# SECTION 9
# RISK MITIGATION: SPECIALISED SETTINGS

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## 9 Immunocompromised patients

As a direct effect of their impaired immune defences, immunocompromised patients have an increased risk of infections and are at risk of incurring severe morbidity and mortality. This risk is compounded by the frequent requirement for indwelling vascular devices for the delivery of therapy e.g. dialysis and transfusion support, the high requirements for antibiotics, and frequent hospitalisations, which increase the potential for exposure to and/or acquisition of multidrug resistant microorganism or healthcare associated infections. In addition, impaired immunity may lead to increased shedding of microorganisms, resulting in increased potential for disease transmission (189).

A HO is to develop a risk mitigation strategy that includes the regular auditing and reporting of compliance with standard precautions, environmental cleaning, HAI surveillance outcomes and adherence to antimicrobial stewardship initiatives within the clinical areas, particularly where immunocompromised patients are accommodated. When compliance with standard precautions falls below acceptable quality levels, or nosocomial transmission of infection is confirmed, remedial action to address breaches in infection prevention and control should be implemented. A system for the early detection and screening of patients for risk factors and signs or symptoms of infection should be developed for the clinical services that manage immunocompromised patients. Screening for TB, hepatitis B and C and multi-drug resistant organisms may be particularly relevant for those undergoing intensive immunosuppressive regimens or high-risk procedures (190, 191).

**NSQHS - VERSION 2 NATIONAL STANDARDS Standard 3**

**NSW Health PD**
Tuberculosis Management of People Knowingly Placing Others at Risk of Infection

Respiratory viruses and other pathogens circulating in the community may be introduced into healthcare facilities by visitors (particularly young children) and HWs. Each HO is to implement local policies for leave or deployment of unwell HWs working in extreme risk areas, such as ICU, oncology, transplant units, NICUs and delivery suites, and for the exclusion of unwell visitors and young children from these clinical areas (192-195).

Annual influenza vaccination of HWs, other clinical personnel, students, and contacts with those who are immunocompromised is mandated for some risk categories and strongly recommended for other groups to reduce the potential for influenza transmission in extreme risk areas.

**NSW Health PD**
Occupational Assessment, Screening and Vaccination Against Specified Infectious Diseases

**NSW Health PD**
Leave Matters for the NSW Health Service

**NSW Health PD**
Environmental Cleaning Policy for functional area risk ratings

## 9.1 Neutropenia

For patients who are predicted to have prolonged and profound neutropenia, such as allogeneic stem cell transplant recipients, protective isolation should be considered to reduce potential exposure to HAIs and fungal spores, especially *Aspergillus.* Prohibiting plants, flowers or other organic debris may also further reduce environmental exposure to potentially pathogenic fungi (115, 195).

## 9.2 During construction

Construction activity can disturb fungal reservoirs, leading to aerosolisation of fungal spores throughout the healthcare facility. Aspergillus. *fumigatus*, a common pathogenic fungal mould that produces airborne spores, is often in circulation during construction activities in hospital (196). Fungal spores are resistant to drying, are able to remain suspended in the air for long periods and can travel substantial distances from the source of generation. Exposure to a low spore load can result in infection in immunocompromised individuals. Prior to any construction or maintenance activity, a HO is to undertake a risk assessment and implement a risk management strategy to minimise the risk of infection in immunocompromised individuals (30).

**Australasian Health Facility Guidelines**
Part D Infection Control

- All construction, renovation, installation, and maintenance (construction) activities must have a formal infection control risk assessment undertaken, and mitigation strategies planned and approved, prior to the commencement of any works.
- Engineering controls for risk mitigation must be articulated in contracts agreed between the health service and external contractors.
- A risk assessment of the patient population group within the construction/renovation site must be undertaken and appropriate controls to minimise individual risk implemented.
- Patients who are at most risk of infection are those receiving bone marrow transplant, solid organ transplant, haematology, oncology and those receiving immunosuppressive medication. Additional measures may be required to minimise the risk of infection to these patient groups during construction e.g. air sampling, provision of P2/N95 masks to high risks patients to wear if transit near construction zone is unavoidable.
- HO planning to undertake renovation or construction activities should liaise with the infection prevention and control department, executive and the project team / engineering and maintenance in conjunction with Work Health and Safety Co-ordinator.

The following points must be considered during planning:

- Design and function of the new structure or area
- Assessment of the infection risk from environmental organisms
- Strategies to minimise the risk of construction associated infection e.g. dust control
- Monitoring requirements indicated during the project including costs of monitoring
- If risk changes during project, and unforeseen risks occurs i.e. additional dust monitors needed, contracts can be updated to include that additional expenses will be incurred by contractor

The risk assessment should include the following:

- The extent of construction work
- The identification of the patient population at risk
- The location of the patient population in relation to the site and construction
- Ventilation system types and potential impact
- Traffic and supply routes
- Determination of air monitoring requirements, methodology and frequency, including baseline measurements if required (air quality and dust monitoring)
- The identification of possible contaminants and their locations, as contaminants may be present in ceiling dust; service shafts (especially damp conditions); sprayed fire retardants, and bird droppings
- Prophylactic treatment options for at risk patients if required

During construction/renovation HOs should develop a local procedure based on risk assessment of the area involved and the patient groups will be affected. HO are to provide patient and carer information.

