommended for care of the patient. 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 factors that may increase the risk of transmission

Patient factors that increase the risk of COVID-19 transmission include [3]:

- Potentially aerosol-generating behaviours such as shouting or screaming
- Coughing or increased work of breathing
- Cognitive impairment/inability to cooperate
- Inability to tolerate, or refusal of, a surgical mask

Environmental factors that may increase the risk of transmission

Environmental factors that may increase the risk of transmission include [3]:

- Low level of ventilation or unexpected air movements from a contaminated area.
- Care settings that are less controlled such as community-based or in-home care.
- Encounters with patients before their risk of COVID-19 is assessed, e.g. triage or initial assessment stage at fever/testing clinics.
- The presence of multiple patients with COVID-19 in an enclosed space.

Appendix 7: Management of deceased persons

It should be noted that usual processes for confirming, documenting and notification of the death apply. For a death in hospital the treating consultant and team identify if the death is reportable to the coroner.

Viewing of the deceased

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. Family members should be advised to avoid any contact with the body, especially around nose and mouth. However, if family members indicate that they will touch the body, offer a gown and supervise hand hygiene before and after viewing (hand wash or rub are acceptable).

Handling and preparing the body

Minimum PPE includes:

- long sleeved gown
- PFR
- face shield or goggles
- disposable non-sterile gloves.

Preparing the body for transfer:

- place a shroud (gown) onto the body.
- the body must be placed and secured in a leak-proof body bag to prevent leakage of body fluids.
    1. Place patient into the body bag ensuring zip closure is at the head of the patient.
    2. Disinfect the outside of the body bag by wiping down with a disinfectant listed on the ARTG with claims against COVID-19.

    – If the body bag is not of a type that prevents leakage of body fluids, the patient must be placed in a second body bag.
        - The second body bag must also be wiped over with a with a disinfectant listed on the ARTG with claims against COVID-19.
- Change gloves and perform hand hygiene.
- The shroud slip should go on the outside body bag. The shroud slip should state their death was related to COVID-19 and where applicable must also indicate if two body bags are being used.

Transporting the body to the mortuary

- On arrival to the ward, don the PPE appropriate to the ward area in reference to current PPE escalation guidelines.
- Place the deceased in/on the transport trolley. Do not remove PPE.
- Transfer the deceased to the mortuary as per facility guidelines.
- Use appropriately designated lifts to transport the body.

Once the deceased has arrived at the mortuary

- Mortuary personnel should don correct PPE.
- Linen from concealment transport trolley should be placed into the linen skip with alginate bag.
- Clean the concealment trolley with a disinfectant listed on the ARTG with claims against COVID-19.
- Staff in PPE transporting the deceased should remove their PPE as per procedure. Staff should buddy each other in the removing of PPE as per fitting and removal procedure.

Appendix 8: Fever/testing clinics

Infection prevention and control principles

People who present for screening are considered 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.

All staff in the same room with or having direct contact with the patient should wear a PFR and protective eyewear at a minimum, regardless of whether the patient is wearing a mask.

Most interaction with patients in a fever/testing clinic should be managed as follows:

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.
- When providing patient care, staff should wear a PFR, eye protection, gloves and apron (or gown if preferred). An apron is considered sufficient clothing protection, as physical contact is minimal and there is little chance of body fluid splash. The plastic apron and gloves must be changed, and hand hygiene performed between contact with patients.

Site and layout of fever/testing clinic

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

- The location of the fever/testing 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/testing 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. Consider a physical barrier to reinforce this.

- Consider use of technology for registration by administration staff where it will limit staff contact with patients or handling of equipment by patients.
- 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. 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.
- Any indoor venue should be assessed for HVAC and determination made if airflow is sufficient to reduce the risk of transmission from a positive case to other persons attending the healthcare facility.

Drive through clinic

Infection prevention principles remain important in external settings, particularly when interacting with persons who are suspected or requiring testing for SARS CoV-2. These points should be considered when providing a screening service in an external or “drive-through” setting:

- Adequate protection from the elements must be provided for staff wearing PPE to prevent equipment failure and reduce staff fatigue and discomfort. i.e. protection from rain, wind, and heat.
- Staff members should not place their heads inside the vehicle. This may dislodge eye protection and mask and/or expose them to safety risks.
- If the person to be swabbed cannot be reached safely from the window, they should be requested to open the door or exit the vehicle for swabbing, if safe to do so. Children should be held by the parent/guardian.
- Sufficient staffing should be allocated to allow for adequate hydration and relief from PPE fatigue.

