



**AUSTRALIAN GUIDELINES FOR THE  
PREVENTION AND CONTROL OF  
INFECTION  
IN HEALTHCARE:  
  
SUMMARY AND  
AUDIOLOGICAL PERSPECTIVE**

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## AUDIOLOGY AUSTRALIA INTRODUCTION

### **Audiological Perspective**

Audiology Australia recognises the need for guidelines on prevention and control of infection relating to audiological clinical practice. It is important audiologists be aware of the current evidence-base and to have a set of guidelines from which to draw one element of professional practice standards.

There is a range of employment settings and variety of workplaces in which audiologists may be based or visit:

- office based practices
- private and public hospitals;
- long term and aged care residential facilities;
- community health services;
- Aboriginal health services;
- home visit services;
- primary health and general practice clinics;
- educational settings.

Visiting services may occur in a limited choice of physical environments by necessity (eg wards and at bedside in hospitals and aged care), or in office based rooms used by other health professionals involved in invasive procedures (such as general practice, dental practitioners or podiatrists).

Audiological clinical services may be provided in hospitals while other ENT or surgical/medical procedures are in progress (eg intra-operative cranial nerve monitoring) or in parallel (eg opportunistic objective assessment under sedation or anaesthetic). Audiologists may have the opportunity to observe ENT surgical procedures.

Audiologists may provide services to people:

- known or suspected to have infectious agents that are spread:
  - by direct or indirect contact with the patient or the patient's environment,
  - by respiratory droplets or
  - by airborne route, or
- infected with a multi-resistant organism - methicillin-resistant *Staphylococcus aureus* (MRSA), multi-resistant Gram negative (MRGN), vancomycin-resistant enterococci (VRE).

Audiologists should:

- recognise the potential risk of exposure to infection in any environment they work or visit.
- focus on infection prevention through safety, quality and risk management.
- understand the personal responsibility of prevention of the spread of infection. This is not limited to the primary workplace but also to visiting locations and for individuals who may be more susceptible to infection (eg newborns, infants, individuals with chronic health disease).
- understand both standard precautions (formerly known as universal precautions) and transmission-based precautions of infection prevention and control
- be mindful of their own health and well being.
- understand the context of any existing workplace infection prevention and control policy and procedures of employers and healthcare facilities.
- discuss these guidelines to improve knowledge, practice and support of work colleagues and management.

## Infection Prevention and Control Guidelines - Documents

The **National Health and Medical Research Council (NHMRC) 2010 Draft of Australian Guidelines for the Infection Prevention and Control in Healthcare** (hereafter **NHMRC IPC Guidelines**) are comprehensive across the spectrum of health care though have an important underlying focus on acute care.

Refer to the original NHMRC IPC Guidelines to read in full for:

- references and context of evidence base,
- advice on practical application of guidelines,
- relevant standards, legislation and resources, finding more information

<http://www.nhmrc.gov.au/node/30290>

Refer to NHMRC website for future updates and final guidelines following NHMRC consultations.

<http://www.nhmrc.gov.au>

**The NHMRC IPC Guidelines are quite extensive and considerable in size. Audiology Australia has prepared:**

***“Australian Guidelines for the Prevention and Control of Infection In Healthcare – ASA Abridged Version”***. This presents a relatively more condensed version with reproduced content, a summary of key recommendations and the same format of the NHMRC IPC draft Guidelines. The key information is retained in the ASA abridged version for its integrity, validity and to raise awareness given the range of settings in which audiologists practise.

**A shorter and practical *“Australian Guidelines for the Prevention and Control of Infection In Healthcare: Summary and Audiological Perspective”*.**

**Both documents are available to members on the website of Audiology Australia.**

<http://www.audiology.asn.au>

**Part A in the NHMRC original and ASA abridged documents** presents background information that should be read by **everyone working in health care - including audiology** (for example as orientation or as part of annual review) — this includes important basics of infection control, such as the main modes of transmission of infectious agents and the application of risk management principles.

**Part B** is specific to the practice of **healthcare workers and support staff**, and outlines effective work practices that minimise the risk of selection or transmission of infectious agents.

**Part C** describes the **responsibilities of management of healthcare facilities**, including governance structures that support the implementation, monitoring and reporting of effective work practices. Audiology Australia recommends:

- audiologists take a pro-active lead in infection prevention and control,
- audiological workplaces complete a review, discussion, risk analysis and audit of infection prevention and control procedures, and
- an improvement plan be implemented where required to bring audiological practice and workplaces into line with the current evidence-based NHMRC guidelines.

These documents may be used by members as the basis of a review or formulation of infection prevention and control policy and procedures.

## SCOPE OF NHMRC GUIDELINES

The *NHMRC IPC Guidelines* target clinicians, ancillary staff and administrators across Australia's various health care settings. Guidelines are structured to address the 'core principles' of infection control and prevention, and the underpinning key practice principles.

The core principle of infection control is to prevent the transmission of infectious organisms and manage infections if they occur.

The underpinning key practice principles include:

1. an understanding of the modes of transmission of infectious agents and an overview of risk management;
2. effective work practices that minimise the risk of selection and transmission of infectious agents;
3. governance structures that support the implementation, monitoring and reporting of infection control work practices; and
4. compliance with legislation, regulations and standards relevant to infection control.

There may be variation in some current practices due to differences in technology, resources and systems supporting a health care facility. To address this, a risk management approach was adopted that considers how factors associated with the transmission of infectious agents can be identified and managed within various health care settings. This approach ensures that common infections such as gastrointestinal viruses and evolving infectious agents such as influenza or antibiotic resistant bacteria can be managed effectively using the principles of infection control.

These guidelines provide recommendations that outline the critical aspects of infection prevention and control. The recommendations were developed by the NHMRC Infection Control Steering Committee based on systematic reviews of the literature undertaken specifically for these guidelines or on guidelines developed by other advisory bodies.

### AIM

By assisting healthcare workers to improve the quality of the care they deliver, these guidelines aim to promote and facilitate the overall goal of infection control:

*The creation of safe healthcare environments through the implementation of practices that minimise the risk of transmission of infectious agents.*

In understanding the NHMRC IPC Guidelines, important considerations are evident:

- **Healthcare-associated infection is preventable**
- **Infection control is everybody's business**
- **The principles of infection control and their management through a risk approach are applicable to a wide range of healthcare settings.**
- **If effectively implemented, the two-tiered approach of standard and transmission-based precautions recommended in these guidelines provides high-level protection to patients, healthcare workers and other people in healthcare settings.**
- **A patient-centred health system is known to be associated with safer and higher quality care.**
- **A two-way approach that encourages patient participation is essential to successful infection prevention and control.**
- **While an organisation has a duty of care to healthcare workers, staff members also have a responsibility to protect themselves and to not put others at risk.**

## **PART A - BASICS OF INFECTION CONTROL - SUMMARY**

**PART A FROM “Australian Guidelines for the Prevention and Control of Infection In Healthcare – ASA Abridged Version” SHOULD BE READ IN FULL AS ORIENTATION.**

- Healthcare-associated infections (HAIs) can occur in any healthcare setting. While the specific risks may differ, the basic principles of infection control apply regardless of the setting.
- In order to prevent HAIs, it is important to understand how infections occur in healthcare settings and then institute ways to prevent them. Risk management is integral to this approach.
- If effectively implemented, the two-tiered approach of standard and transmission-based precautions recommended in these guidelines provides high-level protection to patients, healthcare workers and other people in healthcare settings.
- Infection control is integral to clinical care and the way in which it is provided. It is not an additional set of practices.
- Involving patients is essential to successful clinical care. This includes ensuring that patients’ rights are respected at all times, that they are involved in decision-making about their care, and they are sufficiently informed to be able to participate in reducing the risk of transmission of infectious agents.