## 9.3 Cystic fibrosis

Patients with cystic fibrosis (CF) are at risk of both acquiring and transmitting respiratory infections. Respiratory infection in patients with CF can be more significant than for other individuals and is associated with deterioration of lung function. Many different bacterial organisms, viruses and fungi can infect the respiratory tract of patients with CF. It is important that units that care for patients with CF (respiratory wards, non CF respiratory wards and hospitals without CF clinics) partner with local infection prevention and control units to implement the additional measures described in this section. Adherence to these measures should be monitored and fed back to the unit to enable continual improvement.

### 9.3.1 Infection prevention and control principles

When caring for any patient (inpatient or outpatient) with CF, HWs are to employ:

- **Standard precautions**, particularly:
    - Hand hygiene before and after patient contact
    - Use of PPE i.e. gloves, apron/gown and mask, for handling body substances/sputum, chest physiotherapy or if there is an increased risk of contamination to the HW
    - Environmental cleaning
        - Single rooms occupied by inpatients with CF must be terminally cleaned before their admission and after discharge.
        - During inpatient admission, frequently touched surfaces should be cleaned routinely with a hospital grade disinfectant.

    - All medical equipment used in CF clinics must be cleaned and disinfected with approved agents (as per manufacturers IFU) before entry and on removal.
- Respiratory hygiene
    - Patient (inpatient or outpatient) with CF are to wear a fluid resistant surgical mask (not a P2 Mask) when ambulating around general hospital areas (anywhere except own bed area and gym with the physiotherapist)
    - Prevent mixing of CF patients, regardless of their respiratory tract culture results, CF patients are to maintain ≥2m distance from each other in all settings, to reduce the risk of droplet transmission of pathogens between patients
    - Cough etiquette should be encouraged among CF patients when attending any group activities.

- **Pulmonary function tests** (PFT) are to be performed in one of the following areas to reduce transmission from one person with CF to another person with CF:
    - In the exam room at the beginning of the clinic visit, allowing sufficient time to elapse between CF patients (times will depend on air changes per hour in the room and will vary within and between facilities);
    - In a negative pressure room (airborne precautions room);
    - In a PFT laboratory with high-efficiency particulate (HEPA) filters; or
    - In a PFT laboratory without HEPA filters, allowing 30 minutes to elapse between individuals with CF.

The need to employ additional infection prevention and control precautions when caring for a patient with CF is dependent on the presence or absence of certain risk criteria. Table 27 describes the risk criteria and outlines the transmission-based precautions that should be employed, depending on the patient's risk level for inpatient and outpatient settings.

In addition, for outpatient settings (including oral health):

- Outpatients with CF should not sit in the waiting area, but be shown straight into a consulting room. The room must be cleaned and left for a sufficient period of time before another patient with CF can enter the room (times will depend on air changes per hour in the room and will vary within and between facilities);
- Outpatients with CF should be advised not to wait in other communal areas, such as the pharmacy waiting area, in order to reduce risk of contact with other patients with CF. Where this is unavoidable ensure the CF patient is wearing a fluid resistant/surgical mask.
- Patients known to have *B. cepacia* complex or *M. abscessus* colonisation should not attend routine CF clinics but be seen in other non-CF clinics. If this is unavoidable, book appointment on alternate days form the CF clinic, implement strategies to reduce environmental contamination of the clinic room. The clinic room must be cleaned and left for a sufficient period of time before another patient with CF can enter the room (times will depend on air changes per hour in the room and will vary within and between facilities).

## Table 27. Levels of precautions for CF patients

* Familial cohorting is permitted, as the risk of transmission is comparable to the home environment

| Risk level | Risk criteria | Inpatient management | Outpatient management |
|---|---|---|---|
| 1 | Any patient with a diagnosis of CF (suppurative lung disease) and:<br>• No pathogens in their sputum<br>• No detection of any bacteria listed in Level 2 risk criteria | • Standard precautions<br>• Where possible, patient should be managed in ensuite single rooms. Otherwise, CF patients should not share a room with other CF patients or patients with respiratory illness.* | • Own room in CF outpatient clinic<br>• Room to be cleaned by staff prior to next patient |
| 2 | Any patient with a diagnosis of CF (suppurative lung disease) and:<br>• Non-tuberculous mycobacteria<br>• Mucoid or non-mucoid pseudomonas RESISTANT to aminoglycosides and beta lactams<br>• MRO:<br>  • MRSA<br>  • ESBL<br>  • VRE<br>  • CPE | • For MRSA, VRE, etc. precautions are based on local risk assessment<br>• Droplet precautions<br>• Isolate in single room with ensuite* | • Droplet precautions (in addition to standard and contact precautions)<br>• Own room with door closed<br>• Room to be cleaned and disinfected by cleaning services after use<br>• HWs to wear gowns and gloves during consult<br>• Lung function equipment cleaned and disinfected as per manufactures' IFU after use |
| 3 | Any patient with a diagnosis of CF (suppurative lung disease) and:<br>• *Burkholderia cepacia* complex<br>• *Mycobacterium abscessus*<br>• *Mycobacteria Avium*<br>• Other (unusual resistant organisms) | • Standard, contact and droplet precautions<br>• Isolate in single room with ensuite*<br>• Patients known to have *B. cepacia* complex/*M. abscessus* should be admitted to a single room with an ensuite on a different ward to other patients with CF. If two or more patients with *B. cepacia* complex */M. abscessus* are admitted they must be accommodated in single rooms on separate medical wards.<br>• In facilities with paediatric units where patients can only be accommodated in the paediatric ward, patients with *B. cepacia* complex should not be cared for by the same nursing staff as those caring for patients with *M. abscessus* | • Droplet precautions (in addition to standard and contact precautions)<br>• Own room with door closed<br>• Room to be cleaned and disinfected by cleaning services after use<br>• HWs to wear gowns and gloves during consult<br>• Lung function equipment cleaned and disinfected as per manufactures' IFU after use |

