

**Canberra Hospital and Health Services**

**Standard Operating Procedure**

**Personal Protective Equipment**

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| **Purpose** |

To utilise personal protective equipment (PPE) to prevent the transmission of infectious agents to the hands, skin and clothing of healthcare workers as well as the exposure of workers to dangerous chemicals.

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| **Scope** |

All Health Directorate staff at risk of exposure to blood, other body fluids or chemicals and where there is a risk of contamination with blood, body substances, secretions or excretions (except sweat).

Staff should refer to Area Specific Manuals for SOPs relating to PPE and the handling of chemicals and cytotoxics.

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| **Procedure** |

PPE is designed and issued for a particular purpose in a protected environment and should not be worn outside that area.

Protective clothing provided for staff in areas where there is high risk of contamination (e.g. operating suite/room) must be removed before leaving the area.

**Gowns and aprons**

* Clinical and laboratory coats or jackets worn over personal clothing for comfort and/or purposes of identity are not considered to be PPE
* Aprons/gowns are routinely used upon entering the room of a patient requiring contact precautions
* Gowns and aprons must be changed between patients
* Aprons and gowns should be removed in a manner that prevents contamination of clothing or skin. The outer, ‘contaminated’, side of the gown is turned inward and rolled into a bundle, and then discarded into a designated container for waste or linen to contain contamination.

**Table 1 Characteristics of aprons/gowns**

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| **Plastic apron** | * Impervious /fluid resistant
* Single-use, for one procedure or episode of patient care
* Disposable
* Worn when there is a risk that clothing may become exposed to blood or body substances (usually from the environment) during low-risk procedures and where there is low risk of contamination to the healthcare worker’s arms
* Worn during contact precautions when contact with the patient or the patient environment is likely
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| **Gown** | * Single-use\*
* Disposable
* Worn to protect skin and prevent soiling of clothing during procedures and/or patient-care activities that are likely to generate splashing or sprays of blood or body substances
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| **Full body gown** | * Fluid resistant
* Single-use\*
* Long sleeved
* Worn when there is a risk of contact of the healthcare worker’s skin with a patient’s broken skin, extensive skin to skin contact (e.g. lifting a patient with scabies or non-intact skin), or a risk of contact with blood and body substances which are not contained (e.g. vomiting, uncontrolled faecal matter)
* Worn when there is the possibility of extensive splashing of blood and body substances
* Worn when there is a risk of exposure to large amounts of body substances eg in some operative procedure
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| **Sterile gown\*** | * Pre-packaged
* Used for procedures requiring an aseptic field
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*\*Some gown types can be re-used. Reusable gowns need to be laundered or reprocessed according to AS/NZS4146—2000 Laundry Practice*

**Face and Eye Protection**

Face and eye protection reduces the risk of exposure of healthcare workers to splashes or sprays of blood and body substances and is an important part of standard precautions. Procedures that generate splashes or sprays of blood, body substances, secretions or excretions require either a face shield or a mask worn with protective eyewear.

Removal of a face shield, protective eyewear and surgical mask can be performed safely after gloves have been removed and hand hygiene performed. The ties, earpieces and/or headband used to secure the equipment to the head are considered ‘clean’ and therefore safe to touch with bare hands. The front of a mask, protective eyewear or face shield is considered contaminated.

Reusable face shields and protective eyewear should be cleaned according to the manufacturer’s instructions, generally with detergent solution, and be completely dry before being stored. If they are to be disinfected, they should be disinfected using either a TGA-registered instrument grade disinfectant - low level, or by heat as per AS/NZS 4187:2003.

**NOTE**: Prescription eyewear is not considered to give sufficient protection to the eyes in an environment where splashing, splattering, spraying or spilling of blood or body substances or chemicals is likely. Safety glasses or face shields designed to wear over prescription glasses are available.