***The information presented in this Part is relevant to everybody employed by a healthcare facility, including management, healthcare workers and support service staff.***

### **A1 - INFECTION CONTROL IN THE HEALTHCARE SETTING**

#### **Summary**

- Infectious agents (also called pathogens) are biological agents that cause disease or illness to their hosts. Many infectious agents are present in healthcare settings.
- Infection requires three main elements — a source of the infectious agent, a mode of transmission and a susceptible host.
- Patients and healthcare workers are most likely to be sources of infectious agents and are also the most common susceptible hosts. Other people visiting and working in health care may also be at risk of both infection and transmission. In some cases, healthcare-associated infections are serious or even life threatening.
- In healthcare settings, the main modes for transmission of infectious agents are contact (including bloodborne), droplet and airborne.

### **A2 - OVERVIEW OF RISK MANAGEMENT IN INFECTION PREVENTION AND CONTROL**

#### **Summary**

- Identifying and analysing risks associated with health care is an integral part of successful infection control.
- Adopting a risk management approach at all levels of the facility is necessary. This task requires the full support of the facility’s management as well as cooperation between management, healthcare workers and support staff.

The Australian/New Zealand Standard on Risk Management AS/NZS 4360:2004 outlines a stepwise approach to risk management that allows continuous quality improvement and involves:

- *establishing context*
- *avoiding risk*
- *identifying risks*
- *analysing risks* (see risk analysis matrix below);
- *evaluating risks* and
- *treating risks*

### Risk analysis matrix

Likelihood	Consequences				
	Negligible	Minor	Moderate	Major	Extreme
Rare	Low	Low	Low	Medium	High
Unlikely	Low	Medium	Medium	High	Very high
Possible	Low	Medium	High	Very high	Very high
Likely	Medium	High	Very high	Very high	Extreme
Almost certain	Medium	Very high	Very high	Extreme	Extreme
Low risk	Manage by routine procedures.				
Medium risk	Manage by specific monitoring or audit procedures.				
High risk	This is serious and must be addressed immediately. The magnitude of the consequences of an event, should it occur, and the likelihood of that event occurring, are assessed in the context of the effectiveness of existing strategies and controls.				
Very high risk					
Extreme risk					

Monitoring and review is an essential component of the risk management process. This ensures that:

- new risks are identified;
- analysis of risk is verified against real data, if possible; and
- risk treatment is implemented effectively.

### A3 - A PATIENT-CENTRED APPROACH

#### Summary

- A patient-centred health system is known to be associated with safer and higher quality care.
- A two-way approach that encourages patient participation is essential to successful infection prevention and control.

## **PART B - STANDARD AND TRANSMISSION-BASED PRECAUTIONS**

- The use of standard precautions is the primary strategy for minimising the transmission of healthcare associated infections.
- Transmission-based precautions are used in addition to standard precautions, where the suspected or known presence of infectious agents represents an increased risk of transmission.
- The application of transmission-based precautions is particularly important in containing multi-resistant organisms (MROs) and in outbreak management.
- Medical and dental procedures increase the risk of transmission of infectious agents. Effective work practices to minimise risk of transmission of infection related to procedures require consideration of the specific situation, as well as appropriate use of standard and transmission-based precautions.
- Appropriate use of aseptic technique also lowers the risk of infection risk by minimising the number of infectious agents to which patients are exposed. This comprises 'clean technique' (standard precautions such as hand hygiene, reprocessing of equipment between patients, environmental cleaning) as a minimum, as well as 'sterile technique' to prevent infectious agents from entering a patient's bloodstream.

*The information presented in this Part is particularly relevant to healthcare workers and support staff. It outlines effective work practices that minimise the risk of transmission of infectious agents.*

### **Standard precautions**

#### **Summary**

It is essential that standard precautions are applied at all times. This is because:

- people may be placed at risk of infection from others who carry infectious agents;
- people may be infectious before signs or symptoms of disease are recognised or detected, or before laboratory tests are confirmed in time to contribute to care;
- people may be at risk from infectious agents present in the surrounding environment including environmental surfaces or from equipment; and
- there may be an increased risk of transmission associated with specific procedures and practices.

Standard precautions consist of the appropriate use of four distinct interventions:

- hand hygiene and cough etiquette;
- the use of personal protective equipment;
- the safe use and disposal of sharps; and
- routine environmental cleaning.

Hand hygiene practices are recommended before and after every episode of patient contact.

Standard precautions should be used in the handling of:

- blood (including dried blood);
- all other body fluids, secretions and excretions (excluding sweat), regardless of whether they contain visible blood;
- non-intact skin; and
- mucous membranes.

Appropriate disposal of hazardous materials (i.e. waste and linen) is a further important aspect of infection control. This is outside the scope of these guidelines and practice in these areas should adhere to relevant Australian standards.

## **Hand hygiene and cough etiquette**

### **The 5 moments of hand hygiene**

The '5 moments of hand hygiene' developed by the World Health Organization and adopted by Hand Hygiene Australia:

- protect patients against acquiring infectious agents from the hands of the health care worker;
- help to protect patients from infectious agents (including their own) entering their bodies during procedures; and
- protect health care workers and the healthcare surroundings from acquiring patients' infectious agents.

### **RECOMMENDATION**

#### **1 Routine hand hygiene (5 moments of hand hygiene)**

Hand hygiene must be performed before and after every episode of patient contact. This includes:

- before touching a patient;
- before a procedure;
- after a procedure or body fluid exposure risk;
- after touching a patient; and
- after touching a patient's surroundings.

Hand hygiene is also performed after the removal of gloves.

### **Steps in cough etiquette**

**Anyone with signs and symptoms of a respiratory infection, regardless of the cause, should follow or be instructed to follow cough etiquette as follows:**

- Cover the nose/mouth when coughing or sneezing
- Use tissues to contain respiratory secretions
- Dispose of tissues in the nearest waste receptacle 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

### **RECOMMENDATIONS**

#### **2 Choice of product for routine hand hygiene practices**

Alcohol-based hand rubs containing at least 70% v/v ethanol or equivalent should be used for all routine hand hygiene practices in the healthcare environment.

#### **3 Choice of hand hygiene product when hands are visibly soiled**

If hands are visibly soiled, hand hygiene should be performed using soap and water.

### **Audiological Practice Points**

Performing routine hand hygiene (alcohol-based hand rub) in view of a client before and after any client contact is a demonstration of good infection prevention management.

Patient contact should be considered as also occurring whenever handling an individual's hearing device (eg hearing aid, earmould, cochlear implant speech processor, assistive listening device).

### **Personal protective equipment**

#### **Decision-making about personal protective equipment (PPE)**

The decision to use PPE is based on an assessment of the level of risk associated with a specific patient care activity or intervention and should take account of local policies and current health and safety legislation.

Selection of protective equipment must be based on assessment of the risk of transmission of infectious agents to the patient or carer, and the risk of contamination of the clothing or skin of healthcare workers or other staff by patients' blood, body fluids, secretions or excretions. Factors to be considered are:

- probability of exposure to blood and body fluids;
- type of body fluid involved; and
- probable type and probable route of transmission of infectious agents.

#### **Use of face and eye protection as part of standard precautions**

Type of care	Examples	Face and eye protection required
Routine care	General medical examination Routine observations	Not required unless caring for patients on droplet precautions (surgical mask) or on airborne precautions (P2 [N95] respirator)
Procedures that generate splashes or sprays	Dental procedures Nasopharyngeal aspiration Emptying wound or catheter bag	Mask and goggles

### **RECOMMENDATIONS**

#### **4 Wearing of aprons/gowns**

Aprons or gowns should be appropriate to the task being undertaken. They should be worn for a single procedure or episode of patient care and removed in the area where the episode of care takes place.

#### **5 Use of face and eye protection for procedures**

A surgical mask and goggles must be worn during procedures that generate aerosols, splashes or sprays of blood, body fluids, secretions or excretions into the face and eyes.

### **Audiological Practice Points**

Analyse and manage the risk. For example:

- Vestibular and balance assessments which may result in vomiting

- Ear mopping or tissue spears in presence of active discharge - consider risk of splashes that may occur with more viscous discharge and unexpected flick or splash from sudden head or hand movement.
- Working with clients who generate respiratory droplets through coughing, sneezing or talking or working closely with clients while endotracheal suctioning in progress or clients with known predisposition for spitting.