HWs should apply additional precautions with discretion. HWs should ensure that the patient and their family/carer are provided with information on why any additional precautions are required and any actions that the patient or their family/carer are required to undertake.

### 9.3.2 Clearance

Patients with CF do not fit the normal MRO clearance recommendations. Clearance for patients with CF will need to be determined on a case-by-case basis by the patient's clinical team, with consideration being given to aetiology, epidemiology and other key clinical factors.

## 9.4 Haemodialysis

Haemodialysis has been associated with transmission of MROs. The routine management of these MROs has been addressed throughout this manual and haemodialysis is like any risk area.

This section specifically addresses the high risk concern of blood borne viruses (BBV) in haemodialysis. BBV infection may occur from contamination during the haemodialysis procedure (e.g. during venous access) or via the dialysis system (e.g. extra-corporeal circuit), from breaks in established procedures, due to lack of monitoring for contaminants, due to reprocessing failures or inadequately trained/educated staff (197, 198). Although outbreaks of HCV have been reported in haemodialysis patients, the efficiency of transmission appears low. The risk of blood borne infection in the haemodialysis setting may be reduced by:

- adherence to standard precautions, including routine cleaning and reprocessing of patient equipment;
- adherence to procedures for cleaning, disinfection and maintenance of equipment according to manufacturer's instructions;
- a patient education program that includes teaching patients, their visitors and families on their role in the prevention of infections;
- routine monitoring and follow up of patients undergoing haemodialysis in relation to blood borne viral status;
- hepatitis B vaccination for all susceptible haemodialysis patients and HWs;
- redeploying HWs who have increased susceptibility to hepatitis B, medically assessed on case-by-case basis.

**NSQHS - VERSION 2 NATIONAL STANDARDS**

**NSW Health PD**
HIV, Hepatitis B and Hepatitis C - Management of Healthcare Workers Potentially Exposed

Patients that are HBsAg positive should be treated in a separate room (or another area away from seronegative patients, if room is not available) with dedicated equipment and, where possible, nursing staff (199) .

A dedicated room can be reused for other patients after it has been cleaned and disinfected. The dedicated equipment can be reused for seronegative patients after being cleaned and disinfected as per manufacturer's instructions (200).

There is insufficient evidence to justify the routine isolation of dialysis patients positive for HCV or HIV (201). Isolation should be considered if high prevalence (>30%) of HCV is observed (202).

## 9.5 Tuberculosis

The NSW Tuberculosis (TB) program is the provider of specialised services for the prevention and control of TB in NSW. In the event of a case of TB in a patient, HW or visitor, the infection prevention and control team and the TB coordinator in the local health district/network should be notified. The TB coordinator, in conjunction with the TB Program, will work with the HO to identify contacts, prepare a management plan and arrange screening and follow-up for patients, HWs and others contacts as required.

**NSW TB Program**

**NSW Health PD**
Tuberculosis Management of People Knowingly Placing Others at Risk of Infection

Patients with TB are to be cared for according to relevant NSW Health policies and guidelines, available at: http://www.health.nsw.gov.au/Infectious/tuberculosis/Pages/Policies.aspx.

**NSW Health PD**
Principles for the Management of Tuberculosis in NSW

**NSW Health GL**
Tuberculosis Contact Investigations

### 9.5.1 Transplant screening for tuberculosis

All patients on the active transplant list for solid organ transplantation and bone marrow transplant must be assessed for their risk of previous exposure to TB and should be screened as part of the transplant workup. This can be by tuberculin skin test or blood test, if immunocompromised, as per local protocol.

## 9.6 Interventional radiology settings

Interventional radiology (IR) techniques are used to treat a wide variety of diseases involving minimally invasive, diagnostic and interventional procedures, performed under image guidance including digital subtraction angiography computed tomography, ultrasound and magnetic resonance imaging. Although the risk of infection during these procedures is generally reduced when compared with their surgical equivalents, the risk of infectious complications remains. The risk of infection potentially increases as this technology and its complexities advance. Interventional radiology techniques are required to adopt infection prevention and control principles.

### 9.6.1 IR worklists

When developing IR worklists:

- Always prioritise clinical need and urgency over disease or MRO status.
- Where flexibility is possible, arrange the IR work list so that clean and clean-contaminated procedures are performed prior to contaminated and dirty procedures (203)

### 9.6.2 IR equipment

See Section 8, *Risk mitigation: Reprocessing* for general principles and advice on single-use and reprocessed equipment.

