

Personal protective equipment

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THE GLOBAL PANDEMIC of COVID-19 has brought the challenge of a virulent and highly infectious disease, previously confined to history books and news reports, to our doorstep. As such, the development of knowledge and skill in infection control has become an important priority for many areas of our healthcare system, including general practice.

Infection control

General principles of infection control apply to all patients with respiratory infections. These include standard precautions and transmission-based precautions.^{1,2} Suspected or confirmed cases of COVID-19 will require escalating levels of personal protective equipment (PPE) depending on the anticipated level of intervention. These are summarised in Box 1 and Table 1.

Personal protective equipment

PPE refers to anything worn or used to minimise the risk to workers' health and safety. For a healthcare worker exposed to infection risk, PPE can include gloves, fluid-impervious gowns, eye protection, head protection, different types of masks (powered respirators, N95/P2 or surgical) and boot covers.³ The correct type and proper use of PPE is absolutely essential before any close proximity patient interaction occurs.

As healthcare workers are often affected by cross-contamination, it is imperative to have experience and practice in the use of PPE. Instructions and resources are available from state health departments.^{4,5} In the lead-up to the COVID-19 pandemic, staff at our rural hospital have had an opportunity to set up equipment and practise the 'don (put on)/doff (take off)' procedure. A few important points have become apparent:

- Practise PPE – for all staff to have an opportunity to practise 'don/doff', a

few sets of PPE may need to be reused. However, N95/P2 masks should be fit checked to the individual.⁶ A nurse educator is ensuring competency, which may take one or two 10-minute sessions.

- Space – it is important to have an area set aside for assessment of suspected cases. This should be away from high-traffic areas such as corridors and general waiting rooms. An 'antechamber' is ideal for clinicians to don PPE prior to entering the room.

Box 1. Standard precautions¹

- Hand hygiene (5 Moments)
- Use of appropriate personal protective equipment
- Respiratory hygiene and cough etiquette
- Aseptic technique
- Safe use and disposal of sharps
- Reprocessing of reusable medical equipment
- Routine environmental cleaning
- Linen and waste management

Table 1. Transmission-based precautions¹

Type	Transmission	Recommendation	Procedures with COVID-19
Contact	Direct/indirect contact with infectious agent	Standard precautions plus: <ul style="list-style-type: none"> • disposable gloves • impermeable gown • surgical mask and goggles if 'splash/spray' risk • single room or cohort room 	Routine care
Droplet	Short distance (approximately 1 m) by large respiratory droplets	Standard and contact precautions plus: <ul style="list-style-type: none"> • surgical mask • goggles/face shield • single room or cohort room 	Routine care
Airborne	Person to person by airborne route (>1 m)	Standard, contact and droplet precautions plus: <ul style="list-style-type: none"> • N95/P2 mask/respiratory with 'fit check' • negative pressure room 	Aerosol-generating procedures Critically ill patients outside the intensive care unit (ICU) All patients in the ICU Close contact >1 hour

- Equipment – within that space, equipment should be limited to absolute necessity, as cleaning of the area and all equipment is required after each patient. A trolley of optional equipment outside the room can be useful, and a ‘runner’ in full PPE can be used to transfer items into the room if necessary.
- PPE – all PPE must be available and near a wash basin or hand sanitiser and infectious waste bins. Trolleys are useful for this. PPE must be put on and taken off with utmost care to minimise cross-contamination. A ‘spotter’ is used to ensure there are no breaches in PPE technique. It is essential that hands are washed between each step. Goggles can be disposed of or washed with detergent and water and allowed to air dry.⁷
- Team – working together is a fundamental part of the process. This is an unfamiliar procedure for most small hospital or general practice staff. Essential elements include planning ahead, clear communication and a shared mental model. Practice drills and run-throughs can give specific insight into your situational needs.

The COVID-19 global pandemic is a challenge to us all. To continue to provide healthcare for the community, it is imperative that we stay safe and stay healthy. Proficiency and fastidious use of PPE is an essential part of this, as is supporting each other in the challenges we face. Look after your colleagues; look after yourself.

Keep calm, keep clean, keep your distance.

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References

1. Health Vic. Infection control – Standard and transmission-based precautions. Melbourne: Department of Health and Human Services, 2017. Available at www2.health.vic.gov.au/public-health/infectious-diseases/infection-control-guidelines/standard-additional-precautions [Accessed 6 April 2020].
2. National Health and Medical Research Council. Australian guidelines for the prevention and control of infection in healthcare. Canberra: NHMRC, 2019.
3. Safe Work Australia. Personal protective equipment. Canberra: Safe Work Australia, 2020. Available at www.safeworkaustralia.gov.au/pppe [Accessed 6 April 2020].
4. NSW Government. Standard and transmission based precautions (including PPE). Sydney: NSW Government, 2020. Available at www.cec.health.nsw.gov.au/keep-patients-safe/Coronavirus-COVID-19/standard-and-transmission-based-precautions-including-pppe [Accessed 6 April 2020].
5. Queensland Health. Safe fitting and removal of personal protective equipment (PPE) for healthcare staff. Brisbane: Queensland Government, 2020. Available at www.health.qld.gov.au/_data/assets/pdf_file/0035/945755/covid19-correct-use-pppe.pdf [Accessed 6 April 2020].
6. Queensland Health. P2/N95 mask fit checking. Brisbane: Queensland Government, 2020. Available at www.health.qld.gov.au/clinical-practice/guidelines-procedures/diseases-infection/infection-prevention/transmission-precautions/p2n95-mask [Accessed 6 April 2020].
7. Queensland Government. COVID-19 cleaning and disinfection recommendations. Brisbane: Queensland Government, 2020. Available at www.qld.gov.au/health/conditions/health-alerts/coronavirus-covid-19/information-for/industry-and-businesses/resources-and-fact-sheets-for-industry/covid-19-cleaning-and-disinfection-recommendations [Accessed 6 April 2020].