RACGP
Royal Australian College
of General Practitioners

Infection prevention and control guidelines

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About these guidelines

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Potentially infectious microorganisms are ubiquitous in healthcare settings. Infection prevention and control measures aim to minimise the number of pathogenic microorganisms in the practice environment and prevent their transmission.

Aim

These guidelines provide general practices and other office-based healthcare practices with updated guidance on planning and implementing high standards of infection prevention and control in their workplaces.

Intended readers

These guidelines are intended mainly for owners, managers and staff of general practices and allied care practices.

How these guidelines were developed

These guidelines were developed and reviewed by experts in the fields of infectious diseases, microbiology and infection prevention and control as well as doctors, practice nurses and practice managers.

The guidance draws on the following key sources:

- The Royal Australian College of General Practitioners. Standards for general practices. 5th edition. East Melbourne, Vic: RACGP, 2020[1] (the Standards)
- National Health and Medical Research Council. Australian guidelines for the prevention and control of infection in healthcare (2019)[2]
- National Hand Hygiene Initiative manual (2019)[3]
- Communicable Diseases Network Australia. Australian national guidelines for the management of healthcare workers living with blood borne viruses and healthcare workers who perform exposure-prone procedures at risk of exposure to blood borne viruses (2019)[4]
- current standards applicable to Australian practice and draft new standards, where relevant.

This publication replaces RACGP *Infection prevention and control standards for general practices and other office-based and community-based practices*,[5] last updated in 2016.

Note on terminology:

In these guidelines, 'staff' includes all people who work or provide care within the practice, including employees and contractors (eg doctors, nurses, receptionists, practice managers, allied health professionals, administrative staff, cleaners including contract cleaners). 'Clinical staff' refers to health professionals (including doctors, nurses, Aboriginal health workers, and allied health care professionals).

'The Standards' refers to RACGP *Standards for general practices*.

Use of 'could', 'should' and 'must'

It is important to acknowledge that this resource is intended as a guideline to assist health professionals in general practices and other office-based and community-based practices in their implementation of infection prevention and control procedures. This means that practices are not accredited against Infection prevention and control guidelines, but may refer to them in meeting some criteria set out in the Standards.

Throughout these guidelines, the words 'could', 'should' and 'must' are used as follows:

- 'Could' is used to indicate that something is optional.
- 'Should' is used to indicate that something is strongly recommended by the RACGP and key sources from which the guidelines have drawn from (as listed above).
- 'Must' is used to indicate that something is mandatory.

References

1. The Royal Australian College of General Practitioners. Standards for general practices (http://https://www.racgp.org.au/your-practice/standards/standards-for-general-practices-(5th-edition) . 5th edn. East Melbourne: RACGP; 2020.
2. Australian Commission on Safety and Quality in Health Care, National Health and Medical Research Council. Australian guidelines for the prevention and control of infection in healthcare 2019 (http://https://app.magicapp.org/#/guideline/Jn37kn) (Version 11.12) [Website]: MAGICapp; 2022 [cited 2022 September].
3. Australian Commission on Safety and Quality in Health Care. National Hand Hygiene Initiative manual. Sydney, NSW: ACSQHC; 2019.
4. Communicable Diseases Network Australia. Australian national guidelines for the management of healthcare workers living with blood borne viruses and healthcare workers who perform exposure prone procedures at risk of exposure to blood borne viruses (https://www.health.gov.au/resources/collections/cdna-national-guidelines-for-healthcare-workers-on-managing-blood-borne-viruses) (revised 2019): Australian Government Department of Health; 2018 [cited 2022 March].
5. The Royal Australian College of General Practitioners. Infection prevention and control

standards for general practices and other office-based and community-based practices. 5th ed. East Melbourne, Victoria: RACGP; 2014.

Transmission of infection in health care

Transmission of infection in health care

Microorganisms that cause disease (bacteria, viruses, fungi including yeasts, protozoa, and prions) are transmitted and acquired in various ways. Some microorganisms need specific conditions to survive and multiply. For example, a certain temperature range, access to oxygen or protection from oxygen, and nutrients. When these conditions are met, they can multiply rapidly until killed/inactivated by the body's immune system, by antimicrobial treatment such as antibiotics or, if in the environment (for example, a floor or other surface), by chemical treatment such as disinfectant.

In healthcare settings, pathogenic microorganisms are acquired mainly through contact, droplet or airborne transmission (Table A. Modes of transmission (#tablea)).

Contact is a common mode of transmission in health care, usually via touch or contact with blood or body substances.

Droplet and airborne transmission are not distinctly separate modes; transmission through the air is now understood to apply to a continuum of particle sizes, from large droplets to smaller particles that dry and remain airborne for hours. Transmission via aerosols (suspensions of liquid or solid in air) spans droplet and airborne modes.

Table A. Modes of transmission

Mode	Description and typical scenarios	Examples
Contact	Microorganisms are transmitted by contact with contaminated body tissues or objects: • direct transmission – transfer from one person to another (eg from patient to health worker via contact between blood, secretions or excretions and unprotected cut on the skin) • indirect transmission (also called vehicle transmission) – transfer via a contaminated intermediate object (fomite) or person (eg via needles, equipment, contaminated surface or object, or hands after inadequate hand hygiene)	**Bacteria** • *Clostridioides difficile* (previously called Clostridium) Methicillin-resistant *Staphylococcus aureus* • Salmonella species • Vancomycin-resistant Enterococci • *Vibrio cholerae* (cholera) via contaminated water • Staphylococcus and Streptococcus species causing impetigo **Viruses** • Hepatitis B virus via contaminated multidose vial or needles • Monkeypox virus (direct or via fomites) • Norovirus • Rotavirus • SARS-CoV-2 (COVID-19) • Varicella-zoster virus **Parasites** • *Sarcoptes scabiei* (scabies)

Mode	Description and typical scenarios	Examples
Droplet	Large droplets (>5 micron) produced by an infected patient coughing/sneezing or through procedures (eg throat examination, suction, nebuliser use) can contact the mucous membranes (eyes, mouth and nose) of people within a 1-metre radius.	**Bacteria** • *Bordetella pertussis* (whooping cough) • *Neisseria meningitidis* (meningococcal infection) **Viruses** • Adenoviruses • Avian influenza viruses • Influenza • Monkeypox virus • Mumps virus • Norovirus • Rubella virus • Respiratory syncytial virus • SARS-CoV-1 • SARS-CoV-2 (COVID-19)
Airborne	Aerosols containing particles <5 micron produced by an infected patient coughing, sneezing, talking or breathing, or through procedures (eg suction, nebuliser use) can remain suspended in the air for long periods and can be dispersed in air currents. Pathogens can be transmitted when susceptible people inhale contaminated air.	**Bacteria** • *Mycobacterium tuberculosis* **Viruses** • Rubeola virus (measles) • SARS-CoV-1 • SARS-CoV-2 (COVID-19) • Varicella-zoster virus
Vector	Microorganisms are introduced by another organism, such as an arthropod (eg mosquito, flea or tick) or rodent	**Unicellular parasite** • Plasmodium (malaria) **Bacteria** • *Borreliosis* (relapsing fever) **Viruses** • Japanese encephalitis virus • Ross River virus

SARS-CoV-1: severe acute respiratory syndrome coronavirus 1; SARS-CoV-2: severe acute respiratory syndrome coronavirus 2, the causal organism of coronavirus disease 2019 (COVID-19).

Some common microorganisms can be transmitted in multiple ways. For example, measles transmission is via airborne and droplet modes as well as direct contact with infected nasal or throat secretions and by indirect contact. Influenza and COVID-19[1] are spread by contact, droplet and airborne transmission.

Whether transmission of microorganisms causes clinical infection depends on the pathogenicity of the microorganism (ie its ability to cause disease) and the susceptibility of the person exposed. Other factors that affect risk of infection include the number of microorganisms transmitted (the dose) and contact with a cell type in which the microorganism can replicate (target cells).

Some people may become colonised by a potentially pathogenic microorganism but remain asymptomatic, and may become carriers who can transmit these microorganisms to others.

Resident microorganisms on skin, mucous membranes or in the gastrointestinal tract, which are normally harmless, can occasionally cause infection in the host individual (endogenous infection). This can occur due to:

- transfer from one part of the body to another (eg *Escherichia coli* from the gastrointestinal tract can cause urinary tract infection.)
- interruption of normal defences (eg a skin wound can become infected by resident skin flora such as *Staphylococcus aureus*.)

Infection prevention and control in office-based healthcare practices aims to prevent contact, droplet and airborne transmission of infections.

Resources

Australian Commission on Safety and Quality in Health Care resources supporting Australian Guidelines for the Prevention and Control of Infection in Healthcare (https://www.safetyandquality.gov.au/our-work/infection-prevention-and-control/australian-guidelines-prevention-and-control-infection-healthcare)

Basics of infection prevention and control (https://app.magicapp.org/#/guideline/Jn37kn/section/jllVxj) . In: NHMRC. Australian guidelines for the prevention and control of infection in healthcare (https://app.magicapp.org/#/guideline/Jn37kn) (2019)

1. Principles

Overview – Principles

Overview – Principles

All staff members are involved in the practice's infection prevention and control program (see Criterion GP4.1 – Infection prevention and control, including sterilisation (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/general-practice-standards/gp-standard-4/criterion-gp4-1-infection-prevention-and-control-i) in the Standards).

Infection prevention and control in health care is based on:

- risk assessment and planning
- establishing policies for maintaining infection prevention and control procedures, including systematically applying the appropriate level of precautions for any situation
- education and training for all staff to implement infection prevention and control effectively and consistently.

The practice's infection prevention and control processes must be supported by up-to-date evidence and understanding of the rationale for recommended processes. Staff can keep up to date by using education and training resources (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/1-principles/education-and-training) and through information provided by infectious disease authorities (see Links (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/links)).