Many procedures are performed under ultrasound guidance, including the insertion of central venous access devices. While mainly surface probes are used, it is possible that intra-cavity probes may be used (e.g. during transrectal prostate biopsies). Disposable sterile probe sleeves should be applied and these should be disposed of in accordance with Section 4.9, Waste disposal. Regardless of the use of probe sleeves, the probes must be reprocessed appropriately between patient uses as per manufacturers IFU (see Section 8.12.1, *Intracavity ultrasounds*). Follow manufacturers IFUs for cleaning and storage. Any disposable sheaths are compatible and approved to be used with the ultrasound.

**NSW Health PD**
Intravascular Access Device Insertion and Post Insertion Care

**NSW Health PD**
Environmental Cleaning Policy

**Environmental Cleaning SOP**

### 9.6.3 IR environment

Installation of positive pressure air change ventilation should be considered when planning new IR facilities (see Section 2.4.1, *Purchasing new equipment*).

There is evidence to suggest that the number of viable airborne bacteria in a surgical suite is directly proportional to the number of persons present in the procedure room. It is therefore prudent to limit the traffic in the IR suite to essential personnel only.
The IR suite should be treated as a sterile environment. The personnel who work in this clinical area need to follow aseptic practices and follow proper procedure room attire requirements.

IR procedures, particularly sterile and clean procedures, should be performed under positive pressure air change ventilation. If this is not available, the doors to the procedural room should remain closed during procedures to decrease the transmission of microorganisms into the suite and potentially onto the sterile field, which may contribute to surgical site infections.

- Traffic into and around the room should also be restricted.
- Sterile, clean and clean-contaminated procedures should follow absolute sterile technique. This includes at the minimum:
- Scrub attire that is intended for wear only in the IR suite
- Hair coverings to be worn while in the suite and masks when open instruments/trays are present
- Sterile gowns and gloves for those participating in the sterile field
- The use of sterile drapes in a manner that allows generous coverage of the sterile field
- A semi-restricted area to serve as a barrier between the unrestricted area and the fully restricted area (suite) when interventional procedures are being performed.

Contaminated and dirty procedures should follow sterile technique procedure when feasible and appropriate. The appropriateness of the level of infection control may depend on the urgency of the procedure. However, for an emergency procedure at the very least a clean environment with sterile instrumentation must be available.

The IR setting is a high risk rated functional area, therefore environmental cleaning is important in the prevention of cross infection (See Section 4.6, *Environmental Cleaning*).

Cleaning in IR settings should be in line with the NSW Health *Environmental Cleaning Policy* for high risk functional areas. Particular attention should be made to the cleaning of arm boards and ceiling mounted equipment. The IR procedure suite and work surfaces should be properly cleaned and disinfected (as appropriate) after every procedure to decrease the amount of dust and microorganisms.

**NSW Health PD**
Environmental Cleaning Policy

**Joint Practice Guideline for Sterile Technique during Vascular and Interventional Radiology Procedures 2012**

### 9.6.4 Aseptic technique in IR

Prevention of surgical site infections (SSIs) in the IR procedure suite involves multiple aspects, which focus primarily on the adherence to aseptic practices related to personnel attire, proper hand hygiene, gowning, gloving, preparing, draping, maintaining a sterile field, and cleaning of the IR suite. The responsibility for reducing the number of microorganisms in the IR procedure suite to the lowest level possible must be shared by all members of the IR team.

To ensure that aseptic technique is used in IR:

- Thorough skin preparation should be performed on clean skin using an appropriate antiseptic (i.e. >0.5% chlorhexidine gluconate with 70% alcohol). If there is a contraindication to chlorhexidine, a suitable alternative should be used (e.g. povidone-iodine).
- If hair removal is required, hair should be clipped rather than shaved immediately prior to the procedure.
- Appropriate attire should be worn including caps, masks, sterile gown, and sterile gloves (see Section 4.12, *Staff attire*).
- Sterile drapes are to be used to create a barrier between the surgical field and potential sources of microorganisms.
- Maintain asepsis of key sites and key parts of catheters, prostheses and implantable devices.

## 9.7 Respiratory and sleep settings

### 9.7.1 Nebulisers

There is some evidence that suggests nebulisation, combined with disease symptomatology such as coughing, may have been a risk for the aerosolised spread of certain transmissible diseases (204, 205). Therefore, to minimise the likelihood of the aerosolised transmission, it is recommended that effective alternatives, such as metered dose inhaler with spacer, are used where possible (206).

Where it is not feasible to use a metered dose inhaler and spacer, a nebuliser can be used in a designated room or area where other patients and visitors have limited access. HWs attending to a patient using a nebuliser should wear a P2/N95 mask.

Aerosol delivery equipment used to administer inhaled medications includes the nebuliser, positive expiratory pressure devices added to the nebuliser, and valved holding chambers (spacers). Where available single patient use respiratory equipment should be used. When use of equipment for multiple patients is unavoidable, a risk assessment should be performed and cleaning carried out according to the manufacturer's instructions. These devices are semi-critical medical devices, and reusable parts must be cleaned, disinfected, rinsed with sterile water, and air-dried.

### 9.7.2 Use of filters on respiratory devices

Where available, single-use respiratory equipment should be used. Single-use respiratory equipment designed for use on one person only does not require a filter. If single use equipment is not available, a filter is to be used for blow-and-inhale procedures. The use of filters does not interfere with the quality of the recordings. Certain types of equipment, such as older types of spirometers which have positive pressure when in use, require a filter.