Goggles and masks should be available as required for risk management.

PPE is also important in an occupational health and safety context (for example, use of goggles when modifying or drilling earmoulds).

### **Wearing of 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 fluids, mucous membranes, non-intact skin and other potentially infectious material; and
- handling or touching visibly or potentially contaminated patient care equipment and environmental surfaces.

Gloves are an essential component of contact precautions (in particular for patients with MROs) and may also be used as part of droplet precautions, to prevent indirect transmission of infectious agents by the hands.

### **When 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 its related risks to patients and health care workers. Risk assessment includes consideration of:

- who is at risk (whether it is the patient or the healthcare worker) and whether sterile or non-sterile gloves are required;
- the potential for exposure to blood, body fluids, secretions and excretions;
- contact with non-intact skin or mucous membranes during general care and invasive procedures; and
- whether contaminated instruments will be handled.

When gloves are worn in combination with other PPE, they are put on last.

### **Selection of glove type**

<b>Glove</b>	<b>Use</b>	<b>Examples</b>
Non-sterile gloves	Procedures/activities that do not require a sterile technique.	Emptying a urinary catheter bag Naso-gastric aspiration Tracheal suctioning
Sterile gloves	Sterile procedures	Urinary catheter insertion Complex dressings Central venous line insertion site dressing
Utility gloves	Cleaning	General cleaning duties Instrument cleaning in sterilising services unit

### **Gloves suitable for clinical use**

NRL (latex) gloves	<ul style="list-style-type: none"> <li>• Preferable for clinical procedures that require manual dexterity and/or will involve more than brief patient contact</li> <li>• Latex sensitivity may be an issue</li> </ul>
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Nitrile gloves	• Suitable alternative to latex, provided there are no sensitivity issues
Vinyl gloves	• Have a higher failure rates than latex or nitrile gloves when tested under simulated and actual clinical conditions

**RECOMMENDATIONS**

**6 Wearing of gloves**  
 Gloves must be worn as a single-use item for:

- invasive procedures;
- contact with sterile sites and non-intact skin or mucous membranes; and
- activity that has been assessed as carrying a risk of exposure to blood, body fluids, secretions and excretions.

Gloves must be changed between patients and after every episode of individual patient care.

**7 Sterile gloves**  
 Sterile gloves must be used for aseptic procedures and contact with sterile sites.

**Audiological Practice Points**

Avoid the risk. Do not perform activities in the presence of ears with active discharge, blood or non-intact skin. Consider whether the procedure is necessary (for example tympanometry, otoacoustic emissions, audiometry, ear impressions or real ear measurements).

Analyse and manage the risk. If needing to complete activities (such as above) in presence of ears with discharge, blood or non-intact skin, gloves must be used. Note it may be difficult to detect the presence of blood or discharge in wax so consider individual risk based on history. In addition, consider modification of procedures as advised in other recommendations eg single use items for disposal.

Gloves must be used:

- in the presence of active ear discharge, blood, ear trauma or non-intact skin if performing activities such as otoscopy, tissue spears or mopping of discharge, and wax management
- performing vestibular or balance assessment and risk of exposure to vomiting or spillage
- performing BBC (breathe-blow-cough) activities and risk of contact with sputum or mucus from coughing or handling tissues

Patient contact in intensive care units or critical care nurseries may require additional precautions as noted in transmission-based recommendations.

**Other items of clothing**

**Footwear**

Footwear suitable for the duties being undertaken must be worn. Footwear should minimise the risk of sharps injury.

## **Handling and disposal of sharps**

### **RECOMMENDATION**

#### **8 Safe handling of sharps**

Sharps must not be passed directly from hand to hand and handling should be kept to a minimum. Needles must not be recapped, bent, broken or disassembled after use.

#### **Reducing risks if a sharps injury is sustained**

Seek care immediately if you sustain a sharps injury

If skin is penetrated, wash the affected area immediately with soap and water.

Report the incident immediately to your supervisor.

Ask about follow-up care, including post-exposure prophylaxis, which is most effective if implemented soon after the incident.

Complete an accident / incident report form, including the date and time of the exposure, how it happened, and name of the source individual (if known).

*If a sharps injury happens to you, you can be reassured that only a small proportion of accidental exposures result in infection. Taking immediate action will lower the risk even further.*

### **Audiological Practice Points**

Sharps include use of scalpels, sharp-pointed scissors, sharp tools used in hearing device maintenance and repair.

Ensure that instruments are not damaged which may pose a sharp risk eg wax management tools, small screwdrivers, needle electrodes.

### **RECOMMENDATION**

#### **9 Disposal of sharps**

The person who has used the sharp must be responsible for its immediate safe disposal. Used sharps must be discarded into an approved sharps container at the point-of-use. These must not be filled above the mark that indicates the bin is three quarters full.

## **Routine environmental cleaning**

### **Frequently touched surfaces**

General surfaces can be divided into two groups —

- those with minimal hand-contact (e.g. floors and ceilings) and
- those with frequent skin-contact ('frequently touched' or 'high risk' surfaces).

The methods, thoroughness and frequency of cleaning and the products used are determined by healthcare facility policy.

Surfaces that are in close proximity to the client and frequently touched surfaces in the client care areas should be cleaned more frequently than minimal touch surfaces.

Frequently touched surfaces can be cleaned with a detergent solution designed for general purpose cleaning. The exact choice of detergent will depend on the nature of the surface and the likely degree of contamination. Detergent-impregnated wipes may be used to clean single pieces of equipment and small surface areas. This method is not normally used for general ward cleaning and should not be considered a replacement for clean cloths, water and detergent.

### Use of disinfectants

In acute patient care areas where there is uncertainty about the nature of soiling on the surface (e.g. blood or body fluid contamination versus routine dust or dirt) or the presence of MROs (including *C. difficile*) or other infectious agents requiring transmission-based precautions (e.g. pulmonary tuberculosis) is suspected, surfaces should be cleaned with a detergent solution, then a disinfectant.

In office-based practice and less acute patient care areas (e.g. long-term care facilities), the risk of contamination, mode of transmission and risk to others should be used to determine whether disinfectants are required.

High-level disinfectants or liquid chemical sterilants are not appropriate for general cleaning; such use is counter to manufacturers' instructions for these toxic chemicals. Alcohol should not be used to disinfect large environmental surfaces.

### Characteristics of disinfectants

Hypochlorite (chlorine)	<ul style="list-style-type: none"> <li>• Effective at a range from 100ppm (0.01%) to 52,000ppm (or 5.25%), depending of the organism and exposure time</li> <li>• 1000ppm is a recommended concentration based on practical application</li> </ul>
Hydrogen peroxide	<ul style="list-style-type: none"> <li>• Can be utilised in both liquid and mist form</li> </ul>
Alcohol	<ul style="list-style-type: none"> <li>• Ethanol and isopropyl alcohol have some antibacterial and antiviral effects</li> <li>• A concentration of 70% isopropyl (or equivalent) alcohol is recommended</li> </ul>

Source: Adapted from Grampians Region Infection Control Group (2006) The Little Yellow Infection Control

## RECOMMENDATIONS

### 10 Routine cleaning of surfaces

Clean frequently touched surfaces with detergent solution at least daily, and when visibly soiled and after every known contamination.

Clean general surfaces and fittings when visibly soiled and immediately after spillage.

### Audiological Practice Points

Frequently touched surfaces includes waiting room toys, door handles in common areas, arm rests on chairs, light switches if used intermittently during day, toilet amenities, staff kitchen amenities.

For paediatric clinics and in waiting rooms where children frequent, plastic furniture, washable surfaces and washable, non-porous toys are recommended.

### Shared clinical equipment

While shared clinical equipment comes into contact with intact skin only and is therefore unlikely to introduce infection, it can act as a vehicle by which infectious agents are transferred between patients.