Essential infection prevention and control processes include:

- hand hygiene (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/2-hand-hygiene/overview)
- respiratory hygiene and cough/sneeze etiquette (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/5-levels-of-precaution/overview)
- use of personal protective equipment (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/3-personal-protective-equipment/overview)
- staff screening, immunisation, and infection management (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/6-staff-screening-immunisation-and-infection-manag/overview)
- aseptic technique (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/4-aseptic-technique/overview)
- sharps management (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/7-sharps/overview)
- specific precautions against relevant modes of transmission (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/5-levels-of-precaution/overview)
- cleaning, laundry and waste management (https://www.racgp.org.au/running-a-practice/practi

ce-standards/racgp-infection-prevention-and-control-guidelines/9-cleaning-laundry-and-waste-management/overview)

- reprocessing reusable medical devices (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/10-reprocessing-reusable-medical-devices/overview)
- managing exposure to blood and other body substances (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/8-exposure-to-blood-and-other-body-substances/overview)
- disease surveillance and outbreak response. (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/11-disease-surveillance-and-outbreak-response/overview)

Risk assessment and planning

Risk assessment and planning

Infection prevention and control is part of the practice's risk management, so the general principles of risk management apply. Managing risk:

- is part of every organisation's governance and leadership
- affects all activities, and involves factors inside and outside the organisation, including human behaviour
- must be incorporated into all levels of the organisation, including infrastructure and building maintenance, administration, equipment, and work processes according to the 'hierarchy of controls' framework.

The hierarchy of controls model for assessing and managing risk ranks risk management strategies from the most effective and reliable to the least (Figure 1.1. Hierarchy of controls – infection prevention and control in general practice (#figure11)). Risk management plans must use the most effective controls, where possible.

The practice's risk management plan must include assessment and management of infection risk, including within the practice and off-site as relevant , such as during home visits (see Criterion C3.2 – Accountability and responsibility (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/core-standards/core-standard-3/criterion-c3-2-accountability-and-responsibility) in the Standards). The practice could perform regular infection prevention and control risk assessments to identify infection risks, estimate their probability and identify potential consequences.

A risk matrix can be used to calculate risk level of various situations and events (Table 1.1. Sample risk matrix (#1.1)). Identified risks are managed through education, training and redesign of work practices.

Infection prevention and control policies must be developed, clearly documented, and available to all staff members.

The environmental impact of infection prevention and control processes can be considered during planning. Practices can consider choosing options that reduce this impact.

Figure 1

Hierarchy of controls – infection prevention and control in general practice

PPE: personal protective equipment The hierarchy of control ranks strategies from most effective (removal of the hazard) to least effective (use of personal protective equipment). The listed actions at each level are selected examples only. Source: Adapted from NIOSH (2015)[2]

Table 1.1. Sample risk matrix

Likelihood	Consequences				
	Insignificant	Minor	Moderate	Major	Catastrophic
Almost certain	Medium	High	High	Extreme	Extreme
Likely	Medium	Medium	High	High	Extreme
Possible	Low	Medium	Medium	High	High
Unlikely	Low	Low	Medium	Medium	High
Rare	Low	Low	Low	Medium	Medium

Low risk	Manage by routine procedures.
Medium risk	Manage by specific monitoring or audit procedures.

High risk	**High and extreme risks are serious and must be immediately addressed. The significance and impact of such risks, should they occur, along with their likelihood of occurring, must be addressed in the context of the practice's existing strategies and controls.**
Extreme risk	

Source: Adapted from NHMRC (2019)[3]

More information: step-by-step risk planning guide

Systematically assessing the risk of cross-infection

Practices need to repeatedly reassess and manage risk as circumstances change. The broad steps are as follows:

1. Communicate and consult (#1) .
2. Establish the context (#2) .
3. Identify risks (#3) .
4. Analyse risks and evaluate risks (#4) .
5. Manage risks and identify potential safeguards (#5) .
6. Monitor and review (#6) .
7. Record key information (#7) .

Step 1. Communicate and consult

Ongoing communication with all practice staff is important to keep people informed and to identify emerging risks.

Owners, managers and infection prevention and control coordinators (racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/1-principles/risk-assessment-and-planning#ipc_coordinator) need to develop a culture that encourages and supports staff members to identify risks and report them.

Step 2. Establish the context

The nature and size of the risks of (cross-) infection depend on the context in which the practice operates.

Relevant factors may include:

- access or lack of access to an infectious diseases unit
- infrastructure in the local community that effects patients' ability to maintain good hygiene
- current local or national disease outbreaks
- the types of procedures performed in the practice
- whether the practice uses disposable equipment (such as instruments) or reusable medical devices that require reprocessing on site or off site
- staff members' level of training and experience in infection prevention and control
- financial constraints affecting the quality of equipment, availability of labour or conduct of infection prevention and control protocols.

Step 3. Identify risks

The practice needs to make a comprehensive list of the sources of risk, and the events that might prevent, delay or increase the achievement of effective management of the risk of (cross-) infection. This could be incorporated into the practice's work health and safety hazard identification and risk-control processes.

This involves infection risk in three areas:

- What can happen? – consider the range of activities undertaken in the practice and any associated risks
- When and where? – look around the practice building and consider risks in each area (waiting area, treatment room, consulting rooms, reprocessing area, waste area). Consider vulnerable patients such as unimmunised neonates and immunocompromised people.
- How and why? – consider any previous incidents or near-misses. Common sources of cross-infection in general practices and other office-based practices include poor ventilation or poor respiratory hygiene/cough etiquette by patients or staff. Less common events include failure of the sterilisation process.

Step 4. Analyse and evaluate risks

Generally, there are two dimensions to consider:

- magnitude of impact of an infection prevention and control incident
- the probability of the event occurring and the probability of various potential consequences of the event.

A risk matrix (Table 1.1. Sample risk matrix (racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/1-principles/risk-assessment-and-planning)) can be used to map identified risks and consequences.

The practice must determine which risks have mitigation strategies in place and are determined by risk assessment to be 'controlled'.

The practice then needs to determine which infection prevention and control strategies will make the most impact on the identified high-priority risks.

Step 5. Treat risks and identify potential safeguards

Most practices have existing policies, procedures and equipment that can assist in providing safeguards against error. Despite this, a reassessment of the situation (for example, after a 'near miss') can identify vulnerabilities in these systems and processes.

Start with the potential solutions/safeguards that are easy to do and expected to have a high impact (for example, repositioning sharps containers at point of use, placing alcohol-based handrub in all patient care areas to improve hand-hygiene compliance and reduce the risk of cross-infection).

Then work through strategies that are more complex or more difficult to implement.

Step 6. Monitor and review

The infection prevention and control coordinator must keep up to date with local infection outbreaks (see Disease surveillance and outbreak response (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/11-disease-surveillance-and-outbreak-response/overview)).

The team member conducting infection prevention and control risk assessment and management should also stay informed of staff members' and patients' actual day-to-day behaviour.

Set up systems to monitor and review behaviour among staff members, such as regular infection prevention and control audits, recording and reviewing the results of the sterilisation cycle, or including infection prevention and control as a discussion point in a clinical meeting after changes to policy. For example, strategies for monitoring staff members' adherence to hand-hygiene protocols might include direct observation, and monitoring the volume of hand-hygiene products used over a period of time.

Breaches in infection prevention and control procedures must be reported to the person in the practice who has the responsibility to investigate them (and report to public health authorities, if required). All breaches must be followed up and appropriate measures taken to minimise the risk of recurrence (see Criterion QI3.1 – Managing clinical risks in the Standards (https://racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/core-standards/core-standard-3/criterion-c3-2-accountability-and-responsibility)). Failure to act may also be considered a breach.

Step 7. Record key information

When setting up a system for recording information relevant to infection prevention and control risk assessment and management in the practice, the practice needs to determine which are is useful and how it will be used.

Documentation of performance indicators might serve as a baseline for assessing the effectiveness of infection prevention and control systems.

An incident log of breaches and near-misses might be useful for feedback and training, to improve systems. However, any recorded data may be used in legal proceedings.

RACGP's Clinical risk management in general practice (https://racgp.org.au/running-a-practice/practice-management/general-practice-governance/clinical-risk-management) provides guidance on risk management, including on medicolegal risk.

Role of the infection prevention and control coordinator

The practice should appoint an infection prevention and control coordinator, ❗ whose roles include:

- assessing the risks of infection transmission throughout the practice
- drafting and finalising infection prevention and control policies and protocols for the practice
- regularly reviewing the infection prevention and control protocols and implementing changes in response to identified risks
- organising training and education for the entire staff about infection prevention and control protocols and assessing competence
- monitoring compliance with practice infection prevention and control protocols
- educating patients on infection prevention and control activities
- monitoring patients' infection prevention and control activities
- ensuring that any contractors (including cleaners, electricians, IT support) who may access premises during or after hours comply with the practice infection prevention and control protocols
- staying up to date with emerging risks (multi-resistant organisms, epidemics) by monitoring state and national infection surveillance reports.

The infection prevention and control coordinator needs to be motivated and willing to accept the position and subsequently adequately educated, trained and competent to undertake this role and its associated responsibilities. The practice needs to ensure that the nominated staff member is provided with any technical training necessary to attain and maintain competency.

Legal responsibilities

Employers and managers have a responsibility under work health and safety laws to protect staff from injury at work. This includes injury to health from infections acquired in the workplace.

Employers must include infection prevention and control in the practice's work health and safety policy and procedures under work health and safety legislation. Each practice must have written practice policies and procedures covering all aspects of infection prevention and control.

Healthcare workers who perform procedures with a risk of exposure to blood-borne viruses may be required to undergo interval testing, and those with a known blood-borne viral infection may have monitoring and reporting requirements under public health legislation in their jurisdiction.[4]

In implementing infection prevention and control measures, employers of healthcare workers must comply with relevant public health, antidiscrimination, privacy, industrial relations and equal employment opportunity legislation in their jurisdiction.

Education and training

Education and training

All staff must be educated about their role in preventing the spread of infection. Education includes teaching the principles of infection prevention and control, training to perform infection prevention and control protocols correctly, and assessing competency. Such education begins at employee orientation/induction and continues as new information becomes available (eg notification of a disease outbreak).

All staff must:

- understand relevant infection risks and modes of transmission of common pathogens
- know when personal protective equipment is required and what type
- know who is responsible for ensuring that essential procedures (eg environmental cleaning) are performed and be aware of the cleaning schedule
- know what to do if there is an accident or incident that risks exposure to infection.