Definition of terms

Term	Definition/Explanation/Details	Source
Aerosol-generating procedures (AGPs)	Any medical procedure that can induce the production of aerosols of various sizes, including small (<5µm) particles. See section on aerosol-generating procedures in this document	WHO
Close Contact of COVID-19	For the purposes of identifying patients who may present an infection risk to others in the healthcare setting, the following definition of a Close Contact of COVID-19 is a person who has been identified as a close contact of a case of COVID-19 in the last 7 days, as defined in the current version of the Communicable Diseases Network Australia COVID-19 National Guidelines for Public Health Units (The CDNA COVID-19 SoNG)."	Queensland Health CDNA
Cohorting	Placing together in the same room patients who are infected with the same pathogen and are suitable roommates.	NHMRC
Negative pressure room	Class N – Negative Pressure Isolation Room (Australian Standard: AS 1668.2): single-occupancy patient care room used to isolate persons with a suspected or confirmed airborne infectious disease. Must contain Type B hand basin within the room and a self-closing door, with sufficient and appropriate storage for clinical waste [18]. 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.	NHMRC Australasian Health Infrastructure Alliance
Particulate filter respirator (PFR)	Particulate filter respirators (PFR) are designed to reduce the wearer's respiratory exposure to airborne contaminants such as particles, gases or vapours. P2/N95 respirators are types of PFR. PFR are appropriate for use for respiratory protection as part of the personal protective equipment (PPE) required for airborne precautions applied in healthcare facilities (for both clinical and non-clinical healthcare workers). PFR are also appropriate as part of the PPE required for all health care workers involved in	Queensland Health

	aerosol-generating procedures when a patient is confirmed or suspected of having a disease that may be transmitted via the droplet or airborne route (including COVID-19).	
Personal protective equipment (PPE)	A variety of barriers used alone or in combination to protect mucous membranes, skin and clothing from contact with infectious agents. PPE used in healthcare includes gloves, masks, PFR, protective eyewear, face shields, gowns and aprons.	NHMRC
Symptoms of COVID-19	A patient is considered to have Signs and Symptoms of COVID-19 (previously known as Clinical Evidence in this and other QH documents) if in the last 14 days they have experienced: • Fever (≥37.5 °C) or history of fever (e.g. night sweats, chills), • acute respiratory infection (e.g. cough, shortness of breath, sore throat), • loss of smell or loss of taste, • other symptoms may include: ○ headache, myalgia, fatigue, runny nose, acute blocked nose (congestion), muscle pain, joint pain, diarrhoea, nausea/vomiting, loss of appetite. Clinical judgement should be applied where there are alternative clinical explanations for symptoms or non-specific symptoms are present.	Queensland Health

Version control

Status: Revised document

Version	Date	Prepared by	Comments
3.1-4.0	22 June 2022	IMT ICP Review by: - 4 x IMT MOs - 1 x IMT PHN - 1 x IMT EHO - PPE WG CNC - CSRG ICP	Major Review: Major review conducted with aim of future-proofing Guidelines, with careful consideration of the existing suite of QH PPE Guidance, duplication reviewed, all links checked and updated. Current evidence, other State jurisdiction documents, CDNA SoNG, ICEG guidelines and complementary guidance reviewed. Summary of Review move to front – for ease of version review. Restructured sections in line with Australian Guidelines for the Prevention and Control of Infection in Healthcare 2019 – Standard Precaution detailed, followed by Transmission Based Precautions. ** CHANGE OF TERMS – "P2/N95 Respirator" has been replace throughout with the term "Particulate filter respirator"/"PFR" to be consistent with ICEG Guidance, with the exception of the term "P2/N95 Respirator" existing in another document referred to, or where a "P2" or "N95" respirator is specifically detailed. Additional Section: Mode of Transmission Additional Section: Signs and Symptoms of COVID-19 Additional Section: Close Contacts of COVID-19 Standard Precautions: addition of bare below the elbows definition, Management of Environment: Ventilation – addition of air filtration devices content, Waste – clarification on clinical waste, Paper Medical Records – updated and moved from Patient Management Considerations section, food services and cutlery processing section updated Transmission Based Precautions – addition introductory sentence, clarity on when to isolate, elaboration on mode of transmission in explanation of droplet and airborne precautions. NEW Patient Risk Assessment, PPE and Placement Section: Patient Risk Assessment, PPE and Placement sections incorporated to reduce duplication and increase readability, footnotes removed, update of close contact definition and symptoms (formerly epidemiological criteria), clarity on precautions required, include Optimising the supply of personal protective equipment (PPE) guidance, details on Australasian Health Facility Guidelines for negative pressure rooms, detail that spectacles are not protective eyewear. Staff Considerations section: Uniforms section removed, as PPE protects worker clothing. Outbreak Management section: addition of "Recommended approach to assessing close contact exposures to COVID-19 in the hospital setting (QICN)" guidance document and clarification on triggers, and staff requirements