Surface barriers (e.g. clear plastic wrap, bags, sheets, tubing or other materials impervious to moisture) help prevent contamination of surfaces and equipment. Surface barriers on equipment need to be placed carefully to ensure that they protect the surfaces underneath and should be changed between patients.

## RECOMMENDATIONS

### 11 Cleaning of shared clinical equipment

Clean touched surfaces of shared clinical equipment between patient uses, with detergent solution. Exceptions to this should be justified by risk assessment.

### 12 Surface barriers

Use surface barriers to protect clinical surfaces (including equipment) that are:

- touched frequently with gloved hands during the delivery of patient care;
- likely to become contaminated with blood or body substances; or
- difficult to clean (e.g. computer keyboards).

Exceptions to this should be justified by risk assessment.

## Audiological Practice Points

Shared clinical equipment likely to be in contact with more than one person (or their hearing device) may include:

- shared otoscopes, tympanometers and other audiometric equipment
- headphones and headsets,
- patient response buttons,
- items used for paediatric assessment (eg toys and items used as activities for infant distraction, play audiometry, speech audiometry),
- multiple-use electrodes,
- tools used in management of cerumen or foreign bodies (eg wax rings, cotton wool carriers),
- tools used in making ear impressions (eg penlights or earlights, ear syringes),
- tools used in hearing aid and device repairs,
- hearing aid couplers

Detergent-impregnated wipes may be used to clean single pieces of equipment and small surface areas.

If discharge or otitis externa present in one ear, do not use same tip/s or specula in contralateral ear.

Blu-tac used in coupler measurements with hearing aids should be replaced regularly.

Toys placed in mouth by babies and toddlers should be removed afterwards, cleaned and disinfected. (Note – these should be washable, non-porous and easily cleaned and disinfected.) Refer cleaning and processing of instruments.

Surface barriers are recommended at visiting locations that may be shared with other professionals eg protective sheets or pads on desktops upon which clinical tools could be placed.

Surface barriers are also recommended for receiving, handling and maintaining hearing aids and devices. For example, single use paper bag or tissues at reception desks to receive devices, protective paper sheets or pads to rest devices on while performing maintenance.

### Management of blood and body substance spills

Strategies for decontaminating spills of blood and other body fluids (e.g. vomit, urine) differ based on the setting in which they occur and the volume of the spill:

#### Management of blood or body substance spills

Spot cleaning	<ul style="list-style-type: none"><li>• Wipe up spot immediately with a damp cloth, tissue or paper towel</li><li>• Discard contaminated materials</li><li>• Perform hand hygiene</li></ul>
Small spills (up to 10cm diameter)	<ul style="list-style-type: none"><li>• Wipe up spill immediately with absorbent material</li><li>• Place contaminated absorbent material into impervious container or plastic bag for disposal</li><li>• Clean the area with warm detergent solution, using disposable cloth or sponge</li><li>• Wipe the area with sodium hypochlorite and allow to dry</li><li>• Perform hand hygiene</li></ul>
Large spills (greater than 10cm diameter)	<ul style="list-style-type: none"><li>• Cover area of the spill with an absorbent clumping agent and allow to absorb</li><li>• Use disposable scraper and pan to scoop up absorbent material and any unabsorbed blood or body substances</li><li>• Place all contaminated items into impervious container or plastic bag for disposal</li><li>• Discard contaminated materials</li><li>• Mop the area with detergent solution</li><li>• Wipe the area with sodium hypochlorite and allow to dry</li><li>• Perform hand hygiene</li></ul>

#### Spill kit

A spill kit should be readily available in each clinical area and should include a scoop and scraper, single use gloves, protective apron, face mask and eye protection, absorbent agent, clinical waste bags and ties, and detergent. All parts should be disposable to ensure that cross-contamination does not occur.

### RECOMMENDATION

#### 13 Site decontamination after spills of blood or other potentially infectious materials

Spills of blood or other potentially infectious materials should be promptly cleaned as follows:

- **wear utility gloves and other PPE** appropriate to the task;
- **confine and contain** spill, clean visible matter with disposable absorbent material and discard the used cleaning materials in the appropriate waste container;
- **clean** the spill area with a cloth or paper towels using detergent solution, wipe with appropriately diluted sodium hypochlorite and allow the surface to dry.

#### Audiological Practice Points

Vestibular and balance assessment may cause clients to vomit.

Clinics attended by babies, young children and frail elderly clients may be more likely to experience spills of vomit, urine and faeces.

A spill kit should be on hand to manage spills.

## Processing of Instruments and Equipment

### What are the risks?

Instruments and equipment should be handled in a manner that will prevent patient, healthcare worker and environmental contact with potentially infectious material. Equipment and instruments must be cleaned and maintained in compliance with guidelines and any state/territory regulations, and taking into account manufacturers' instructions.

### Assessing the degree of risk

Any instrument or piece of equipment that is to be reused requires processing — cleaning, disinfection and/or sterilisation. The minimum level of processing required for reusable instruments and equipment depends on the individual situation (i.e. the body site where the instrument will be used).

The rational approach to disinfection and sterilisation of patient care items and equipment devised by Spaulding over 30 years ago has been retained and refined and is still successfully used by infection control practitioners when planning methods for disinfection or sterilisation. The system is based on instruments and items for patient care being categorised into critical, semicritical and noncritical, according to the degree of risk for infection involved in use of the items.

**Table: Categories of items for patient care**

<b>Critical</b>	These items confer a high risk for infection if they are contaminated with any microorganism and must be sterile at the time of use. This includes any objects that enter sterile tissue or the vascular system, because any microbial contamination could transmit disease.
<b>Semi-critical</b>	These items contact mucous membranes or non-intact skin, and should be single use or sterilised after each use. If this is not possible, high-level disinfection is the minimum level of reprocessing that is acceptable.
<b>Non-critical</b>	These items come in contact with intact skin but not mucous membranes. Thorough cleaning is sufficient for most non-critical items after each individual use, although either intermediate or low-level disinfection may be appropriate in specific circumstances.

### Cleaning

Cleaning is the removal of foreign material (e.g. soil and organic material) from objects and is normally accomplished using detergent solution.

Cleaning to remove organic material must always precede high-level disinfection and sterilisation of critical and semi-critical instruments and devices because residual proteinaceous material reduces the effectiveness of the disinfection and sterilisation processes. If an item cannot be cleaned, it cannot be disinfected or sterilised.

Instruments should be cleaned as soon as practical after use (e.g. preferably at the point of use) before soiled materials become dried onto the instruments. Dried or baked materials on the instrument make the removal process more difficult and the disinfection or sterilisation process less effective or ineffective.

## Methods of cleaning

### **Automated**

Automated cleaners (ultrasonic cleaners and washer-disinfectors) reduce the handling of instruments and are recommended for cleaning basic instruments that can withstand the process.

- Ultrasonic cleaners work by subjecting instruments to high frequency, high-energy sound waves, thereby loosening and dislodging dirt.
- Washer-disinfectors use detergent solutions at high temperatures to wash instruments. When a washer-disinfector is used, care should be taken in loading instruments: hinged instruments should be opened fully to allow adequate contact with the detergent solution; stacking of instruments in washers should be avoided; and instruments should be disassembled as much as possible.

### **Manual**

Cleaning is done manually for fragile or difficult-to-clean instruments and in areas without automatic units.

The two essential components of manual cleaning are:

- friction — rubbing/scrubbing the soiled area with a soft brush; and
- fluidics — use of fluids to remove soil and debris from internal channels after brushing and when the design does not allow passage of a brush through a channel.

Healthcare workers should wear appropriate PPE for the task — plastic apron, utility gloves and face protection (protective eyewear and mask or face shield). Care should be taken to prevent splashing of mucous membranes or penetration of the skin by sharp instruments.

## Cleaning agents

For instrument cleaning, a neutral or near-neutral pH detergent solution is commonly used as such solutions generally provide the best material compatibility profile and good soil removal and mildly acidic solutions may damage instruments.