### 9.7.3 Resuscitation devices

HWs should use resuscitation devices, such as masks, during cardiopulmonary resuscitation (CPR) to prevent direct contact between the mouth of the resuscitator and the person being resuscitated (207). A HO should ensure that individual resuscitation devices are available and accessible in all patient areas. Where possible, single use resuscitation devices should be used. Reusable manikins used for teaching CPR must be reprocessed after each use as per manufacturers IFU.
CPR training provided or approved by the HO should include instruction on the use of all resuscitation devices.

NSQHS - VERSION 2 NATIONAL STANDARDS Standard 3

### 9.7.4 Semi-critical resuscitation devices

Semi-critical equipment used for clinical procedures in the sleep and/or respiratory investigation labs are to be cleaned and disinfected or sterilized between each patient use according to manufacturer's IFU to prevent and minimise the occurrence or transmission of infection.

## 9.8 Maternity settings

### 9.8.1 Prevention of vertical transmission

Universal screening for Hepatitis B Virus (HBV) is recommended by the Australasian Society of Infectious Diseases for all pregnant women regardless of previous testing or vaccination. The recommended screening test for HBV is hepatitis B surface antigen (HBsAg) and this should be offered at the first antenatal visit. HO should have a referral process in place for mothers with BBVs to ensure they are referred to appropriate clinical services during antenatal period.

The National Hepatitis C Virus (HCV) Testing Policy recommends selective antenatal screening for HCV based on identified risk factors. For identified risks refer to *Antenatal Testing and Blood-Borne Viruses (Bbvs)*.

Universal antenatal screening for Human Immunodeficiency Virus (HIV) is recommended in the National HIV Testing Policy. For more information refer to National HIV testing policy.

Antenatal Testing and Blood-Borne Viruses (Bbvs)

RACGP
National guide to a preventive health assessment for Aboriginal and Torres Strait Islander people
ASHM
National HIV Testing Policy

#### Vertical transmission of infectious diseases

A neonate has an increased potential of vertical transmission of infectious diseases when its skin integrity has been breached *in utero*. To minimise this risk avoid the following medical procedures if possible:

- fetal scalp electrode monitoring and fetal blood sampling on babies of mothers who are HIV positive or HCV PCR RNA positive or HBsAg or HBeAg positive. It may be performed on HCV PCR RNA negative mothers.

#### Herpes simplex or Group B Streptococcus positive

- fetal scalp electrode monitoring and fetal blood sampling on babies of mothers who are HSV active or Group B Streptococcus positive who have not been given appropriate antibiotics 30 minutes prior to the procedure.

### 9.8.2 Prevention of blood-borne virus exposure

After birth, initial skin-to-skin contact and the first breastfeed are important and are a priority. This should occur prior to cleansing the baby of blood

NSW Health PD
Incident Management

and body substances (208). Blood and other body substances must be removed from the baby's skin and eyes as soon as practicable. Standard precautions must be adhere to by all HWs, visitors and family (except the mother) when handling the baby until the baby has been bathed (208). Additional considerations are needed when cleaning baths used in birthing suites. Equipment such as a long handled sponge mop may facilitate cleaning. If reusing the bath plug, ensure the plug and any attachment can be cleaned. The following cleaning procedure is recommended for baths to address risks associated with exposure to blood and body substances:

1. Empty water out of the bath. Plugs are required to be attached to a chain for easy removal
2. Rinse bath with water
3. Clean bath using long handled sponge mop with a hospital grade neutral detergent and disinfectant
4. Important to allow the required contact time as recommended by manufacturers recommendations before rinsing bath with water
5. When cleaning baths in birthing suite replace the bath plug regularly and ensure the plug is included in the cleaning process

**Australasian Health Facility Guidelines**
Part D Infection Control (Bath and Showers)

**Environmental Cleaning SOP**
Module 3 Hand basin/bath cleaning

## 9.9 Mental health, drug and alcohol settings

The infection prevention and control program is adapted to account for the patient's physical health status and mental acuity, the focus of treatment and the facilities/layout of the unit. Infection control equipment, such as trolleys for PPE and brackets for alcohol-based hand rub, that is left in areas accessible to patients needs to be carefully reviewed for safety e.g. ligature risk.

HOs and HWs providing care in this setting should:

- identify potential infection risks, and develop safe work practices to mitigate these risks
- encourage patients to perform hand hygiene by facilitating hand hygiene education and providing patients and HWs with safe access to hand hygiene facilities
- encourage and facilitate patients to maintain their personal hygiene

## 9.10 Residential, rehabilitation and long term care settings

Infectious diseases have the potential to spread readily in residential, rehabilitation and long term care settings, as residents live in close proximity, typically with communal facilities e.g. dining rooms and lounges.

**NHMRC**
Infection prevention and control in residential and community aged care

Residents may be susceptible to infection because of health conditions that impair immunity. Common clinical risks include the prevalence of MROs, urinary tract infections, influenza and the incidence of diarrhoea in patients and prevalence of wounds.

In residential, rehabilitation and long term care settings, the infection control program is adapted according to the patient's physical health status, mental acuity, requirement for a home-like environment and the facilities/layout of the premises.