			Considerations on Use of PPE Section: moved to Appendix 2, new information in Facial Hair subsection, including QH Position Statement on Facial Hair and Ensuring the Adequate Performance of Respiratory Protective Equipment (pre-published) Outbreak Management – updated Appendices reordered for improved flow. Appendix 1 – Patient Placement (Cohorting) Advice, section rewritten to reflect current practice, reference to PPE Escalation documents. Appendix 2 – Safe use information and staff considerations moved to this appendix for readability and consistency Appendix 6 – Factors increasing the risk of transmission - Addition – risk mitigation, clarity on cleaning between cases Appendix 7 – Management of deceased persons – humanistic approach applied with a view to 'living with covid', removed additional transport requirements (as body bag is decontaminated by clinical staff) Appendix 8 – Fever/Testing Clinics – reformatted, duplication and errors removed, need for long-sleeved gown removed. Definition of terms – Updated, particulate filter respirator included.
2.2-3.0	12 January 2022	PPE Working Group	Change to definition of epidemiological evidence. Addition of clarification that an apron or non fluid-resistant gown may be used instead of a long-sleeved fluid-resistant gown if minimal physical contact anticipated and low risk of body fluid splash. Removal of reference to Designated COVID-19 Hospitals Direction. Update to available P2/N95 respirators in appendix 8.
2.1	12 October 2021	COVID-19 IMT	Revision of "Confirmed COVID-19 cases and suspected COVID-19 patients. Addition of "Fit testing" requirements. Removal of duplications throughout document.
2.0	12 August 2021	COVID-19 IMT and CDIM Infection Management	Endorsed by CSLF
1.15 – 1.21	30 June 2021	COVID-19 IMT and CDIM Infection Management	Layout and flow of document changed. Major rewrite to update entire document to align with latest national guidance and Queensland Chief Health Officer Public Health Directions. Removal of Appendix 1: Airborne contaminant removal Removal of Appendix 3: PPE quick reference guide Appendices renumbered Removal of repeated information throughout "Interim" status removed
1.14	22 September 2020	CDB Infection Management	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 *Guidance on the use of PPE in hospitals during the COVID-19 outbreak* 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.
1.13	24 June 2020	CDB Infection Management	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. Link to further information on fit checking added to PPE and patient placement section. Reference to Bare Below the Elbows added to Fitting and removing PPE section. Clarification added to Transport considerations section. Link to COVID-19 SoNG for further information about clearance for healthcare workers added to Healthcare worker monitoring section. Added advice regarding disposable privacy curtains. 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.
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.
1.11	23 April 2020	CDIM Infection Management	Inclusion of advice for probable cases throughout. Minor revisions to the following: • key points • recognition of suspect and probable cases and immediate action • immediate isolation and restriction of suspect, probable and confirmed cases • collection of respiratory specimens • PPE and patient placement • aerosol-generating procedures • patient movement • duration of infection prevention and control precautions • staffing considerations • environmental cleaning and disinfection • food services • Appendix 2 • Appendix 3 • Appendix 4. 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: • care of the deceased.
1.10	27 March 2020	CDIM Infection Management	Appendix 3 added
1.9	29/02/2020	CDIM Infection Management	New waste section added based on clarification from national guidance. Change made to distance required for spatial separation of cohorted patients to align with existing guidance. Staffing considerations section updated. Appendix 2 added.
1.8	19/02/2020	CDIM Infection Management	Revised document
1.7	16/02/2020	CDIM Infection Management	New document