Key components of education on infection prevention and control

All staff must be trained in the following competencies, and demonstrate competency within a reasonable time after starting their duties at the practice:

- hand hygiene
- respiratory hygiene and cough/sneeze etiquette
- when and how to perform the appropriate level of precautions (standard precautions and transmission-based precautions)
- selection and use of personal protective equipment
- aseptic technique
- managing blood and body substance spills
- managing blood or body substance exposure (appropriate to their role)
- principles of environmental cleaning and reprocessing reusable medical devices (appropriate to their role)
- where to find information on other aspects of infection prevention and control in the practice.

Training must be provided during staff induction, within three months of commencement. Until the staff member has demonstrated competency, tasks must be done under supervision, where appropriate.

Documentation

The infection prevention and control coordinator should assess and record staff members' infection prevention and control education and competency (Table 1.2. Sample staff competency record for infection prevention and control (#1.2)). Ongoing auditing of competences and education may also be useful to identify training needs.

Practice employers could maintain a register of staff training and task competences in infection prevention and control, appropriate to the level required by the staff member's position.

Table 1.2. Sample staff competency record for infection prevention and control Download a sample staff competency record for infection prevention and control document (https://www.racgp.org.au/getmedia/1bf0f5f2-81d7-4e45-abde-294bed4edd37/RACGP-Template-Staff-competency-record-for-infection-prevention-and-control.docx.aspx)

Training, knowledge and competency	Staff member		Competent Y/N	Date checked	Staff checker*	Date for re-check (if applicable)
	Name	Job role				
General						
Hand hygiene						
Respiratory hygiene and cough etiquette						
Use of appropriate personal protective equipment (including fit-checking mask)						
Fit-testing masks						
Aseptic technique						
Safe use and disposal of sharps						
Waste management						
Linen handling and laundry processes						

Transmission-based precautions						
Management of blood/other body substance spills						
Management of exposure to blood/other body substances						
Appropriate use of detergent and/or disinfectants products						
Routine environmental cleaning						
Reprocessing reusable medical devices and equipment						
Transportation						
Pre-treatment (manual and ultrasonic)						
Cleaning (manual, automatic washer-disinfector), drying, assembly/ inspection						
Packaging						
Loading steriliser						

Monitoring sterilisation cycle						
Unloading steriliser						
Storage						
Recording cycle						

*Practice to nominate an appropriate member of staff who can sign off on staff members' competency (for example, infection prevention and control coordinator)

Education and training resources

Sources of staff education and training in infection prevention and control include:

- The Royal Australian College of General Practitioners
- the Australian Primary Health Care Nurses Association (https://www.apna.asn.au/)
- The National Hand Hygiene Initiative (https://www.safetyandquality.gov.au/our-work/infection-prevention-and-control/national-hand-hygiene-initiative)
- Communicable Diseases Network Australia (CDNA) (https://www.health.gov.au/committees-and-groups/cdna)
- Australian Government Department of Health and Aged Care, including current COVID-19 infection control training
- local Primary Healthcare Networks
- Accreditation Agencies (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/accreditation/accreditation-agencies) approved under the National General Practice Accreditation Scheme (https://www.safetyandquality.gov.au/our-work/primary-health-care/national-general-practice-accreditation-scheme) (check with your agency to see if they have education and training available)
- Australasian College for Infection Prevention and Control (https://www.acipc.org.au/education/) (education and credentialling)
- professional infection control experts offering customised training
- postgraduate education (eg graduate certificates, diplomas and higher degrees in infection prevention and control).

Clinical handover

Clinical handover

Practices must develop and implement a structured system for clinical handover (within or beyond the practice), including documented policies and protocols relevant to infection prevention and control.

If a patient needs to be transferred from the practice to the emergency department (eg by ambulance), clinical staff must alert the hospital about any infection risk, such as colonisation by multi-resistant organisms.

Antimicrobial stewardship to reduce opportunities for antimicrobial resistance

Antimicrobial stewardship to reduce opportunity for antimicrobial resistance

Resistance to antimicrobials is commonly found in Australian healthcare facilities and the community. Unnecessary or inappropriate use of antimicrobials is an important cause of antimicrobial resistance.

Appropriate antimicrobial use involves prescribing according to evidence-based guidelines, selecting drug choice, indication, dose and duration to optimise clinical outcomes and minimise adverse consequences (including antimicrobial resistance, toxicity and unnecessary costs). High rates of inappropriate prescribing have been identified in Australian general practices.[1]

Infection prevention and control measures such as hand hygiene assist in reducing emergence of antimicrobial resistance, along with targeted measures such as following prescribing guidelines. Practices could consider participating in education and audit-and-feedback programs on appropriate antibiotic prescribing.

Antimicrobial stewardship involves collaboration between general practices, pharmacists and other clinicians.[2]

NPS MedicineWise collates expert recommendations on antibiotic choices for a range of conditions (https://www.choosingwisely.org.au/recommendations) .

Managing risk in special circumstances

Managing risk in special circumstances

Sometimes a staff member may have a higher risk of exposure to infection, serious outcomes if exposed, or of transmitting an infectious disease.

Immunocompromised health professionals and staff

People with immune deficiencies (eg due to skin conditions, cystic fibrosis, blood-borne viruses, neutropenia, cancer treatment, HIV) are at increased risk of acquiring infections.

Management and health professionals need to decide on the type of employment that will minimise these staff members' exposure risk.

Staff with skin conditions

Staff with damaged skin or weeping skin conditions (eg allergic eczema, psoriasis or exfoliating dermatitis) may be at risk of acquiring and transmitting infections.

When healthcare workers begin employment they should be screened for skin conditions (for example, by asking about any relevant skin conditions) and informed about the risk to patients and to themselves. Damaged skin must be appropriately covered before performing procedures with patients. Special gloves, hand hygiene products or moisturiser may be needed.

Staff with cystic fibrosis

Cystic fibrosis may increase the risk of cross-infection between staff and patients. The degree of risk to patients depends on disease severity, frequency of coughing and respiratory pathogens present.

National guidelines[3] recommend that healthcare workers with cystic fibrosis do not work with patients or other healthcare workers who also have cystic fibrosis.

Health professionals with self-limiting infections

All staff members with signs and symptoms of an infectious disease (eg gastroenteritis, varicella, acute respiratory illness) should be excluded from the workplace until they are no longer infectious. Specified isolation periods may apply for notifiable diseases (eg COVID-19, influenza).

If a health professional or administrative staff member has been exposed to an infectious disease they must be referred for medical advice, appropriate testing and consideration of post-exposure prophylaxis, if available.

Staff with blood-borne viruses

Healthcare workers infected with a blood-borne virus (eg hepatitis B, hepatitis C or HIV) who perform procedures in which there is an increased risk of transmission to patients (exposure-prone procedures) must be under the care of a medical practitioner with relevant expertise and comply with national guidelines[4] and relevant legislation in their jurisdiction. Depending on viral load, the health worker may need to restrict duties (refer to guidelines by The Medical Board of Australia and The Australian Health Practitioner Regulation Agency).[5]

The practice must provide appropriate infection control measures for the staff member to work safely. It should support the staff member through training and counselling, and could offer retraining/ redeployment, if required.

Pregnant staff

Pregnant health professionals or administrative staff members may be at risk of contracting an infectious disease associated with special risk during pregnancy (eg influenza, rubella, varicella, cytomegalovirus or parvovirus) while at work. They should be advised to confirm their natural immunity/ immunisation status for relevant infections and to take appropriate precautions as necessary.

Resources and references

Resources and references

Resources

Basics of infection prevention and control (https://app.magicapp.org/#/guideline/Jn37kn/section/jllVxj) . In: NHMRC. Australian guidelines for the prevention and control of infection in healthcare (https://app.magicapp.org/#/guideline/Jn37kn) (2019)

Antimicrobial stewardship programs (https://app.magicapp.org/#/guideline/Jn37kn/section/LrwAWn) . In: NHMRC. Australian guidelines for the prevention and control of infection in healthcare (https://app.magicapp.org/#/guideline/Jn37kn) (2019)

NPS MedicineWise. Reducing antibiotic resistance (https://www.nps.org.au/professionals/reducing-antibiotic-resistance)

Choosing Wisely Australia recommendations on antibiotic use (https://www.choosingwisely.org.au/recommendations?medicineTreatment=2854)

RACGP. Clinical risk management in general practice (https://www.racgp.org.au/running-a-practice/practice-management/general-practice-governance/clinical-risk-management)

Australian Health Practitioner Regulation Agency (Ahpra) Good medical practice: a code of conduct for doctors in Australia (https://www.medicalboard.gov.au/codes-guidelines-policies/code-of-conduct.aspx)

Australian Health Practitioner Regulation Agency (Ahpra) Code of conduct for nurses (https://www.nursingmidwiferyboard.gov.au/Codes-Guidelines-Statements/Professional-standards.aspx)

Paramedicine Board. Ahpra Guidelines: Registered health practitioners and students in relation to blood-borne viruses (https://www.paramedicineboard.gov.au/News/2020-06-23-blood-borne-viruses.aspx)

Relevant Australian standards

Royal Australian College of General Practitioners. GP Standard 4. Criterion GP4.1 – Infection prevention and control, including sterilisation (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/core-standards/core-standard-4/criterion-c4-1-health-promotion-and-preventive-car) . In: Standards for general practices (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/table-of-contents) . 5th Edition. East Melbourne, Vic: RACGP, 2020.