**Table 2 Use of face and eye protection as part of standard precautions**

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| **Type of care** | **Examples** | **Face and eye protection required** |
| Routine care | General examination (e.g. medical, physiotherapy, nursing)Routine observations | Not required **unless** caring for a patient on droplet precautions (surgical mask) or airborne precautions (P2 respirator)  |
| Procedures that generate splashes or sprays | Dental proceduresNasopharyngeal aspirationEmptying wound or catheter bag | Protective eyewear/full-length face shieldSurgical mask |
| Procedures involving the respiratory tract (including the mouth) | IntubationNasopharyngeal suction | Protective eyewearP2 respirator |

**Surgical masks**

Surgical masks are loose fitting, single-use items that cover the nose and mouth. They are used as part of standard precautions to keep splashes or sprays from reaching the mouth and nose of the person wearing them. Surgical masks can be placed on coughing patients to limit potential dissemination of infectious respiratory secretions from the patient to others.

Considerations when using a surgical mask or respirator include:

* if the respirator becomes damaged, soiled, or breathing becomes difficult leave the contaminated area and replace the respirator
* masks should never be reapplied after they have been removed
* masks should not be left dangling around the neck
* touching the front of the mask while wearing it should be avoided and
* hand hygiene should be performed upon touching or discarding a used mask.

NB: Children should wear a specifically designed child mask and their oxygen saturation should be monitored.

**Table 3 Properties of different types of mask**

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| **Properties** | **Surgical masks** | **P2/N95 respirator (see Section B2.4.3)** |
| Other names | Single-use face mask, medical mask, patient-care mask, general purpose mask | P2/N95 respirator, respiratory protection device, particulate respirator |
| Characteristics | * Pleated face
* 2–3 polypropylene layers
* Filtration through mechanical impaction
* Fluid resistant
 | * Raised dome or duckbill
* 4–5 layers (outer polypropylene, central layers electrets [charged polypropylene])
* Filtration through mechanical impaction and electrostatic capture
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| Sealing | * Ties at crown and bottom of head
 | * Ties at crown and bottom of head, pliable metal nose bridge
* Fit checking required
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| Australian standards | * AS4381:2002
 | * AS1715:2009
 |
| Intended use | * Procedures that generate splashes or sprays of large droplets of blood, body substances, secretions and excretions
* Procedures requiring a surgical aseptic technique (to protect patients from exposure to infectious agents carried in a healthcare worker’s mouth or nose)
* Routine care of patients on droplet precautions
 | * Routine care of patients on airborne precautions
* High-risk procedures such as bronchoscopy when the patient’s infectious status is unknown
* Procedures that involve aerosolisation of particles that may contain specific known pathogens
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| Notes |  | * Care must be taken when placing respirators on patients and must suit clinical need (i.e. if the patient has chronic obstructive airways disease [COAD] or is in respiratory distress, the respirator will exacerbate symptoms).
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**Gloves**

Gloves can protect both patients and healthcare workers from exposure to infectious agents that may be carried on hands. As part of standard precautions, they are used to prevent contamination of healthcare workers’ hands when:

* anticipating direct contact with blood or body substances, mucous membranes, non-intact skin and other potentially infectious material; and
* handling or touching visibly or potentially contaminated patient-care equipment and environmental surfaces.

## When and how should gloves be worn?

As with all PPE, the need for gloves is based on careful assessment of the task to be carried out and the related risk of transmission of microorganisms to the patient and the risk of contamination of the healthcare worker’s clothing and skin by the patient’s blood and body substances. Risk assessment includes consideration of:

* who is at risk (whether it is the patient or the healthcare worker);
* whether sterile or non-sterile gloves are required, based on contact with susceptible sites or clinical devices and the aspect of care or treatment to be undertaken;
* the potential for exposure to blood or body substances;
* whether there will be contact with non-intact skin or mucous membranes during general care and invasive procedures; and
* whether contaminated instruments will be handled

Wearing Gloves:

* when gloves are worn in combination with other PPE, they are put on last

Gloves are to be changed:

* between episodes of care for different patients, to prevent transmission of infectious material
* during the care of a single patient, to prevent cross-contamination of body sites
* if the patient interaction involves touching portable computer keyboards or other mobile equipment that is transported from room to room)
* as soon as they become grossly contaminated

**Note: Glove Usage**

* Prolonged and indiscriminate use of gloves should be avoided as it may cause adverse reactions and skin sensitivity.
* Hand hygiene should be performed before putting on gloves and after removal of gloves.
* Single-use gloves should not be washed, but discarded.