Vaccination is an effective way to stop people from acquiring vaccine preventable diseases that can be prevented. Refer to the Australian Immunisation Handbook for further advice on use of vaccines

**The Australian Immunisation Handbook**

**Quality of Care Principles 2014**
Part 1

In the aged care context, the infection control program must also address the Australian Aged Care Quality Agency Accreditation Standards (Standard 4.7).

**Australian Aged Care Quality Agency**
Tools

Services may be available to assist and support keeping patients within a residential, rehabilitation or long term care facility when there is an infectious disease outbreak to reduce the need to transfer patients to acute hospital facilities. In consultation with the relevant public health unit (PHU) and NSW Ambulance local management, it may be appropriate to request Extended Care Paramedics or Specialist Paramedics to assist in managing aspects of an infectious disease outbreak (e.g. patient assessment, rehydration and ongoing monitoring on site) in these settings (see Section 9.10.1 *Using extended paramedic services in residential and long term care facilities)*. Similar services may be available within some NSW LHDs/SHNs.

### 9.10.1 Using extended paramedic services in residential and long term care facilities

In consultation with the relevant PHU and NSW Ambulance local management, it may be appropriate to request Extended Care Paramedics or Specialist Paramedics to assist in managing an outbreak of an infectious disease within residential or long term care facilities. This has the potential to provide definitive care (e.g. patient assessment, rehydration and ongoing monitoring as needed) on site and avoid or reduce the need to transfer patients to other health care facilities.

## 9.11 Ambulatory care settings

Each HO may be responsible for a diverse array of speciality ambulatory care clinics and services.

Ambulatory care settings that involve unique infection prevention and control risks include:

- Renal outpatient clinics
- Oncology and cancer care outpatient units
- Bone marrow transplant clinics
- Outpatient units that perform medical procedures
- CF clinics (see Section 9.3 on *Cystic fibrosis*).
- Day surgery
- High Risk Foot Services/Clinics
- Day Rehabilitation

**Centers for Disease Control and Prevention**
Basic Infection Control and Prevention Plan for Outpatient Oncology Settings

**NHMRC Australian Guidelines for the Prevention and Control of Infection in Healthcare 2019**

Each setting requires:

- A risk management plan in place that identifies potential infection risks for outpatient settings, including an environmental assessment, and details appropriate strategies to mitigate these risks. This may include developing strategies to enable early detection of patients with infectious diseases prior to attendance at an outpatient clinic/service or at entry points of a facility and employing patient placement procedures for presenting patients who require isolation or designated toilet facilities.
- Resources to implement the risk management plan to be employed.
- HWs to observe other infection prevention and control principles, such as antimicrobial stewardship and occupational vaccination.
- An assessment of the requirement for transmission-based precautions dependent on the patient populations treated and procedures performed.

**Centers for Disease Control and Prevention**
Guide to Infection Prevention for Outpatient Settings:

Minimum Expectations for Safe Care

- Promotion of hand hygiene, respiratory hygiene and cough etiquette to patients and their companions and the provision of resources e.g. alcohol-based hand rub, tissues and rubbish bins.

Infections are an important cause of morbidity and mortality in many of the patients who requires frequent services from these clinics and units, particularly those that are immunocompromised, thus infection prevention is a key patient safety priority.

During pregnancy, the clinical consequences of acquiring a communicable disease may be more severe. Therefore, any outpatient settings where pregnant women are likely to attend should identify potential infection risks to pregnant women and ensure that these risks are minimised or eliminated as much as practically possible.

## 9.12 Oral health settings

HWs working in oral health care settings are at risk of being exposed to high concentrations of aerosols and splatter during dental procedures and may be at risk of infection transmission. Oral health care must be delivered in a manner consistent with the NSW Health Policy Directive *Oral Health: Cleaning, Disinfecting and Sterilizing* Policy Directive and the NSW Health *Oral Health: Post-Operative Care for Dental Extractions* Policy Directive and current NSW Health infection prevention and control policies.

**NSW Health PD**
Oral Health: Cleaning, Disinfecting and Sterilizing

**NSW Health PD**
Oral Health: Post-Operative Care for Dental Extractions

## 9.13 Ophthalmic and optometry settings

The cornea and conjunctiva are classified as semi-critical sites and are highly susceptible to infection. For example Epidemic keratoconjunctivitis. Optometrists and optometric practice staff should adopt measures to minimise the risk of transmission of infection. Refer to Infection control guidelines for optometrists 2016 for more information (209). Contact lenses are not to be shared. Diagnostic contact lenses should be reprocessed in accordance with the manufacturer's IFU. Single use or disposable ophthalmic equipment should be used if adequate cleaning or reprocessing cannot be achieved. Products used for cleaning and disinfecting ophthalmic equipment that is used on the external eye must not be harmful to the eye. After cleaning or reprocessing, the equipment must be rinsed thoroughly and dried to ensure no chemical residue is present to prevent eye damage.

**NSQHS - VERSION 2 NATIONAL STANDARDS**

## 9.14 Community and home settings

A HO may provide care to patients in a range of settings outside hospitals, including private homes and community health centres. The HO responsible for providing these services is to ensure that appropriate infection prevention and control resources, such as hand hygiene products, disposable paper towels, equipment cleaning solutions or wipes, PPE and sharps containers, are available to HWs working in these settings. The HO and its HWs should also ensure that the risk of infection transmission within the community is minimised by education of patients on hand hygiene, personal hygiene, cleaning and healthy life style.