Enzymes, usually proteases, are sometimes added to neutral pH solutions to assist in removing organic material such as blood and pus. Cleaning solutions can also contain lipases (enzymes active on fats) and amylases (enzymes active on starches). Enzymatic cleaners are not disinfectants, and proteinaceous enzymes can be inactivated by germicides.

## Disinfection

Disinfection is a process that inactivates non-spore-forming infectious agents, using either thermal (moist or dry heat) or chemical means. Items need to be cleaned before being disinfected.

Instruments should be removed from the disinfectant after reprocessing and stored dry. To preserve the surfaces of the instruments, dissimilar metals should be separated before cleaning.

- *Thermal disinfection* — if items can withstand heat and moisture and do not require sterilisation, thermal disinfection using heat and water, at temperatures that destroy infectious agents, is the simplest, most efficient and cost-effective method of disinfection. It can be achieved in an automated thermal washer-disinfector by choosing the appropriate cycle.
- *Chemical disinfection* can be achieved with a compatible Therapeutic Goods Administration (TGA)-registered instrument-grade disinfectant of the required level, used alone or together with an automated washer-disinfector. Chemical disinfectants include alcohols, chlorine and chlorine compounds, formaldehyde, hydrogen peroxide, phenolics and quaternary ammonium compounds. Commercial formulations based on these chemicals are considered unique products and must be registered with TGA. In most instances, each product is designed for a specific purpose; therefore, users should read labels carefully to ensure the correct product is selected for the intended use and applied efficiently.

There are three levels of disinfection, depending on the intended use of the instruments – low, intermediate, high.

Disinfection is not a sterilising process. Wherever possible, sterilise items to be used in semi-critical sites, or employ single use items.

**Table: General criteria for reprocessing and storage of equipment and instruments in healthcare settings**

Level of risk	Process	Storage
<b>*Critical</b> Entry or penetration into sterile tissue, cavity or blood stream	<ul style="list-style-type: none"> <li>• Clean thoroughly as soon as possible after using</li> <li>• Sterilise after cleaning by steam under pressure</li> <li>• If heat or moisture sensitive, sterilise through an automated low temperature chemical sterilant system, other liquid chemical sterilants or ethylene oxide sterilisation</li> </ul>	Sterility must be maintained: <ul style="list-style-type: none"> <li>• packaged items must go through a drying cycle and then be checked to ensure drying has taken place before use or storage</li> <li>• the integrity of the wrap must be maintained</li> <li>• wraps should act as an effective biobarrier during storage</li> <li>• unpackaged sterile items must be used immediately (without contamination in transfer from steriliser to site of use) or resterilised</li> </ul>
<b>Semi-critical</b> Contact with intact mucous membranes or non- intact skin	<ul style="list-style-type: none"> <li>• Clean thoroughly as soon as possible after using</li> <li>• Steam sterilisation is preferable</li> <li>• If the equipment will not tolerate steam use a high level chemical or thermal disinfectant</li> </ul>	<ul style="list-style-type: none"> <li>• Store to prevent environmental contamination</li> </ul>
<b>Non-critical</b> Contact with intact skin	<ul style="list-style-type: none"> <li>• Clean as necessary with detergent solution</li> <li>• If decontamination necessary, disinfect with compatible low or intermediate level TGA registered disinfectant after cleaning</li> </ul>	<ul style="list-style-type: none"> <li>• Store in a clean dry place to prevent environmental contamination</li> </ul>

### **Audiological Practice Points**

Most audiological items and instruments would be considered as non-critical items (contact with intact skin but not mucous membranes). Thorough cleaning with detergent solution is sufficient for non-critical items after individual use. Low-intermediate level disinfection may be appropriate in specific circumstances.

It may be difficult to detect the presence of blood or discharge in wax, so reusable clinical items placed in earcanal should be cleaned and disinfected – eg reusable specula for otoscopy and reusable tips for otoacoustic emissions and impedance audiometry.

Semi-critical items have contact with non-intact skin or mucous membranes and should be single use or sterilised after each use. If this is not possible, high-level disinfection is required. For example:

- Otoscope specula used with non-intact skin (ear trauma or ulcerated ears) or ear discharge
- Items from play audiometry, distraction activities or waiting room placed in mouth should be removed afterwards, cleaned and disinfected. (Note for risk management – these items should be washable, non-porous and easily cleaned and disinfected).

In consideration of infection control and manufacturer's guidelines, purchase disposable, single use items if likely to be used in semi-critical sites ie contact with non-intact skin or ear discharge:

- Disposable otoscope specula
- Disposable tips for insert earphones
- Disposable tubing for real ear measurements
- Single use electrodes

Detergent-impregnated wipes may be used to clean single pieces of equipment and small surface areas.

Client devices and components should be appropriately cleaned and processed where possible before any maintenance using shared tools – earmoulds, hearing aids, cochlear implant processors, bone anchored hearing aids.

## Transmission based precautions

### Summary

- The aim of instituting early transmission-based precautions is to reduce further transmission opportunities that may arise due to the specific route of transmission of a particular pathogen.
- While it is not possible to prospectively identify all patients needing transmission-based precautions, in certain settings, recognising an increased risk warrants their use while confirmatory tests are pending
- Transmission-based precautions are applied in addition to standard precautions.
- Recommended precautions for specific infectious agents are outlined in full NHMRC IPC Guidelines – Refer Table B5.2

## Application of transmission based precautions

### What are the risks?

Transmission of infectious agents can occur in a number of ways.

- Indirect or direct *contact transmission*, when healthcare worker 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 are either inhaled or come into contact with another's mucosa (eyes, nose or mouth), either directly into or via contaminated hands.
- *Airborne transmission*, when attending healthcare workers or others inhale small particles that contain infectious agents.

Transmission-based precautions involve the use of the following measures to prevent transmission of the infectious agent:

- use of personal protective equipment (including gloves, apron or gowns, and surgical or P2 (N95) respirators, visors or protective goggles);
- dedicated patient equipment;
- allocation of single rooms or cohorting of patients;
- appropriate air handling requirements;
- enhanced cleaning and disinfecting of the patient environment; and
- restricted transfer of patients within and between facilities.

## Contact precautions

### How should contact precautions be applied?

The key aspects of applying contact precautions relate to:

- hand hygiene and use of appropriate PPE;
- special handling of equipment;
- patient placement; and
- minimising patient transfer or transport.

## RECOMMENDATIONS

### 14 Implementation of contact precautions

In addition to standard precautions, implement contact precautions in the presence of known or suspected infectious agents that are spread by direct or indirect contact with the patient or the patient's environment.

### 15 Hand hygiene and personal protective equipment to prevent contact transmission

When working with patients who require contact precautions:

perform hand hygiene;

put on gloves and gown upon entry to the patient care area;

ensure that clothing and skin do not contact potentially contaminated environmental surfaces; and

remove gown and gloves and perform hand hygiene before leaving the patient care area.

### 16 Hand hygiene when *Clostridium difficile* is suspected or known to be present

To facilitate the mechanical removal of spores, meticulously wash hands with soap and water and pat dry with single-use towels.

Use of alcohol-based hand rubs alone may not be sufficient to reduce transmission of *Clostridium difficile*.

### 17 Patient care equipment for patients on contact precautions

Use patient dedicated equipment or single-use non-critical patient care equipment (e.g. blood pressure cuffs).

If common use of equipment for multiple patients is unavoidable, clean the equipment and allow it to dry before use on another patient.

## Droplet precautions

### What are the risks?

A number of infectious agents are transmitted through respiratory droplets (i.e. large-particle droplets >5 microns in size) that are generated by a patient who is coughing, sneezing or talking or during suctioning or bronchoscopy. Transmission via large droplets requires close contact as the droplets do not remain suspended in the air and generally only travel short distances (usually 1 metre or less). As well, any infectious agent transmitted by the droplet route can potentially be transmitted by touch.