AS ISO 31000:2018: Risk management – Guidelines

AS/NZS IEC 31010:2020: Risk management – Risk assessment techniques

References

1. Australian Commission in Safety and Quality in Health Care (ACSQHC). AURA 2021: fourth Australian report on antimicrobial use and resistance in human health. Sydney: ACSQHC; 2021.
2. Saha SK, Kong DCM, Thursky K, et al. Development of an antimicrobial stewardship implementation model involving collaboration between general practitioners and pharmacists: GPPAS study in Australian primary care. Prim Health Care Res Dev 2021; 22: e2.
3. National Health and Medical Research Council. Australian guidelines for the prevention and control of infection in healthcare (2019) (https://www.nhmrc.gov.au/about-us/publications/australian-guidelines-prevention-and-control-infection-healthcare-2019) . Version 11.12 Updated March 2022. Canberra: National Health and Medical Research Council; 2019 [Accesed 29 September 2022].
4. Communicable Diseases Network Australia. Australian national guidelines for the management of healthcare workers living with blood borne viruses and healthcare workers who perform exposure prone procedures at risk of exposure to blood borne viruses (https://www.health.gov.au/resources/collections/cdna-national-guidelines-for-healthcare-workers-on-managing-bloodborne-viruses) (revised 2019): Australian Government Department of Health; 2018 [Accessed 31 March 2022].
5. The Medical Board of Australia, The Australian Health Practitioner Regulation Agency. Guidelines: Registered health practitioners and students in relation to blood-borne viruses: Medical Board of Australia and AHPRA; 2020 (http://www.medicalboard.gov.au) . [Accessed 29 September 2022].

2. Hand hygiene

Overview – Hand hygiene

Overview – Hand hygiene

The spread of infection is reduced by effective hand hygiene. Gloves are not a substitute for hand cleaning.

The use of alcohol-based handrub is now recommended for routine hand hygiene for dry, visibly clean hands, except after using the toilet, before handling or eating food/drink, or when norovirus or *Clostridioides difficile* is present or suspected – antimicrobial soap is recommended in these instances.

Note: When *Clostridioides difficile* is present or suspected, alcohol-based handrub can be used in place of soap if gloves are put on after using handrub.

Hand-hygiene facilities must be readily accessible to patients and staff and installed in or near all patient management areas including treatment areas and consulting areas.

Hand-hygiene products must be correctly selected to achieve adequate cleaning and disinfection.

If hands are washed with soap and water, they must be thoroughly dried using paper towels (for routine hand hygiene and before standard aseptic procedures) or sterile paper towels (before surgical aseptic procedures).

All staff must be educated on effective hand hygiene and hand care.

Practices could also encourage patients to practise good hand hygiene, for example by displaying posters in waiting areas.

The National Hand Hygiene Initiative (https://www.safetyandquality.gov.au/our-work/infection-prevention-and-control/national-hand-hygiene-initiative) provides information and resources, including education.

Role of hand hygiene in infection prevention and control

Role of hand hygiene in infection prevention and control

Many respiratory and gastrointestinal infections (eg influenza and gastroenteritis) can be transmitted by hands. Consistent use of effective measures to reduce transmission of microorganisms from hands is an essential element of all infection prevention and control policies.

Microorganisms can be transmitted by healthcare workers' hands during patient care. Improved hand hygiene can reduce healthcare-associated infections, including those with multi-resistant microorganisms.

Objects and surfaces that patients touch (eg pens, chairs, and door handles) are potential sources of infection. Toys and reading materials (eg magazines and books) may act as fomites (ie part of the chain of transmission of infection), so they should not be provided in practices (including waiting areas and consulting rooms).

Encouraging patients to follow effective hand hygiene practices can decrease microorganism transfer and the risk of healthcare-associated infection.

Methods of hand hygiene suitable for healthcare practices include use of alcohol-based handrubs, washing with neutral liquid soap, and washing with antimicrobial liquid soap, depending on the situation (Table 2.1. Methods of hand hygiene (#2.1)). The use of alcohol-based handrub is now recommended for routine hand hygiene of visibly clean hands, except after using the toilet, before handling or eating food/drink, or when norovirus is present or suspected. Gloves are not a substitute for hand hygiene.

Practices could assess appropriate moments for patient hand hygiene and provide suitable facilities, such as alcohol-based handrubs at the reception desk and in the waiting room.

Table 2.1. Methods of hand hygiene

Level of hygiene	Technique	Duration of contact with cleansing product	Drying	When
Routine hand cleaning for hands	**Alcohol-based rub method:** 1. Check hands are dry and not visibly soiled. If visibly soiled, use soap and water method. 2. Apply alcohol-based handrub, using the volume recommended in product information. 3. Rub vigorously over all surfaces of hand, as when washing hands, ensuring solution contacts all surfaces of the hand. Pay particular attention to fingertips, thumbs, and areas between fingers. 4. Keep rubbing until hands are completely	20–30 seconds until dry ❗	Rub hands until dry, without wiping	Arriving/leaving work Entering/leaving clinical areas Before using computer keyboard or device screens in clinical areas Before and after patient contact when hands are not visibly soiled Before putting on gloves and after removing gloves After touching objects (eg equipment, items around the patient, keyboard, device screens) and the patient environment.

Level of hygiene	Technique	Duration of contact with cleansing product	Drying	When
	dry.			
	Soap and water method: 1. Wet hands under tepid water. 2. Apply plain liquid soap, using the volume recommended in product information. 3. >Rub hands together, ensuring solution contacts all surfaces of the hand. Pay particular attention to fingertips, thumbs, and areas between fingers. 4. Rinse thoroughly. 5. Use paper towel to turn off tap (if not hands-free tap). 6. Pat hands dry with single-use towels.	20 seconds minimum	Paper towel	As for alcohol-based handrub In addition: Before handling food or drink After going to the toilet When hands are visibly soiled

Level of hygiene	Technique	Duration of contact with cleansing product	Drying	When
Standard aseptic (clinical) procedures	**Alcohol-based rub method:** 1. Check hands are dry and not visibly soiled. If visibly soiled, use soap and water method. 2. Apply alcohol-based handrub, using the volume recommended in product information. 3. Rub vigorously over all surfaces of hand, as when washing hands, ensuring solution contacts all surfaces of the hand. Pay particular attention to fingertips, thumbs, and areas between fingers. 4. Keep rubbing until hands are completely	20–30 seconds until dry ❗	Rub hands until dry, without wiping	Before any procedures that require a 'no-touch' technique

Level of hygiene	Technique	Duration of contact with cleansing product	Drying	When
	dry.			
	Liquid antimicrobial cleanser method: 1. Wet hands under tepid water. 2. Apply plain liquid soap, using the volume recommended in product information. 3. Rub hands together, ensuring solution contacts all surfaces of the hand. Pay particular attention to fingertips, thumbs, and areas between fingers. 4. Rinse thoroughly. 5. Use paper towel to turn off tap (if not hands-free tap). 6. Pat hands dry with single-use towels.	20 seconds minimum	Paper towel	

Level of hygiene	Technique	Duration of contact with cleansing product	Drying	When
Surgical aseptic procedures	**Surgical handrub method:** ❗ 1. Remove jewellery. Check hands are dry and not visibly soiled. If visibly soiled, use soap and water method. 2. Apply alcohol-based handrub, using the volume recommended in product information. 3. Rub vigorously over all surfaces of hand, as when washing hands, ensuring solution contacts all surfaces of the hand. Pay particular attention to fingertips, thumbs, and areas between fingers. 4. Keep rubbing until hands	Follow manufacturer's directions		Before surgical procedures

Level of hygiene	Technique	Duration of contact with cleansing product	Drying	When
	are completely dry.			

Level of hygiene	Technique	Duration of contact with cleansing product	Drying	When
	Liquid antimicrobial cleanser method: 1. Remove jewellery. 2. Wet hands and forearms. 3. Wash with antimicrobial cleanser (4% chlorhexidine or 0.75% detergent-based povidone or 1% aqueous povidone). 4. Clean under nails only if needed with a nail pick (do not scrub hands with nail brush as they can break the skin and be a source of infection). 5. Rinse carefully, keeping hands above elbows. 6. Ask another staff member to turn off taps or use sterile towel (if not hands-free tap).	20 seconds minimum ❗	Sterile disposable paper towels or Sterile linen towels	

When hands must be cleansed

When hands must be cleansed

Hands must be cleansed (following standardised procedures for hand hygiene) before and after every episode of patient contact and after activities that may cause contamination. These include:

- before and after eating
- before and after routine use of gloves
- after handling any used medical devices (eg instruments or equipment)
- after going to the toilet
- when visibly soiled or perceived to be soiled
- before and after every procedure
- before and after any contact with patients.

5 moments for hand hygiene

'5 moments for hand hygiene' (Table 2.2. The 5 moments of hand hygiene (#2.2)) is a simple strategy developed by the World Health Organization and adopted by the National Hand Hygiene Initiative to:

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

Table 2.2. The 5 moments of hand hygiene

1. Before touching a patient 2. Before a procedure 3. After a procedure or body substance exposure risk 4. After touching a patient 5. After touching a patient's surroundings.

Source: National Hand Hygiene Initiative[1]

Facilities for hand hygiene

Facilities for hand hygiene

Hand hygiene facilities (alcohol-based handrub dispensers or sinks) must be provided in all examination and treatment areas and in or close to toilets.

Alcohol-based handrub should be provided in disposable cartridges with disposable nozzles, designed for hands-free dispensing. Refillable dispensers must not be used. Alcohol-based handrub should not be placed near a sink, but at point of care and other work areas such as workstations in a reprocessing room.

When building new premises or upgrading existing premises, consider installing hands-free or elbow-operated taps for handwashing, where required. Paper towel dispensers must be installed at sinks.

When working offsite, use alcohol-based handrub.

Hand-hygiene products

Hand-hygiene products

The person with the designated responsibility for infection prevention and control needs to consider:

- the level of hand-hygiene and corresponding handwashing routines required in each area
- compatibility of agents used to clean, wash and condition hands
- hand care – hand-hygiene products containing moisturisers and emollients to protect the hands are usually required, as supermarket-bought products designed for intermittent domestic use may dry the skin.
- safety issues (eg alcohols are flammable and may also cause irritation if splashed into the eyes)
- whether all hand-hygiene products are chemically compatible. Practices can consider choosing hand-hygiene products and hand-care products from a range developed by the same manufacturer and formulated for chemical compatibility.

An alcohol-based handrub product is generally preferred to antimicrobial cleanser/soap for aseptic hand hygiene when hands are visibly clean.

The practice's policy and procedure manual could include specifications and locations of hand-hygiene facilities and protocols, for the benefit of new staff.