At the minimum HWs working in these settings are to adhere to standard precautions (Section *Risk mitigation: Standard precautions*) and transmission-based precautions (Section *Risk mitigation: Transmission-*

**Section**
Hand hygiene in community and home settings

**Section**
Sharps in community and home settings

**Section**
Waste disposal in community health settings

**Section**
Precautions for community health settings (MROs)

**Section**

*based precautions*). HWs working in home and community settings may experience difficulties in accessing facilities and resources typically found in a hospital. Due to these constraints, the HO should apply a risk assessment approach to identify potential infection risks for its specific community settings and develop safe work practices to mitigate these risks.

Cleaning and reprocessing in community and home settings

## 9.15 Ambulance and patient transport settings

The transfer and transport of patients within and between HOs should always be guided by clinical need and urgency, not by their infection status. All agencies involved in patient transfer and transport are to, at the minimum, exercise standard precautions during the transfer and transport of any patient. This includes ensuring that the transport vehicle and equipment is cleaned and disinfected as appropriate between each patient.

**NSQHS - UPDATE TO VERSION 2 NATIONAL STANDARDS**

The HO booking the transfer or transport should notify all agencies involved in the transfer or transport of any patient with an identified infection risk prior to the transfer or transport of the patient. Refer to section *Transferring or transporting a patient with a MRO*. The HO booking the transfer should ensure the patient performs appropriate personal hygiene prior to transfer or transport, where possible. This may include hand hygiene, showering and use of clean clothing prior to transfer or transport.

See **Section** *Transferring or transporting a patient with a MRO,* for advice on transferring or transporting patients with a MRO

It is the responsibility of the transfer or transporting agency to ensure transfer and transport staff have undertaken appropriate training and education to enable them to employ the appropriate transmission-based precautions as per Section *Risk mitigation: transmission-based precautions*, in addition to standard precautions, during transfer or transport. A recommended framework for training is outlined in the national unit of competency *HLTINF001 - Comply with infection prevention and control policies and procedures*.

**training.gov.au**
**HLTINF001**
Comply with infection prevention and control policies and procedures

## 9.16 Mortuary and care of the deceased

### 9.16.1 Post-mortem care

When handling the bodies of deceased persons, or when undertaking a post-mortem examination, standard precautions are required at all times.

Depending on the known or suspected infection status of the body, transmission-based precautions may also be required and should be maintained until the body has been completely enclosed for transport. If transmission-based precautions were required prior to death, these precautions must be continued when handling the deceased. Procedures for handling bodies of the deceased, the use of body bags and removal of bodies from body bags are outlined in the NSW *Public Health Regulation 2012* (Extract ss49-93): Part 8 Disposal of bodies.

According to the *Public Health Regulation 2012*:

(1) A person must, when carrying out any procedure on a body, comply with the guidelines specified in the *Australian Guidelines for the Prevention and Control of Infection in Healthcare* published by the NHMRC.
(2) A person must, when placing a body in a bag or wrapping a body, comply with the document entitled Infection Prevention and Control Policy published by the Ministry of Health.

**NSQHS - UPDATE TO VERSION 2 NATIONAL STANDARDS**

**NSW Health PD**
Coroners Cases and the Coroner's Act 2009

**NHMRC**
Australian Guidelines for the Prevention and Control of Infection in Healthcare

**Public Health Act 2010**

**Public Health Regulation 2012**
Part 8, Disposal of Bodies

**Prescribed infectious diseases**

Additional handling and labelling requirements apply to the bodies of deceased persons with *prescribed infectious diseases*. These are outlined in the *Public Health Regulation 2012*. *Prescribed infectious diseases* means any of the following diseases:

(a) Avian influenza in humans
(b) Diphtheria
(c) Plague
(d) Respiratory anthrax
(e) Severe Acute Respiratory Syndrome
(f) Smallpox
(g) Tuberculosis
(h) Viral haemorrhagic fever (including Lassa, Marburg, Ebola and Crimean-Congo fevers)

In accordance with the Public Health Regulation 2012, section 57: If the person responsible for removing the body of the deceased has reason to believe that the body is infected with a prescribed infectious disease, the bag or wrapping is to be clearly and indelibly marked with the words “PRESCRIBED INFECTIOUS DISEASE - HANDLE WITH CARE”.

### 9.16.2 Post-mortem examination

Practices used for post-mortem examinations are to minimise the risk of exposure of HWs to infectious diseases and minimise the risk of infection being passed from the autopsy room to other areas in the healthcare facility. Standard precautions are required at all times and, depending on the known or suspected infection status of the body, transmission-based precautions may also be required.

Precautions may also include adopting engineering controls and changed work practices. For example:

- work surfaces contaminated during post-mortem procedures should be cleaned with a neutral detergent or degreaser solution;
- instruments and equipment used in post-mortem procedures must be reprocessed as described in Section *Risk mitigation: Reprocessing*;
- instruments and equipment used on cases of Creutzfeldt-Jakob disease should be handled in accordance with national guidelines for infection prevention and control (210);
- engineering controls such as ventilation and safety devices for autopsy equipment should be in place;
- sharps injuries may be minimised by using the minimal number of sharp instruments, using cut-resistant gloves and blunt dissection tools and techniques (211); and
- employing airborne precautions when performing aerosolising procedures during post- mortem.