Droplet precautions are based on evidence that shows that:

- hand hygiene is effective in preventing transmission of viruses and reducing the incidence of respiratory infections both within and outside healthcare settings
- physical interventions are highly effective against the spread of a broad range of respiratory viruses;
- surgical masks protect the wearer from droplet contamination of the nasal or oral mucosa;
- physical proximity of less than one metre has long been associated with an increased risk for transmission of infections via the droplet route; and
- placing masks on coughing patients is a proven means of preventing infected patients from dispersing respiratory secretions into the air.

### When should droplet precautions be implemented?

Droplet precautions are intended to prevent transmission of infectious agents spread through close respiratory or mucous membrane contact with respiratory secretions. Because these microorganisms do not travel over long distances, special air handling and ventilation are not required.

Infectious agents for which droplet precautions are indicated include respiratory syncytial virus and meningococcus (see full NHRMC guideline appendices for more information).

## RECOMMENDATION

### 18 Implementation of droplet precautions

In addition to standard precautions, implement droplet precautions for patients known or suspected to be infected with agents transmitted by respiratory droplets (i.e. large-particle droplets  $>5\mu$  in size) that are generated by a patient when coughing, sneezing, talking, or during suctioning.

#### How should droplet precautions be applied?

The key aspects of applying droplet precautions relate to:

- hand hygiene and use of personal protective equipment;
- special handling of equipment;
- patient placement; and
- minimising patient transfer or transport.

#### Hand hygiene and personal protective equipment

Droplet transmission is, technically, a form of contact transmission and some infectious agents transmitted by the droplet route may also be transmitted by contact. Hand hygiene is therefore an important aspect of droplet precautions and the 5 moments of hand hygiene outlined in Section B should be followed.

Although surgical masks do not protect the wearer from infectious agents that are transmitted via the airborne route, masks that meet Australian Standards are fluid resistant and protect the wearer from droplet contamination of the nasal or oral mucosa. The mask is generally put on upon room entry.

There is insufficient evidence to support the use of P2 (N95) respirators for reducing the risk of infections transmitted by the droplet route.

Indirectly vented goggles provide the most eye protection from respiratory droplets from multiple angles.

## RECOMMENDATIONS

### 19 Personal protective equipment to prevent droplet transmission

When entering the patient care environment, put on a surgical mask.

### 20 Placement of patients requiring droplet precautions

Place patients who require droplet precautions in a single-patient room when available.

## Airborne precautions

#### Why are airborne precautions important?

Certain infectious agents are disseminated through airborne droplet nuclei or small particles in the respirable size range that remain infective over time and distance.

Airborne precautions are based on evidence that shows that:

- the use of P2 (N95) respirators prevents the inhalation by the wearer of small particles that may contain infectious agents transmitted via the airborne route;

- the use of negative pressure rooms may also reduce the transmission of infection; and
- wearing of correctly-fitted masks by coughing patients prevents dispersal of respiratory secretions into the air.

#### When should airborne precautions be implemented?

Airborne precautions prevent transmission of microorganisms that remain infectious over time and distance when suspended in the air. These agents may be inhaled by susceptible individuals who have not had face-to-face contact with (or been in the same room as) the infectious individual.

Infectious agents for which airborne precautions are indicated include rubeola virus (measles), varicella virus (chickenpox) and *M. tuberculosis*.

#### How should airborne precautions be applied?

The key aspects of applying airborne precautions relate to:

- hand hygiene and cough etiquette;
- use of appropriate personal protective equipment (particularly correctly-fitted masks); and
- minimising exposure of other patients and staff members to the infectious agent.

### RECOMMENDATIONS

#### 21 Implementation of airborne precautions

In addition to standard precautions, implement airborne precautions for patients known or suspected to be infected with infectious agents transmitted person-to-person by the airborne route (i.e. airborne droplet nuclei or particles <5µ in size).

#### 22 Personal protective equipment to prevent airborne transmission

Wear a correctly fitted P2 (N95) respirator when entering the patient care area when an airborne transmissible infectious agent is known or suspected.

#### 23 Placement of patients requiring airborne precautions

Patients on airborne precautions should be placed in negative pressure rooms or in a room from which the air does not circulate to other areas.

Exceptions to this should be justified by risk assessment.

Refer to full NHMRC IPC Guidelines for ‘Summary and examples of “Application of transmission-based precautions”

#### Examples of infectious agents and routes of transmission

Contact transmission	MROs, <i>C. difficile</i> , intestinal tract pathogens (e.g. norovirus), RSV, highly contagious skin infections
Droplet transmission	Influenza, RSV, norovirus, pertussis (whooping cough), meningococcus
Airborne transmission	Pulmonary TB, chickenpox, measles, SARS.

**Table: Infections warranting transmission-based precautions before laboratory confirmation of infection**

Infection	Type	Transmission
Chickenpox and shingles (varicella-zoster)	Viral	Airborne Contact
Creutzfeldt–Jakob disease	Prion	Contact (CNS instruments)
Gastroenteritis	Bacterial	Contact (faecal-oral)
Gastroenteritis	Viral	Airborne
Hepatitis A	Viral	Contact (faecal-oral)
Influenza(during outbreaks)	Viral	Droplet

Measles	Viral	Airborne Contact
Meningococcal infection	Bacterial	Droplet Contact
Norovirus	Viral	Contact Droplet (aerosolized vomitus)
Parvovirus B19	Viral	Droplet
Respiratory syncytial virus	Viral	Contact (oral, fomites) Droplet
Rotavirus	Viral	Contact (faecal-oral)
Rubella	Viral	Droplet Contact
SARS	Viral	Droplet Contact
Staphylococcal infection	Bacterial	Contact Droplet
Tuberculosis	Bacterial	Airborne
Viral haemorrhagic fevers	Viral	Contact
Whooping cough (pertussis)	Bacterial	Droplet

## Management of resistant organisms and outbreak situations

### Summary

- Effective hand hygiene is the most important measure to prevent and control the spread of multi-resistant organisms (MROs). Rigorous adherence to hand hygiene is also integral to any outbreak control and management program.
- The application of transmission-based precautions is particularly important in containing MROs such as methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant enterococci (VRE), and multiresistant Gram-negative bacteria (MRGN)
- Transmission-based precautions are also an integral part of outbreak management
- Specific precautions required for each infectious agent are listed in full NHMRC Guidelines

### What are the risks?

MROs, which are predominantly bacteria, are resistant to multiple classes of antimicrobial agents. Antibiotic resistance increases the morbidity and mortality associated with infections, and contributes to increased costs of care due to prolonged hospital stays and other factors, including the need for more expensive drugs. A major cause of antibiotic resistance is the exposure of a high-density, high-acuity patient population in frequent contact with health care workers to extensive antibiotic use, along with the attendant risk of cross-infection.

For the purpose of these guidelines, MROs are taken to include:

- **all methicillin-resistant *Staphylococcus aureus*** — MRSAs cause up to a third of hospital-acquired bloodstream infections, with mortality from BSI ranging from 10% to 50% according to the setting;
- **all vancomycin-resistant enterococci** with mobile resistance determinants (e.g. VanA, VanB) — the ratio of invasive VRE infection to colonisation appears to be proportionately lower than that of MRSAs.
- **a range of Gram-negative bacteria** with multiple classes of drug resistance or resistant mechanisms to critically important antibiotics — highly transmissible resistance is a particular feature of antibiotic resistance among the Gram-negative bacteria, especially the Enterobacteriaceae. Multi-drug resistance is also common and increasing among non-fermenting Gram-negative bacteria (e.g. *Pseudomonas aeruginosa* and *Acinetobacter baumannii*) and a number of strains have now been identified that exhibit resistance to essentially all commonly used antibiotics. These organisms are associated with treatment failure and increased morbidity.

A two-level approach is necessary for the prevention and control of MROs. This involves implementation of:

- core strategies for MRO prevention and control in any situation where MRO infection or colonisation is suspected or identified; and
- organism-based or resistance mechanism-based approaches if incidence or prevalence of MROs are not decreasing despite implementation of the core strategies.