**Disposal of PPE**

In clinical setting:

* blood and body substances contaminated PPE is disposed of into yellow contaminated waste bin (unless in a patient’s own home where it should be wrapped well and placed into domestic bin)
* cytotoxic product contaminated PPE is disposed of into purple cytotoxic bin
* other used PPE is disposed of into landfill waste stream.

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| **Evaluation** |

**Outcome Measures**

* Health Directorate staff will not be exposed to body substances.

**Method**

* Number of preventable exposure incidents reported to Occupational Medicine Unit reviewed annually.

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| **Related Legislation, Policies and Standards** |

**Legislation**

* ACT Occupational Health and Safety Act 1989
* ACT Public Health Act 1997
* ACT Public Sector Management Act 1994
* ACT Clinical Waste Act 1990
* ACT Waste Minimisation Act 1991

**Australian/New Zealand Standards**

* AS/NZS 4011 and AS/NZS 4179 (gloves)
* AS 4381 (surgical face mask)
* AS/NZS 1716 (for respiratory pathogens)
* AS/NZS 1715 (P2) particulate masks – TB, influenza outbreak)

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| **Definition of Terms**  |

**Personal protective equipment** (PPE) refers to a variety of barriers, used alone or in combination, to protect mucous membranes, airways, skin and clothing from contact with infectious agents. PPE used as part of standard precautions includes aprons, gowns, gloves, surgical masks, and protective eyewear and face shields. Selection of PPE is based on the type of patient interaction, known or possible infectious agents, and/or the likely mode(s) of transmission.

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| **References** |

* NHMRC (2010) Australian Guidelines for the Prevention and Control of Infection in Healthcare. Commonwealth of Australia. [http://www.nhmrc.gov.au/b1.2-personal-protective-equipment accessed November 2010](http://www.nhmrc.gov.au/b1.2-personal-protective-equipment%20accessed%20November%202010)

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| **Attachments** |

Attachment 1: Sequence for putting on PPE.

Attachment 2: Sequence for removing PPE.

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**Attachment 1**

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| **Sequence for putting on PPE** |
| **GOWN*** Fully cover torso from neck to knees, arms to end of wrists, and wrap around the back
* Fasten at the back of neck and waist
 | Gown |
| **MASK** * Secure ties or elastic bands at middle of head and neck
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| **PROTECTIVE EYEWEAR OR FACE SHIELD** Place over face and eyes and adjust to fit  |  |
| **GLOVES*** Hand Hygiene must be performed
* Extend to cover wrist of isolation gown
 | Gloves |

**Attachment 2**

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| **Sequence for removing PPE** | **Remove PPE at doorway or in anteroom** |
| **GLOVES*** Outside of gloves is contaminated!

Grasp outside of glove with opposite gloved hand; peel off * Hold removed glove in gloved hand
* Slide fingers of ungloved hand under remaining glove at wrist
* Peel glove off over first glove
* Discard gloves in waste container
* Perform Hand Hygiene
 | Gloves |
| **PROTECTIVE EYEWEAR OR FACE SHIELD*** Outside of eye protection or face shield is contaminated!
* To remove, handle by head band or ear
* pieces
* Place in designated receptacle for reprocessing or in waste container
 | Protective Eyewear |
| **GOWN*** Gown front and sleeves are contaminated!
* Unfasten ties
* Pull away from neck and shoulders, touching inside of gown only
* Turn gown inside out
* Fold or roll into a bundle and discard
 | Gown |
| **MASK\**** Front of mask is contaminated! DO NOT TOUCH!
* Grasp bottom, then top ties or elastics and remove
* Discard in waste container
* Perform Hand Hygiene
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| **PERFORM HAND HYGIENE IMMEDIATELY AFTER REMOVING ALL PPE** |