> ⚠ Cleaning hands with plain liquid hand soap or detergent wipes, followed by alcohol-based handrub (as recommended in the past), is now not generally recommended due to increasing risk of skin irritation/allergy, particularly if products are not chemically compatible.

Alcohol-based handrubs

Alcohol-based handrubs (liquid or gel) are designed to be used without water. They should be used in preference to soap and water for hand hygiene, except when hands are visibly soiled, after using the toilet, before handling food or eating, when the presence of norovirus (or any pathogen resistant to alcohol) is known or suspected.

Hands must be dry before using alcohol-based handrub.[1]

When used correctly, alcohol-based handrubs designed for routine hand hygiene or surgical hand hygiene are more effective than plain soap or antimicrobial soap and water against many pathogenic microorganisms on hands.

For routine hand-hygiene, use alcohol-based rubs with an alcohol concentration of between 60% and 80% volume per volume ethanol or equivalent and meet the current relevant standard (https://standards.iteh.ai/catalog/standards/cen/56eceb9b-1eb4-4497-ac65-4472bee8c162/en-1500-2013) for bactericidal effect of hygienic handrub.

For surgical hand hygiene, use an alcohol-based handrub intended for presurgical hand antisepsis and registered by Therapeutic Goods Administration for that purpose, to ensure it meets the current relevant standard (https://standards.iteh.ai/catalog/standards/cen/5e2be93c-7bc3-4676-bd8a-181db6f1ea52/en-12791-2016a1-2017) for surgical hand disinfection.

Alcohol-based rubs should be placed at the point of care and also accessible in all areas of the practice, including at reception, to encourage use by administrative staff and patients as well as health professionals. They are also suitable for offsite use (eg during home visits).

Practices must use only products that are approved by the Therapeutic Goods Administration for use as hand hygiene products for healthcare settings. Other alcohol-based handrubs or hand washes marketed as sanitisers for general consumer use are not appropriate for use in clinical settings.

Alcohol-based handrubs must always be used according to product directions.

Liquid hand-cleansers/soaps

Washing with liquid cleansers is recommended when hands are visibly soiled, after using the toilet, before handling food of eating, or when the presence of norovirus (or any pathogen resistant to alcohol) is known or suspected. These also facilitate mechanical removal of microorganism spores.

Liquid hand cleansers can contain plain soap with moisturiser and emollient (used for routine hand hygiene), or also contain antimicrobial agents such as chlorhexidine or povidone-iodine (used for hand hygiene before surgical aseptic procedures). Skin problems can develop with routine use of antimicrobial soaps. They are not required for routine hand hygiene.

People using chlorhexidine products can develop skin reactions and/or hypersensitivity. If a staff member has an allergy to chlorhexidine, an alternative antimicrobial product, such as povidone-iodine, could be considered. It is also possible that the use of chlorhexidine (as for other disinfectants) in health care might lead to antimicrobial resistance,[2] although the mechanism and level of risk is not well understood.[3]

Dispensers

A dispenser with an integrated disposable container and dispensing nozzle is recommended when liquid hand-cleaning agents are used. When empty, the whole unit (container and nozzle) must be safely discarded. Refillable pump containers must not be used in healthcare facilities due to the risk of contamination.

Alcohol-based handrub dispensers should not be placed near heat sources and electric motors.

Soap bars

Bar or cake soaps can harbour microorganisms when left wet. They must not be used in general practices and other office-based practices.

Hand hygiene technique

Hand hygiene technique

Technique using alcohol-based handrub

Correct use of alcohol-based handrub involves dispensing the volume of handrub recommended in the product information, rubbing vigorously over all surfaces of hands, and continuing to rub until hands are completely dry (eg 20–30 seconds) (Table 2.1. Methods of hand hygiene (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/2-hand-hygiene/role-of-hand-hygiene-in-infection-prevention-and-c#2.1)).

Technique using liquid hand cleansers

Correct use of liquid handwash or liquid antimicrobial cleanser involves wetting hands under tepid water, dispensing the volume of handrub recommended in the product information, rubbing vigorously over all surfaces of hands (minimum of 20 seconds), rinsing thoroughly, and patting hands dry (Table 2.1. Methods of hand hygiene (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/2-hand-hygiene/role-of-hand-hygiene-in-infection-prevention-and-c#2.1)).

Drying hands

If liquid handwash and water is used for hand hygiene, hands must be thoroughly dried afterwards, using a patting (not rubbing) action. The use of paper towels is now considered to be best practice and it should be supplied wherever liquid handwash and water is used for hand hygiene. If cloth towels are used, they should be used only once and then laundered appropriately (see 9. Cleaning, laundry and waste management (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/9-cleaning-laundry-and-waste-management/overview)).

Incomplete drying can cause chapping/chafing and skin damage, which favours bacterial growth and can lead to colonisation with potentially pathogenic microorganisms – increasing the risk of transmission to patients during procedures.

Drying hands after routine handwashing: Single-use paper towels should be used for drying hands in treatment areas, consulting areas and equipment reprocessing areas.

Hot air dryers are unsuitable for clinical use. Jet dryers achieve quicker drying times, which reduces microorganism growth on hands, but they increase the spread of microorganisms through the air. Slower hot air dryers reduce the spread of microorganisms through the air, but the slower drying times result in more microorganism growth on hands. The use of hot air driers is acceptable only in toilets.

Drying hands for standard aseptic procedures: If a liquid cleanser (eg soap and water) is used for hand hygiene before standard aseptic procedures, hands must be dried, ideally using disposable paper towels.

Drying hands for surgical aseptic procedures

If a liquid cleanser (eg antimicrobial soap) is used for hand hygiene before surgical aseptic procedures, sterile disposable paper towels or single-use sterile cloths must be used for drying hands. Reusable sterile cloths must be laundered appropriately (see 9. Cleaning, laundry and waste management (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/9-cleaning-laundry-and-waste-management/overview)).

Hand care

Hand care

Staff must practise routine hand care (including care of fingernails and skin) to prevent the risk of infection to themselves and others.

Fingernails

Nails should be kept clean and short (ideally, not past the tip of the finger pad), because areas under nails can harbour high concentrations of bacteria, even after handwashing.

Nails and cuticles should be kept smooth because rough surfaces harbour foreign matter and make it harder to clean skin and nails.

The use of nailbrushes is not recommended because brushing can abrade skin. A nail pick can be used if necessary (such as before performing procedures that require surgical hand hygiene and nails are visibly dirty).

Skin integrity

Intact skin is an effective natural defence against the entry of pathogens and subsequent infection. Broken skin can be the site of bacterial growth and may facilitate the transmission of infection.

Skin can become dry and dermatitis can develop if handwashing water is too hot or too cold, if too much handwashing solution is used, or if hands are not thoroughly rinsed and dried. Gloves and latex allergy may also contribute to skin problems.

Drying hands after washing, the use of chemically compatible hand creams, and attending to breaks in the skin are essential aspects of hand care. Cuts and abrasions must be covered with water-resistant dressings before commencing or recommencing work. These need to be changed if they become soiled or loose.

If skin irritation occurs, hand hygiene technique should be reviewed. If a staff member develops a persistent skin irritation, or identifies a particular soap, antiseptic agent or alcohol-based product associated with skin irritation, they must consult the practice member with designated responsibility for infection control or work health and safety.

Clinical staff experiencing dermatitis or other skin disorders must seek medical advice before performing any activity that could pose a risk to themselves or to patients.

Use of hand cream

To combat the drying effects of regular hand cleaning, use suitable aqueous-based emollient hand creams with barrier protection that are compatible with the selected hand-hygiene products.

Emollient hand cream should be applied approximately 2–4 times each working day (including before starting work each day, at least once during the day, and at the end of the working day).

Creams and ointments must not be used:

- before donning gloves, as oil-based preparations may cause latex gloves to deteriorate and can contaminate medical devices such as instruments and equipment
- while reprocessing reusable medical devices, because it can leave a residue that could compromise sterility.

Jewellery, nail polish and artificial nails

Jewellery, nail polish and artificial nails

Note: Guidance on jewellery, nail polish and artificial nails is principally intended for procedural general practice.

Health professionals should not wear rings at work because they interfere with hand-hygiene techniques and the skin under rings may be more heavily colonised by microorganisms than comparable skin without rings.

Freshly applied nail polish on natural nails does not increase the microbial load if fingernails are short. However, it should be removed before rough edges or chipping develop.

False fingernails may harbour microorganisms, especially Gram-negative bacilli and yeasts, even after handwashing.

Health professionals when providing direct patient care should adhere to a 'bare below the elbow' policy, including short sleeves, to ensure hands (and, if necessary, wrists and forearms) can be decontaminated effectively. This is particularly important for treatment room procedures.

Each practice could develop policies on jewellery, artificial nails and nail polish for other situations, based on risk assessment (see also: Clothing and other wearable items (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/2-hand-hygiene/other-factors-affecting-practice-hygiene)).

Hand hygiene with glove use

Hand hygiene with glove use

Gloves must be used in line with standard and transmission-based precautions (see 3. Personal protective equipment (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/3-personal-protective-equipment/overview)).

Hand-hygiene is required before putting on gloves and after removal of gloves.

Gloves do not provide complete protection against contamination by microorganisms because they can penetrate small defects in the glove material. Gloves also cause hands to sweat, which can increase contamination on the skin under the gloves.

Hand hygiene when specific pathogenic microorganisms are present or suspected

Hand hygiene when specific pathogenic microorganisms are present or suspected

The use of plain or antimicrobial liquid soap and water is recommended to facilitate mechanical removal of bacterial spores (eg when *C difficile* present of suspected), or when non-enveloped viruses (eg hepatitis A virus, norovirus, rotavirus, poliovirus) are present or suspected.

It is also recommended if any of the following has occurred:

- The person was not wearing gloves when the possible contamination occurred.
- Gloves were breached
- There is visible hand contamination despite glove use.

After washing, hands must be dried thoroughly with a single-use towel.

Alcohol-based handrubs are less effective against these organisms, which can survive for extended periods on surfaces. Therefore, soap and water should be used where faecal contamination is possible.

Other factors affecting practice hygiene

Other factors affecting practice hygiene

Clothing and other wearable items

Avoid wearing lanyards, long chains and neckties as evidence indicates they may facilitate transmission of infection.