In the event of an MRO outbreak, investigation and control/containment should be conducted (Refer full NHMRC IPC Guidelines).

## RECOMMENDATION

### **24 Implementation of core strategies in the control of multi-resistant organisms (MRSA, MRGN, VRE)**

Implement transmission-based precautions routinely for all patients colonised or infected with a multi-resistant organism, including:

- putting on gloves and gowns before entering the patient care area;
- using patient dedicated or disposable noncritical patient care equipment (e.g. blood pressure cuff, stethoscope);
- using a single-patient room or, if unavailable, cohorting patients with the same strain of multi-resistant organism in designated patient care areas; and ensuring consistent cleaning and disinfection of surfaces in close proximity to the patient and those likely to be touched by the patient and healthcare workers.

## **PART C - ORGANISATIONAL SUPPORT**

### **C1 - MANAGEMENT AND CLINICAL GOVERNANCE**

#### **Summary**

- To be effective, infection prevention and control must be a priority.
- Organisational capacity is achieved by having appropriate governance and management structures.
- The person in charge of the organisation (e.g. CEO of a hospital, principal of an office-based practice) must have overall responsibility for and direct involvement in the organisation's infection control program.
- There must be adequate resourcing for dedicated infection control staff, and resources to run the infection prevention and control program including professional development.
- Each organisation should define the outcome measures for monitoring infection control policies
- All employees should understand their roles and responsibilities and have appropriate training to maintain a safe work environment
- Patient-centred health care is safer health care

#### **Infection prevention and control program**

The IPC program is the means by which infection control practice is implemented in every part of the healthcare facility. Elements include:

- development of a risk-management policy for the facility;
- development of infection prevention and control policies and procedures that are based on national and/or state/territory guidelines and relevant to the healthcare facility (including risk management);
- education and training of staff so that they can implement the policies and procedures;
- oversight of the implementation of policies and procedures;
- development of a monitor and review process to ensure that policies and procedures are being implemented correctly

#### **Resource allocation**

Healthcare facility managers should ensure that there are sufficient human and fiscal resources available to support all aspects of the IPC program.

### **C2 - STAFF HEALTH AND SAFETY**

#### **Summary**

- Infection protection for healthcare workers should be an integral part of the infection control and occupational health and safety programs of every healthcare facility.
- This includes implementing a staff health screening policy, promoting immunisation, instituting extra protection for healthcare workers in specific circumstances (e.g. pregnant healthcare workers), and having processes for minimising and managing risk exposure.
- While the organisation has a duty of care to healthcare workers, staff members also have a responsibility to protect themselves and to not put others at risk.

## Roles and responsibilities

In the course of their duties, healthcare workers can be exposed to infectious agents. Health care workers can also place patients at risk of transmission of infection.

### Responsibilities of healthcare facilities

As part of its IPC program, each healthcare facility should develop, implement and document effective policies and procedures related to staff health and safety.

All healthcare workers should be informed of the facility's policy on health screening and counselled, as appropriate, about their work placement in accordance with these policies. Healthcare worker's privacy and civil rights must always be respected and not breached.

Positive measures should be undertaken to implement and sustain appropriate infection control.

There are five measures of protection:

- health status screening;
- education on safe work practices that minimise the transmission of infection;
- safe systems of work, with workplaces designed to allow clinical practice that minimises transmission of infection;
- physical protection, involving the use of PPE and immunisation; and
- reporting systems for compliance and identifying breaches of infection control protocols.

### Responsibilities of healthcare workers

Healthcare workers have an obligation to always follow specific establishment infection control policies as part of their contract of employment.

Healthcare workers with infections should seek appropriate medical care from a doctor qualified to manage the specific infectious diseases. Where there is a risk of a healthcare worker transmitting infection to a patient or other healthcare worker, the healthcare worker should be counselled about work options and either rostered appropriately or provided with equipment, information and facilities to enable him or her to continue to provide safe care.

The appropriate work option will depend on the specific circumstances:

- healthcare workers with symptoms of acute infections (e.g. vomiting, diarrhoea, flu symptoms) should not come to work for the specified exclusion period; and
- healthcare workers who carry a bloodborne virus (e.g. hepatitis B, hepatitis C, HIV) may need to accept that their duties may not involve significant amounts of direct patient care or exposure-prone procedures. In some jurisdictions, healthcare workers who carry a bloodborne virus are legally obliged to declare their infectious status.

Healthcare workers should be aware of their requirements for immunisation against infectious diseases and maintain personal immunisation records.

Healthcare workers in specific circumstances (e.g. pregnant healthcare workers) may be particularly susceptible to some infections and should work with occupational health and safety officers to ensure their safety.

## Health status screening and immunisation

### Recommended vaccinations

The most recent edition of *The Australian Immunisation Handbook* (currently NHMRC 2008) provides detailed information on immunisation schedules and vaccines. Staff vaccination programs should comply as much as possible with these schedules, which acknowledge that some circumstances may require special consideration before vaccination.

**Table: Recommended vaccinations for all healthcare workers**

Hepatitis B
Influenza
Booster dose of adult formulation diphtheria-tetanus-pertussis vaccine
MMR (if non-immune)
Varicella (if seronegative)
Hepatitis A immunisation is recommended for healthcare workers in paediatric wards, ICUs and emergency departments that provide for substantial populations of Aboriginal and Torres Strait Islander children, and healthworkers in rural and remote Indigenous communities

Source: *Australian Immunisation Handbook*

Available at: <http://www.health.gov.au/internet/immunise/publishing.nsf/Content/Handbook-home>

**Staff records**

Healthcare facilities should maintain a regularly updated record of healthcare workers’ immunisation records.

**Exclusion periods for healthcare workers with acute infections**

Any employee who has an infectious disease has a responsibility to:

- consult with an appropriate medical practitioner to determine that they are capable of performing their tasks without putting patients or other workers at risk;
- undergo regular medical follow-up and to comply with all aspects of informed clinical management regarding their condition; and
- observe standard precautions at all times (and any other recommended infection control practices and procedures).

These policies should encourage healthcare workers to seek appropriate preventive and curative care and report their illnesses, medical conditions, or treatments that can render them more susceptible to opportunistic infection or exposures. They should not penalise healthcare workers with loss of wages, benefits, or job status.

**Table: Staff exclusion periods for infectious illnesses**

Acute infection	Exclusion period
Conjunctivitis	Must not provide patient care for the duration of symptoms (i.e. while eye discharge is present).
Gastro-enteritis (infectious diarrhoea)	Must not come to work while symptomatic (e.g. diarrhoea and/or vomiting) or until 48 hours after symptoms have resolved (see GPP below)
Glandular fever	NO need for exclusion, even if having direct patient contact, provided staff are well enough to return to work and employ standard precautions.

Herpes Simplex (cold sores)	<p>Must not provide direct care to neonates, newborns, patients in delivery suites, severely immunocompromised patients, burns patients, patients with extensive eczema, or patients in operating room if there is an exposed herpetic lesion.</p> <p>May provide direct patient care to other patients, do not need to wear a mask.</p>
Herpes Zoster(Shingles)	<p>Must not provide ANY direct patient care if lesions cannot be covered (e.g. ophthalmic zoster)</p> <p>If active lesions can be covered, can provide care to all patients except for pregnant women, neonates, severely immunocompromised patients, burns patients and patients with extensive eczema.</p>
Influenza	<p>If treated with an antiviral within 2 days of the onset of the disease, may return to work following 2 days of treatment If they feel well enough.</p> <p>Employees who have had no treatment should remain off work for 5–6 days.</p>
Pertussis (Whooping Cough)	<p>Remain away from work until at least 5 days after commencement of appropriate antibiotic therapy; or for 21 days after the onset of symptoms if not receiving antibiotic treatment.</p>
Scabies and Lice	<p>Remain off work until at least 24 hours after appropriate treatment has been completed.</p>
Staphylococcal infection	<p>Any staphylococcal-infected lesions (e.g. boils, wound infections) must be covered while at work. If lesions cannot be covered, must not perform patient care or prepare hospital food until they have received appropriate antibiotic therapy and the infection has resolved</p>
Streptococcal infection	<p>Any employee with streptococcal infected lesions (e.g. impetigo, tonsillitis) must ensure that lesions are covered while at work. If lesions cannot be covered, employees must not provide direct patient care nor prepare hospital food until 24 hours after appropriate antibiotic therapy. Employees with pharyngitis/tonsillitis should avoid patient contact for at least 24 hours after starting appropriate antibiotic therapy.</p>
Tuberculosis (TB)	<p>If TB disease is suspected or is present, staff to be notified to TB Services and treated. Any personnel with pulmonary TB are to be excluded from the workplace until cleared</p>