References

1. Communicable Diseases Network Australia, *Coronavirus Disease 2019 (COVID-19) CDNA National Guidelines for Public Health Units, version 4.7*.
2. National Health and Medical Research Council, *Australian Guidelines for the Prevention and Control of Infection in Healthcare*.
3. Infection Control Expert Group, *Guidance on the use of personal protective equipment (PPE) for health care workers in the context of COVID-19*.
4. Queensland Health, *Fit testing of P2/N95 respirators in respiratory protection programs - guidance*.
5. Therapeutic Goods Administration. *Regulation of Personal Protective Equipment and COVID-19*.
6. Australian Nursing and Midwifery Federation, *Evidence brief: COVID-19: Laundering of healthcare worker uniforms*.
7. World Health Organization, *Infection prevention and control during health care when COVID-19 is suspected or confirmed: Interim guidance 29 June 2020*.
8. World Health Organization, *Roadmap to improve and ensure good indoor ventilation in the context of COVID-19*. 2021: file:///C:/Users/adamsrc/AppData/Local/Temp/MicrosoftEdgeDownloads/7c84a22a-8e9b-4ea5-a3b7-c1d8e3574a30/9789240021280-eng.pdf.
9. Victorian Government Department of Health and Human Services, *Protecting our healthcare workers*.
10. Francisco Jr, R.d.S., et al., *Pervasive transmission of E484K and emergence of VUI-NP13L with evidence of SARS-CoV-2 co-infection events by two different lineages in Rio Grande do Sul, Brazil.* Virus Research, 2021. **296**: p. 198345.
11. Infection Control Expert Group, *The use of face masks and respirators in the context of COVID-19*.
12. World Health Organisation, *Transmission of SARS-CoV-2: implications for infection prevention precautions: Scientific Brief [updated 9 July 2020]: https://www.who.int/news-room/commentaries/detail/transmission-of-sars-cov-2-implications-for-infection-prevention-precautions*
13. Australian Health Protection Principal Committee (AHPPC), 01 October 2021, http://www.health.gov.au/news/australian-health-protection-principal-committee-ahppc-statement-on-the-role-of-ventilation-in-reducing-the-risk-of-transmission-of-covid-19
14. NSW Health, Safety Information 009/21 – Updated: Recirculating air filtration device use in NSW hospitals, 26 November 2021, http://health.nsw.gov.au/sabs
15. Liu, D. T., Phillips, K. M, Speth, M. M., Besser, G., Mueller, C. A. and Sedaghat, A. R., *Portable HEPA Purifiers to Eliminate Airborne SARS-CoV-2: A Systematic Review*, 8 June 2021, Americal Academy of Otolaryngology – Head and Neck Surgery, http://journals.sagepub.com/doi/10.1177/01945998211022636?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%20%200pubmed
16. Pirkle, S., Bozarth, S., Robinson, N., Hester, W., Wagner, LA., Broome, S., Allen, K. and Mannepalli, S., *Evaluating and Contextualising the Efficacy of Portable HEPPA Filtration Units in Small Exam Rooms,* 12 August 2021, Americal Journal of Infection Control, http://www.ncbi.nlm.nih.gov/pmc/articles/PMC8408652/
17. Buising, K. L., Schofield, R., Irving, L., Keywood, M., Stevens, A., Keogh, N., Skidmore, G., Wadlow, I., Kevin, K., Rismanchi, B., Wheeler, A. J., Humphries, R. S., Kainer, M., Monty, J., McGain, F. and Marshall, C., *Use of Portable Air Cleaners to Reduce Aerosol Transmission on a Hospital Coronavirus Disease 2019 (COVID-19) Ward,* Infection Control and Hosptial Epidemiology, 1-6. *https://doi.org/10.1017/ice.2021.284*
18. Australasian Health Infrastructure Alliance, (2015), *Austalasian Health Facility Guidelines: Part D – Infection Control and Prevention*, Revision 7.0, 01 March 2016, Part D Whole_7_2.pdf (aushfg-prod-com-au.s3.amazonaws.com)
19. Queensland Department of Environment and Science, *Clinical and Related Waste*, Version 4.02, 01 July 2019, ESR/2015/1571 Guideline: Clinical and related waste (des.qld.gov.au)