Where there is a risk of clothing splash by blood and other body substances, it is recommended that staff wear uniforms or sensible clothing as well as the appropriate personal protective equipment. Healthcare workers who wear uniforms should wear a clean uniform for each shift. If work attire has been contaminated with blood or body substances, it should be changed immediately and laundered appropriately.

If a practice requires the use of uniforms, it should either make provisions to launder them or provide information to the employee regarding infection control and cleaning guidelines for the item based on the tasks being performed. Health-care facilities can address the need to provide this service and determine the frequency for laundering these items.

Animal entry policy

The practice should develop a policy about which animals (eg assistance animals, therapy animals) can be allowed into the practice and in which areas, and the infection prevention and control protocols that must be implemented (eg hand hygiene, cleaning after visits).

Hand hygiene for patients

Hand hygiene for patients

Practices should participate in educating patients on the importance of hand hygiene to prevent healthcare-acquired infections. Strategies include providing alcohol handrub prominently and requesting patient use it on entry, and displaying key messages (eg in posters in waiting and reception areas).

Key messages for patients about hand hygiene include the following:[3]

- Hand hygiene is the most important way to reduce our risk of infection – this applies to everyone, including healthcare workers and patients.
- Alcohol-based handrub does not work properly on dirty hands – wash visibly soiled hands in liquid soap and water.
- When you wash your hands (with liquid soap and water or with an alcohol-based handrub), the cleansing product must reach all parts of the surface of your hands.
- You must dry your hands properly after washing soap and water – pat them dry with a clean paper towel.
- If you use an alcohol-based handrub, keep rubbing your hands until they are dry – there is no need for a towel.
- Your health professionals should have short, smooth, clean fingernails.
- It is OK to ask your health professional about whether their hands are clean.

The '5 moments for hand hygiene (https://www.safetyandquality.gov.au/our-work/infection-prevention-and-control/national-hand-hygiene-initiative-nhhi/what-hand-hygiene/5-moments-hand-hygiene) ' reminds patients and staff when to clean their hands to reduce the risk of infection:

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

Resources and references

Resources and references

Video demonstration of hand-hygiene technique using alcohol-based handrub: Johns Hopkins Medicine. Department of Hospital Epidemiology and Infection Control. Hand Rubbing Steps Using the WHO Technique (https://www.youtube.com/watch?v=B3eq5fLzAOo)

Video demonstration of handwashing technique using soap and water: Johns Hopkins Medicine. Department of Hospital Epidemiology and Infection Control. Hand-washing Steps Using the WHO Technique (https://www.youtube.com/watch?v=IisgnbMfKvI)

Hand hygiene (https://app.magicapp.org/#/guideline/Jn37kn/section/EeOkzL) . In: NHMRC. Australian guidelines for the prevention and control of infection in healthcare (https://app.magicapp.org/#/guideline/Jn37kn) (2019)

National Hand Hygiene Initiative user manual (https://www.safetyandquality.gov.au/our-work/infection-prevention-and-control/national-hand-hygiene-initiative-nhhi/national-hand-hygiene-initiative-manual) (2019)

The National Hand Hygiene Initiative (https://www.safetyandquality.gov.au/our-work/infection-prevention-and-control/national-hand-hygiene-initiative)

Australian Commission on Safety and Quality in Healthcare Alcohol-based handrubs (https://www.safetyandquality.gov.au/our-work/infection-prevention-and-control/national-hand-hygiene-initiative-nhhi/what-hand-hygiene/alcohol-based-handrubs)

Relevant Australian standards

Royal Australian College of General Practitioners. GP Standard 4. Criterion GP4.1 – Infection prevention and control, including sterilisation (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/core-standards/core-standard-4/criterion-c4-1-health-promotion-and-preventive-car) . In: Standards for general practices (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/table-of-contents) . 5th Edition. East Melbourne, Vic: RACGP, 2020.

AS 1071 – Placement and presentation of hand hygiene materials in relation to the basin in healthcare settings

Other relevant standards

European Standard EN 1500 – hygienic handrub

European Standard CEN-EN 12791 – surgical hand disinfection

References

1. Australian Commission on Safety and Quality in Health Care. National Hand Hygiene Initiative manual (https://www.safetyandquality.gov.au/our-work/infection-prevention-and-control/national-hand-hygiene-initiative-nhhi/national-hand-hygiene-initiative-manual) . Sydney, NSW: ACSQHC; 2019. [Accessed 3 October 2022].
2. Kampf G. Acquired resistance to chlorhexidine - is it time to establish an 'antiseptic stewardship' initiative? J Hosp Infect 2016; 94: 213-227.
3. National Health and Medical Research Council. Australian guidelines for the prevention and control of infection in healthcare (2019) (http://ttps://www.nhmrc.gov.au/about-us/publications/australian-guidelines-prevention-and-control-infection-healthcare-2019) . Version 11.12 Updated March 2022. Canberra: National Health and Medical Research Council; 2019 [Accessed 29 September 2022].

3. Personal protective equipment

Overview – Personal protective equipment

Overview – Personal protective equipment

Personal protective equipment includes gloves, fluid-impermeable aprons, gowns, masks, purpose-designed protective glasses, goggles and face shields.

The appropriate personal protective equipment in any clinical situation depends on the risk assessment and the type of clinical procedure or activity.

When used as part of standard precautions (see 5. Levels of precaution (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/5-levels-of-precaution/overview)), personal protective equipment protects against anticipated exposure to blood or body substances. When used as part of transmission-based precautions, personal protective equipment serves as a physical barrier against the specific modes of transmission identified in risk assessment.

Gloves must be worn by staff at risk of exposure to blood or body substance, or at risk of a disease transmissible by contact. Gloves are mandatory for procedures that involve direct contact with sterile tissue or body cavities, mucous membranes or non-intact skin.

Face and eye protection must be used when there is a risk of splashing or spraying of blood or body substances, such as during surgical procedures, or when there is a risk of droplet or aerosol generation, such as during aerosol-generating procedures, and when cleaning reusable medical devices.

Wear aprons or gowns when there is a risk of soiling clothing from splashes of blood or body substances. Also consider wearing them when there is a risk of contact transmission of pathogenic microorganism, based on a risk assessment.

Sterile gowns are worn for some surgical procedures, when required based on risk assessment (see 4. Aseptic technique (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/4-aseptic-technique/overview)).

Masks musts be worn by staff and patients whenever there is a risk of droplet or airborne transmission, ❗ and during surgical procedures to protect the surgical site.

Personal protective equipment must be applied and removed in the correct order to prevent transmission of infection (Applying and removing personal protective equipment (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/3-personal-protective-equipment/applying-removing-and-disposing-of-personal-protec)).

Personal protective equipment is designed for single use (for example, to be worn during a consultation with one patient or during a single procedure), then disposed of (gloves, masks, face shields) or appropriately laundered (gowns). However, some items of personal protective equipment are sometimes worn for a longer period (extended use (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/3-personal-protective-equipment/extended-use-of-personal-protective-equipment)) in special circumstances, such as during a pandemic.

General principles of personal protective equipment use

General principles of personal protective equipment use

Personal protective equipment refers to a variety of barriers (eg gloves, fluid-resistant aprons, gowns, masks, purpose-designed protective glasses, goggles, full face shields) used to protect mucous membranes, airways, skin and clothing from contact with blood and body substances (including airborne infectious agents from the respiratory tract) or with contaminated objects/surfaces (Table 3.1. Recommended use and characteristics of personal protective equipment (#3.1)).

The appropriate use of personal protective equipment depends on the situation and the assessed risk to staff or patients. Factors to consider include the probability of exposure, the type of body substance involved, and the probable type and route of transmission of microorganisms. For example, examination gloves are used as a standard precaution for low-risk procedures where there is a likelihood of exposure to a patient's blood or body substance, whilec P2/N95 masks may be needed during a respiratory disease outbreak.

When used as part of standard precautions (see 5. Levels of precaution (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/5-levels-of-precaution/overview)), personal protective equipment protects against anticipated exposure to blood or other body substances. When used as part of transmission-based precautions, ❗ personal protective equipment serves as a physical barrier against the specific modes of transmission ❗ personal protective equipment serves as a physical barrier against the specific modes of transmission identified in risk assessment.

Table 3.1. Recommended use and characteristics of personal protective equipment

Item	Use	Characteristics
Sterile surgical gloves	To prevent contact between health worker's skin and patient's body, or body substances, during aseptic procedures or surgical procedures Single-use for one procedure	Flexible and tightly fitting to avoid compromising wearer's dexterity Composed of latex, synthetic latex or synthetic elastomer Disposable

Item	Use	Characteristics
Nonsterile examination gloves	To prevent contact between health worker's skin and patient's body, or body substances, during procedures that require a 'no-touch' technique Single-use for one procedure	Composed of latex or synthetic materials (eg vinyl, nitrile, or neoprene) Disposable
General-purpose utility gloves	To prevent contact between staff member's skin and blood/other body substances or contaminated equipment or surfaces Multiple use, for activities that do not involve patient care, such as cleaning surfaces	Longer cuff Composed of nitrile, latex or combined material Chemically resistant Puncture-resistant Reusable (after washing) or disposable
Heavy-duty protective gloves	To prevent contact between staff member's skin and blood/other body substances, contaminated objects or chemicals For instrument cleaning or other activities with a high risk of contact with blood, other body substances, contaminated objects, sharps or chemicals Multiple use, for activities that do not involve patient care Uncomfortable and potentially hazardous due to poor dexterity and touch sensitivity	Heavy-duty Puncture-free Chemical-resistant Washable