	by TB Services. Any active TB must be monitored by TB Services.
Viral rashes	<p><i>Measles</i> — If suspected, must remain off of work until appropriate test results are known. May return but must be excluded for 4 days after the appearance of the rash if they develop measles.</p> <p><i>Mumps</i> — If suspected, must remain off work until appropriate test results are known. May return to work if they have serological evidence of immunity (i.e. are IgG sero-positive and IgM seronegative). Must be excluded from work for 9 days after the onset of parotid gland swelling if they develop mumps.</p> <p><i>Rubella (German Measles)</i> — If suspected, must remain off of work until appropriate test results are known. May return to work if they have serological evidence of immunity (i.e. are IgG sero-positive and IgM sero-negative). Personnel must be excluded for 7 days after the appearance of the rash if they develop Rubella.</p> <p><i>Varicella (Chicken Pox)</i> — Before starting employment, personnel should be screened by completing a pre-employment health assessment; non immune staff should be offered vaccination unless contraindicated; personnel must be excluded for at least 5 days after the rash appears and all blisters have dried.</p> <p><i>Human Parvovirus B19 (Slapped Face)</i> — does not require exclusion from work, non-infectious once rash develops.</p>
Viral respiratory tract infections (e.g. common cold).	Staff should be excluded from contact with susceptible persons, until they are no longer symptomatic. Staff with viral respiratory tract infections should stay at home until they feel well.

### GOOD PRACTICE POINT

#### Norovirus exclusion periods

Health care workers should not return to work until diarrhoea and vomiting have ceased for 2 days. It is extremely important that health care workers comply with appropriate hand hygiene methods and stringent infection control practices upon return to work, as some studies have shown prolonged viral shedding with this infection.

## Healthcare workers with specific circumstances

Healthcare facilities should have comprehensive occupational health programs to manage healthcare workers in specific circumstances that put them at greater risk of infection.

### Pregnant healthcare workers

Employers should provide information on the risks associated with pregnancy and should assist pregnant healthcare workers to avoid infectious circumstances that may present a risk to the healthcare worker (mother) or foetus. It is the responsibility of pregnant healthcare workers to advise their doctor and employer of their pregnancy.

Adherence to standard and transmission based precautions and vaccination should protect healthcare workers. However, pregnant healthcare workers should be given the opportunity to avoid patients with specific infections. Those without immunity to rubella, varicella, cytomegalovirus or parvovirus, or who have not had cytomegalovirus infection, should be redeployed if they are at risk of contracting these diseases through their work.

### Immunocompromised healthcare workers

Healthcare workers with immune deficiencies are more at risk of acquiring infections. The type of employment they can undertake should include only duties that will minimise their exposure to infections. Predisposing conditions include neutropenia, disseminated malignancy and infections that produce immunodeficiency (e.g. HIV).

### Healthcare workers with skin conditions

Skin integrity is the ultimate barrier to transmission of infectious agents. When staff members have damaged skin or weeping skin conditions (e.g. allergic eczema, psoriasis, exfoliating dermatitis), they may be readily colonised by healthcare associated microorganisms and may become a vehicle for disseminating these organisms.

Healthcare workers in this situation should be identified and need to be informed of the risks they may pose to patients. Any damaged skin must be appropriately covered before healthcare workers carry out procedures. Consideration must be given to providing these staff members with appropriate, individual PPE such as specific types of gloves, hand hygiene product and moisturising lotion.

## C3 - EDUCATION AND TRAINING

### Summary

- Education and training underpin efforts to integrate infection control practices into practice at all levels of every healthcare facility.
- Essential education for all healthcare workers should cover infection prevention and control work practices and their role in preventing the spread of infection, as part of undergraduate education, staff orientation and continuing professional development.
- Engaging patients and carers in their own healthcare is integral to effective infection control. All healthcare workers should be informed about the rights and responsibilities of patients and learn how to apply this understanding in the way that they deliver care.

## Teaching facilities

All healthcare workers need to understand the basis and importance of infection control. Up-to-date information on infection control basics, policy, procedures, quality assurance and incident monitoring should be included in the curriculum of all undergraduate and postgraduate courses in health-related areas.

Universities and training colleges also have an obligation to inform prospective students about the impact that particular infections may have on their ability to complete the course and engage in the full spectrum of clinical practice after graduation. This information should include advice about specific measures, including immunisation, that reduce the risk of acquiring infection.

## Healthcare facilities

Healthcare facilities should provide specific education and training for all healthcare workers and students about infection control principles, policies and procedures that are relevant to the facility. The aim is to inform and educate healthcare workers about the infectious hazards they will face during their employment, and their role in minimising the spread of infection to others. Special attention should be given to advice about hand hygiene. The role of clinical educators in providing this education needs to be supported, as they provide a vital link between teaching and health care facilities.

**At a minimum**, all staff (both clinical and non clinical) should be educated about:

- modes of transmission of infectious agents;
- risk identification, assessment and management strategies including transmission-based precautions;
- orientation to the physical environment;
- safe work procedures;
- correct use of standard precautions;
- correct choice and use of PPE;
- appropriate attire (shoes/hair/nails/jewellery);
- hand hygiene practices;
- levels of cleaning required for clinical areas and equipment;
- how to deal with spills;
- safe handling and disposal of sharps;
- reporting requirements of incidents such as sharps injuries and exposures;
- waste management; and
- patient confidentiality.

This information should be provided in the context of their roles in the organisation or practice, and with a focus on respecting and maintaining patient confidentiality at all times. It should be provided as part of their orientation, with periodic updates and refresher courses as required for their specific jobs.

Healthcare workers may also require job or task-specific education and training, such as:

- instrument cleaning and sterilisation competency testing;
- risks and prevention of MRO transmission.

Job-specific training should be provided as part of orientation, when new procedures affect the employee's occupational exposure, before rostering to hazardous areas and at a minimum, in annual refresher courses. Healthcare workers should be assessed to ensure that they are competent in using and consistently adhering to the specific infection control practice.

Healthcare facilities should maintain records of participation by healthcare workers in infection control education programs.

## Compliance and accreditation

### Auditing

Auditing of healthcare worker behaviour is important for surveillance and accreditation, and to reinforce positive signs of culture change within the facility. Auditing to measure compliance with infection control policies and procedures can occur through:

- direct observation;
- examining logs and register of specific activities (e.g. sterilisers); and
- monitoring use of PPE or hand hygiene products.

Timely feedback is a critical aspect of auditing.

## Patient engagement

Informing patients and carers about infection prevention strategies and taking their experience and feedback into account is pivotal to safe and effective clinical care. Patient engagement is not just about giving information, it is a process of informing, listening and interacting that gives patients the skills and knowledge to be actively involved in their own health care, give feedback and participate in quality improvement procedures.

Through open, respectful interactions with healthcare workers, patients and carers can be given information and support to ensure they receive care maintained in a safe environment.

Written material (such as brochures and posters) can be used to reinforce verbal discussions with patients as part of their care. Examples of useful instructional materials for patients and visitors include:

- recommended hand hygiene;
- respiratory hygiene/cough etiquette practices;
- the need for and application of transmission-based precautions; and

Patient engagement is especially important in the event of a gastroenteritis or influenza outbreak or entry into a ward that houses immunosuppressed patients.

## REFERENCES

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