## 9.17 Cryotherapy

Care should be taken to ensure that liquid nitrogen canisters do not become contaminated during cryotherapy procedures. Evidence indicates that if contamination occurs, viruses and bacteria may be able to survive immersion in liquid nitrogen (212). Where the practice of decanting liquid nitrogen is used for routine removal of warts, sufficient liquid nitrogen should be decanted into a new disposable cup or dish, or one that can be sterilized after each patient use (decanting of any liquids/solutions are not routinely recommended due to increased risk of cross contamination, where possible alternative mode of delivery should be adopted).Where decanting is the only means of delivery a risk based approach should be undertaken to mitigate any cross contamination risk. A new disposable cotton-tipped applicator should be used for each application.

The residual and disposable cup or disk should be discarded after each patient use. For reusable equipment follow manufacturer’s instructions for use.

Similar precautions should be taken with carbon dioxide and other cryotherapy systems used in the treatment of skin conditions.

## 9.18 Pets and therapy animals

The NSW Health *Animal Visits and Interventions in Public and Private Health Services in NSW* Guideline outlines the appropriate measures to be taken in implementing a program of animal assisted intervention in NSW.

A HO that is implementing a program of animal assisted intervention should consider their responsibilities under the Companion Animal Act 1998 and Companion Animal Regulations, requirement for animal welfare and veterinary screening for animals in t the Companion Animals (Outdoor Dining Areas) Act 2010 No 33. Consideration should be given to Hygiene requirements.

**NSW Health PD**
Animal Visits and Interventions in Public and Private Health Services in NSW

**Companion Animals Act 1998**

**Companion Animals Regulation 2008**

The implementation of therapy dogs and animal visitations need careful consideration to address potential risks of zoonotic transmission to patients and HWs when pets are present within a HO.

Potentially animals can serve as a vector for infections and, in particular multi-resistant organisms, posing a potential risk of cross contamination with pathogenic organisms that may impact on patients. There are also considerations where these risks may be heightened in specific high risk environments. Areas where animal visits or animal activities would be considered unsuitable include:

- Sterile areas
- Patient Treatment areas
- Patient or ward isolation units
- Kitchen and food preparation areas
- Intensive care and high dependency areas
- Immunosuppressed patients

Points of consideration for animal visits should include:

- HO should develop a policy for assistance animals that complies with Commonwealth, State and local council legislation. All HOs that have facility pet/s or personal pet visitations should develop a policy that complies with Commonwealth, State and local council legislation.
- The HOs infection control professional is notified when a patient is admitted with an accredited assistance animal to establish any specific requirements.
- All HOs with animal assisted therapy programs and animal assisted activities should develop a policy which, in addition to compliance with State and local council legislation, should include types of animals allowed for these activities, certification of animals and their trainers/handlers, education of HOs staff, and education of animal trainers/handlers regarding organisational policies and procedures, animal hygiene, patient hygiene, and animal access.
- All animals visiting or permanently residing in HOs are screened for parasites, and skin problems and are fully vaccinated (a veterinary immunisation certificate should be provided).
- All animals are restricted from entering operating theatres, sterilising departments, intensive care areas and food preparation areas.
- Animal access for isolated patients and immuno-suppressed patients is negotiated based on individual patient/client requirements.

When considering animal visitation HOs should consider the following infection and injury risk management strategies:

- Careful selection of animals, if it is own pet then no need
- Obtaining an accurate history from patients/staff for phobias and allergies, regular grooming of the animal to reduce the risk of allergic reaction, vaccination records etc.
- Selecting well-trained and well-behaved animals to minimise the risk of animal bites or injuries

Hand Hygiene is essential for all participants:

- Handlers must wash their hands and use alcohol based hand rub (ABHR) before and after entering patient's areas and between patient visits
- Animals must be cleaned and checked for parasites and general health prior to each visit
- Animals should not be allowed near patients with open wounds or burns
- Patients/staff and visitors must wash their hands or use alcohol based hand rub before and after handling an animal
- Animal handlers should wash their hands with soap and warm water after toileting animals and after disposing of soiled or dirty towels, using alcohol based hand rub if necessary
- A new towel must be placed under the animal where an animal is placed on a bed to interact with a patient
- Visits by an animal that is unwell or shedding a lot of hair should be postponed until the animal is well again
- Volunteers and handlers are to stay with the visiting animal at all times
- Be respectful of an individual's wishes where patients do not want a visit due to cultural and religious belief or may find them offensive

### 9.18.1 Animals as patients

Animals may be present within HOs for medical research, patient therapy and companionship and in rare circumstances for clinical treatment.
The risk for zoonotic transmission should be considered when animals are present within a HO (32). In particular, the risk of cross-contamination between animal and human is to be assessed when the facilities of a HO are being used for the clinical treatment of an animal. For those HOs who provide or are considering providing this service, a risk assessment should be undertaken that considers:

- whether the room/area used for animal care can be made safe for human patients after animal treatment; and
- which disinfecting or sterilizing procedures need to be done to ensure the safety of human patients.
- animals must not be treated in clinical areas where invasive procedures on humans are undertaken
- where animal treatment requires the use of reusable medical equipment, such equipment must be dedicated for animal care only. Even if adequately reprocessed, equipment which has been dedicated for animal care must not be used for human patient care.

**NSW Health PD**
Infection Prevention and Control Policy