Item	Use	Characteristics
Surgical mask	To provide a physical barrier between the mouth and nose of the wearer and the surrounding air. Worn by : • health workers during surgery, or when in close proximity to patients, or whenever droplet precautions required • to prevent droplet transmissionpatients with respiratory infection or cough • community during a respiratory pandemic. Single-use, for one procedure or episode of patient care	Fluid-resistant Ties or ear loops Disposable
N95/P2 mask	To protect wearer and others from exposure to airborne particles including pathogenic airborne particulates such as viruses and bacteria Single-use, for one procedure or episode of patient care (see also Extended use of personal protective equipment (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/3-personal-protective-equipment/extended-use-of-personal-protective-equipment))	Close seal around nose and mouth (fit-tested; fit check required at time of use) Levels of particulate filtration depends on grade (eg N95 respirators are effective in removing a minimum of 95% of solid and liquid aerosols that do not contain oil) Two head loops (not ear loops) Disposable
Eye protection	When performing procedures where there is a risk of splashing or spraying of blood or body substances (eg surgical procedures, venipuncture, cleaning of reusable medical equipment) For single or multiple use, depending on type	Includes goggles, safety glasses, and full-face shields Clear, anti-fogging material Efficacy depends on seal around eyes (goggles provide more effective seal than safety glasses)

Item	Use	Characteristics
Face shield	For additional protection from splash contact during procedures or cleaning For additional protection from droplets (eg coughing, sneezing) while wearing a mask For single use	Clear, anti-fogging material Extends around to ears and below chin
Plastic apron	When there is the possibility of sprays or spills or exposure to blood or body substances during low-risk procedures. During contact precautions when patient contact is likely. Single-use, for one procedure or episode of patient care	Fluid-resistant Disposable
Nonsterile gown	To prevent contamination of healthcare worker's limbs or clothing with blood, other body substances, or other potentially infectious material. When there is a risk of contact of the healthcare worker's skin with a patient's broken skin, extensive skin to skin contact (eg lifting a patient with scabies) When there is a risk of contact with blood and uncontained body substances (eg vomiting). When there is a possibility of extensive splashing of blood and body substances or risk of exposure to large amounts of body substances (eg in some operative procedures). Usually single use (see also Extended use of personal protective equipment (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/3-personal-protective-equipment/extended-use-of-personal-protective-equipment))	Fluid-resistant Long sleeved and cuffed so clothing and exposed upper body areas are protected Generally worn in combination with gloves and with other personal protective equipment when indicated

Item	Use	Characteristics
Sterile gown	During procedures that require surgical aseptic technique (if required based on risk assessment) Single-use, for one procedure or episode of patient care	Pre-packaged in sterile pack

Source: National Health and Medical Research Council,[1] Therapeutic Goods Administration[2]

When to use personal protective equipment

When to use personal protective equipment

Standard use and use during outbreaks

Standard use

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

Personal protective equipment is used in areas where there is high risk of contamination (eg masks and sterile gowns worn in areas where surgical procedures are performed, or a nonsterile gown and gloves worn while cleaning a spill of blood or other body substance) and must be removed before leaving the area.

Gowns must be removed after contact with the patient (and replaced, if necessary), before contact with the next patient. Even where there is a lower risk of contamination, protective clothing that has been in contact with patients must not be worn outside the designated area. For example, scrub suits worn for surgical procedures are not worn outside of the designated area (this does not apply to a scrub suit worn as a uniform or as preferred work attire).

During outbreaks

Personal protective equipment is also used routinely when there is a risk of infection (eg during an epidemic or pandemic).

Usage in these circumstances may differ from standard use. Some items may be worn for longer than normally recommended (see Extended use of personal protective equipment (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/3-personal-protective-equipment/extended-use-of-personal-protective-equipment)).

During a disease outbreak, health departments will issue guidance on which items of personal protective equipment should be worn in which clinical situations, according to an expert risk assessment based on the relevant pathogen.

Gloves

The risk assessment and the type of clinical activity determine whether to wear gloves and which type are needed. Gloves must be worn in line with:

- standard and surgical aseptic technique (see Aseptic technique (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/4-aseptic-technique/overview))
- standard and transmission-based precautions (see Levels of precaution (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/5-levels-of-precaution/overview)).

Correct fit and type of gloves are essential to their effectiveness in infection prevention and control.

When gloves are worn with other personal protective equipment, they are put on last and removed first.

Types of gloves

Sterile surgical gloves are used for some standard procedures and all surgical aseptic procedures and contact with sterile fields or equipment. Compared with standard gloves (eg examination gloves), these type of gloves:

- are more protective – even in thickness with low risk of defects in the material
- enable superior dexterity – necessary for performing procedures and reduces risk of sharp injury.

Clean (nonsterile) single-use examination gloves are used for procedures that do not require surgical asepsis, procedures where there is a risk of exposure to patient blood or body substances, and procedures where there is contact with non-intact skin and mucous membranes (eg venipuncture, vaginal or rectal examination) and minor procedures.

Nonsterile gloves are available in a range of materials such as natural rubber latex and synthetic materials (eg vinyl, nitrile, or neoprene). Latex gloves enable the wearer to maintain dexterity, but sensitivity and allergy can occur. Practices could document which staff members and patients have latex allergy and provide alternative glove types.

General-purpose utility gloves (eg kitchen gloves) are used for activities that do not involve patient care, such as cleaning surfaces.

Heavy-duty, puncture- and chemical-resistant gloves must be used for instrument cleaning. These gloves can be reused after washing and drying.

Fitting protective gloves

When wearing gloves with a long-sleeved gown, ensure that gloves extend at least 5 cm past the gown cuffs or sleeves.

Changing gloves

Sterile or nonsterile gloves must be changed:

- after contact with each patient
- between procedures on the same patient
- if they are damaged during a procedure
- after finishing the procedure or task
- before handling notes, computer keyboards or telephones.

Removing and disposing of protective gloves

Correct handling of used gloves (sterile or nonsterile disposable gloves) is important to reduce the risk of infection to the staff member. Remove gloves inside out and hold by the cuff edge to minimise contamination of hands (Figure 3.1. Method for putting on and removing gloves (#figure31)). Dispose of gloves into the appropriate waste stream as soon as they are removed. Cleanse hands after removing gloves (see 2. Hand hygiene (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/2-hand-hygiene/overview)). **Figure 3.1 Method for putting on and removing gloves**

Figure 3.1

Method for putting on and removing gloves

Table 3.2. Method for putting on and removing gloves

Putting on gloves

1. Perform hand hygiene and ensure your hands are completely dry.
2. Handle the glove at the top edge of its cuff and create an opening using your thumb and four fingers.
3. Ease your hand into the glove and gently pull the cuff over your wrist until it comfortably fits.
4. With your bare hand, take the second glove at the top edge of its cuff.
5. Repeat step 3. with the second glove on your other hand.

Removing gloves

1. Pinch the outside of one glove near the wrist
2. Peel the glove off so it ends up inside out.
3. Keep hold of the peeled-off glove in your gloved hand while you take off the other glove.
4. Use one or two fingers of your non-gloved hand inside the wrist of the other glove to peel off the second glove from the inside, and over the first glove, so you end up with the two gloves inside out, one inside the other.
5. Dispose of the gloves safely and perform hand hygiene.

Latex sensitivity/allergy

Most people can safely wear latex surgical gloves. However, occupational use of latex gloves is associated with both non-allergic irritant dermatitis and allergy: allergic contact dermatitis, and systemic (immediate hypersensitivity) reactions.[3]

Non-allergic irritant dermatitis is the most common reaction to gloves. It causes rough, dry and scaly skin, sometimes with weeping sores.[4]

Latex allergy is a reaction to proteins in latex rubber. Latex allergy can develop over time with frequent exposure to latex proteins, and mostly affects nurses, doctors, dentists and patients who have had multiple operations. Powdered latex gloves should not be used as they increase the risk of allergy.

Allergic contact dermatitis is the most common allergic reaction to latex. It causes a rough, dry scaly rash, sometimes with weeping sores, on the hands and where the gloved hands have touched other body parts such as the face. Allergic contact dermatitis usually appears 12–46 hours after contact with latex.[4]

Latex allergy It can also cause a more severe allergic reaction characterised by an itchy red rash within minutes of exposure, which can be accompanied by itchy red eyes, runny nose and sneezing, and occasionally asthma.[5] Very severe or life-threatening allergic reactions (anaphylaxis) to latex are rare.[6]

Healthcare professionals with atopic dermatitis and eczema on their hands appear to be at greater risk of becoming sensitised to latex proteins, indicating that careful attention to hand care (hand washing technique and barrier protection) is important to minimise risk.[3]

If latex sensitivity/allergy has occurred or if latex allergy is suspected, the staff member must undergo medical assessment. Implement risk management strategies such as latex-free work areas.

There is no risk of latex allergy with the use of nonlatex gloves such as those made from nitrile or neoprene. These gloves must be used when treating patients with latex allergies and by staff with latex allergies.

Face and eye protection

Use eye protection, such as goggles and safety glasses, when performing procedures where there is a risk of splashing or spraying of blood or body substances (eg surgical procedures, venipuncture, cleaning of reusable medical equipment) or respiratory droplets from multiple angles. Face shields provide additional face and mouth protection against splash contact.

Safety glasses, masks with visors and full face shields are less effective than goggles for protecting the eyes from airborne transmission due to gaps around the eyes.

Personal glasses, such as prescription spectacles, are not acceptable personal protective equipment due to gaps around the eyes. Eye protection must be worn over spectacles. Prescription glasses with an inner plastic shield and side protection can also be purchased.

Goggles and face shields must be clear, antifogging, distortion free, close-fitting and, ideally, closed at the sides. Goggles or face shields are fitted over the top of regular prescription glasses, if worn. Newer styles of goggles fit over prescription glasses with minimal gaps.

When wearing goggles or a face shield, it is important not to touch the goggles or face shield. If touching occurs, hand hygiene is required before recommencing a task.

Care is needed when removing and disposing of eye protection:

- Take care to remove using the stems only.
- If disposable, discard into the appropriate waste stream.
- If reusable, wash with soap and water and dry, then use disinfectant selected for the most likely pathogens, allowing the required wet contact time before drying.
- Store covered to avoid contamination, for example in a large paper bag.

Correct handling of used protective eyewear/face shields is important in preventing the risk of infection to staff.

Aprons and gowns

Aprons or gowns must be worn by staff when there is a risk of contamination of skin or clothing with blood, body substances, secretions or excretions other than sweat (e.g. when performing surgical excisions or throat/nasal swabs when there is risk of infection). The type of apron or gown must be appropriate to the task and the degree of risk.

Wear aprons and gowns for a single procedure or episode of patient care (unless extended use is directed), and removed in the area where the episode of care takes place.

When wearing a gown or apron, do not touch the outside of the front or sleeves.

Cleanse hands after removing the gown or apron (see Hand hygiene (http://racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/2-hand-hygiene/overview)).

Aprons

Single-use plastic aprons are suitable for general use when there is a risk that clothing may be exposed to blood or body substances during low-risk procedures, and where there is a low risk of contamination to the arms. Aprons can be worn during contact precautions.

Gowns

Gowns are worn to protect skin and prevent soiling of clothing. The choice of gown depends on the activity. For example, a full body gown (in combination with other personal protective equipment) must be worn when there is a possibility of extensive splashing of blood or other body substances such as vomitus or uncontrolled faecal matter, or as advised by national or state and territory health authorities during an infectious disease outbreak with contact and droplet modes of transmission.

Sterile gowns are also worn during some surgical procedures, as part of surgical aseptic technique to protect the surgical site.

Types of gowns

Gown designs include disposable or reusable, short-sleeved or long-sleeved, and with fabric or elasticised cuffs. They are secured at the back and cross one side over the other at the back to prevent a gap. Sterile pre-packaged gowns are available.

Putting on a protective gown

Put on the gown with the opening at the back. Secure the tapes at the back, with the two sides of the gown overlapping before tied, to prevent the gown opening and clothes becoming contaminated.

Removing aprons and gowns

Remove aprons and gowns in a manner that prevents contamination of clothing or skin. Undo fasteners or ties (without snapping ties) and remove the gown inside-out, taking care not to touch the outside of the gown. Roll the gown to mid-point.

If disposable, dispose of it into the appropriate waste stream.

If reusable, place the gown into a designated linen container so it can be washed and dried appropriately before reuse.

Masks (surgical masks and N95/P2 masks)

Use masks when there is a risk of droplet or airborne transmission of infection by breathing.

They can also be worn by patients to prevent droplet or airborne transmission.

It may be appropriate for children to wear appropriately fitted masks in some situations. Monitor oxygen saturation if clinically necessary.

The following precautions apply when wearing any type of mask:

- Ensure the mask completely covers the nose and mouth and does not gape.
- Do not touch the mask after putting it on.
- Remove and replace the mask if it becomes wet or soiled.
- Do not wear a mask around your neck.
- Do not reapply a mask after it has been removed.
- Perform standard hand hygiene after touching or disposing of a mask.

Mask types include:

- surgical masks
- standard filtering P2/N95 respirators (also called filtering face-piece respirators, particulate filter respirators, face filters)
- surgical filtering respirators.

The correct type of mask must be chosen according to the situation.

Masks with elastic loops have a use-by date as the elastic perishes with time: masks past their use-by date must be replaced, even if unused.

Separate inner frames (also called support frames or mask brackets), designed to prevent the mask material touching the nose and lips, must not be used with any type of mask.

Surgical masks

A surgical mask is intended to prevent the release of potential contaminants from the wearer into their immediate environment. It also protects the wearer's mouth and nose from large droplets, sprays and splashes of body substances.

Surgical masks can provide some protection to staff and patients where there is a risk of disease transmission by respiratory particles, but (unlike filtering respirators) they are not designed to filter out a high proportion of infectious particles in the surrounding air.

Masks are for single use, for one procedure or episode of patient care, except in extended use (see Extended use of personal protective equipment (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/3-personal-protective-equipment/extended-use-of-personal-protective-equipment)). A mask is removed and replaced if it becomes wet or soiled, or if the user has touched the front of the mask.

Fitting a surgical mask

Surgical masks have ties/tapes to be tied at the back of the head or elastic ear loops.

To be effective, masks must be fitted correctly. Hands should be cleansed with alcohol-based handrub or liquid soap and water before putting on a mask.

Fit a surgical mask correctly by following these steps:

- Apply the mask by tying the tapes above and below the ears, or placing the elastic loops around the ears
- Open out the folds of the mask so that the mask covers the mouth and nose comfortably
- Mould (do not pinch) the area over the bridge of the nose to produce a snug, comfortable fit.

Do not cross the loops at the sides or a gap may form and allow contaminated air in.

If a gap forms because the mask is too large, use a smaller size.

Beards should be avoided because they compromise mask fitting.

Removing and disposing of a surgical mask

Correct handling of used masks is important to prevent the risk of infection of the staff member and patients. When removing a mask with ear loops, remove both loops and pull mask away and down. When removing a mask with tapes or ties, undo or break the tape under the ears first, then lift the top tape over the head.

Dispose of the mask as soon as possible into the appropriate waste stream.

P2/N95 masks

P2/N95 masks (filtering masks; also called filtering face-piece respirators or particulate-filter respirators) are special masks designed to form a very close seal around the nose and mouth, protecting the wearer from exposure to airborne particles including pathogenic biological airborne particulates such as viruses and bacteria.

P2/N95 masks include standard (non-fluid-impermeable) and surgical fluid-impermeable types. Only Therapeutic Goods Administration-registered P2/N95 filtering respirators must be used, to ensure they comply with current relevant standards.[2]

Use filtering respirators with band straps. (Those with ear loops are not appropriate for health care). They must be fitted correctly to be effective, and wearers must be appropriately trained in their use. Practices should ensure that staff performing high-risk duties are fit-tested and can perform a fit check correctly before each use.

Filtering respirators may be required during respiratory disease outbreaks or when performing aerosol-generating procedures (eg spirometry) and discarded after each patient or procedure.

Once a mask is in place, do not touch the front of the mask, nor pull the mask down intermittently.

See also Extended use of personal protective equipment (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/3-personal-protective-equipment/extended-use-of-personal-protective-equipment) .

Fit-testing and fit-checking a P2/N95 mask

Employers should ensure that their employees are able to wear a filtering respirator correctly.

A fit test identifies the correct size and style of P2/N95 mask suitable for an individual. Ideally, testing should be performed at the start of employment for staff working in clinical areas where a significant risk of respiratory-related droplet and/or airborne transmission ❗ of infectious agents has been identified or could develop.

Fit testing may need to be repeated if the person's face shape changes or when there is a change in the range of mask types available from the practice's supplier.

Beards should be avoided because they compromise mask fitting.

Fit checking must be performed every time a P2/N95 mask is put on. Fit checks ensure the mask is sealed over the bridge of the nose and mouth and that there are no gaps between the mask and face. Fit checking must be performed according to the manufacturer's instructions. Staff members are encouraged to observe each other's mask fitting and immediately advise of any problem with correct fit.

Note: In office-based practices it may be difficult to ensure that the optimal size and style of mask for each individual staff member, as identified by fit-testing, is always available. Regardless of whether a supply of the ideal mask type for each staff member can be obtained, careful ongoing fit-checking is essential.

Removing and disposing of a P2/N95 mask

Correct handling of used masks is important to prevent the risk of infection to the staff member and patient. When removing the mask, handle only the straps/bands.

The correct removal technique depends on the design. For 'duckbill'-shaped or cup-shaped respirators, hold both tapes together and lift over the head. For flat-fronted (flat-fold) respirators, lift over the bottom tape, without touching the front of the mask, and let it hang. Then grasp the upper tape and it pull over the head so the whole mask comes away.

Dispose of the mask into the appropriate waste stream.

Footwear

Enclosed footwear must be worn to protect against injury if sharps or contaminated material are inadvertently dropped.

Disposable foot covers are not required during outbreaks, with the exception of very specific infectious diseases. However, staff managing spills (eg when a patient has gastroenteritis) may choose to wear them.

Applying, removing, and disposing of personal protective equipment

Applying, removing, and disposing of personal protective equipment

Applying and removing personal protective equipment in the correct order is essential to prevent transmission of infectious disease (Refer to Australian Commission on Safety and Quality in Health Care: Sequence for putting on and removing PPE (https://www.safetyandquality.gov.au/sites/default/files/2020-03/putting_on_and_removing_ppe_diagram_-_march_2020.pdf)).

Hand hygiene must be performed before putting on personal protective equipment and after removing it. Gloves must always be put on last.

The timing depends on the situation. If full personal protective equipment is required as part of transmission-based precautions, it is put on before entering the patient examination area. Gloves can be put on when entering the patient area.

When the patient has left, gloves are removed, followed by hand hygiene. The gown (unless required for extended use) can be safely removed inside the room, just before exiting. When outside the room, eye protection is removed, followed by respirator mask, unless required for extended use after leaving. Hand hygiene is performed after each item is removed.

Any single-use or extended-use item of personal protective equipment must be removed as soon as it becomes wet or otherwise contaminated. Hand hygiene is required after removing each item.

The appropriate equipment to use, and the method of disposal, will vary according to the situation – not all situations will require a mask or disposal into a biohazard/clinical waste bag. If personal protective equipment is not contaminated with pathogenic microorganisms or blood/other body substances, it may be disposed of into the general waste stream. If wet or contaminated with a pathogen, blood or body substances, it must be disposed of via the clinical waste stream. Biohazard bags may be required in some circumstances. (see Waste management (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/9-cleaning-laundry-and-waste-management/waste-management))

During a disease outbreak, specific guidance for health professionals on the use and disposal of personal protective equipment is issued by national, state and territory governments.

Extended use of personal protective equipment

Extended use of personal protective equipment

Personal protective equipment is designed for single use (for example, to be worn during a consultation with one patient or during a single procedure), and then either disposed of (gloves, masks, disposable face shields), cleaned (reusable protective eyewear), or appropriately laundered (gowns). However, in special circumstances, such as during a pandemic, some items of personal protective equipment (eg masks, face shields, gowns) are sometimes worn for a longer period while attending multiple patients ('extended use').

This practice may be necessary when there is a shortage of personal protective equipment or it is not practical or necessary to change continually.

In these circumstances, practices must follow health authorities' advice on when to change personal protective equipment.

Any item must be removed when it becomes contaminated. Masks are removed when they become wet from condensation, or after a specified period.

In general, a surgical mask can be used continuously for up to 4 hours, provided it does not become moist, soiled or damaged. Surgical masks must not be stored or reused after removal. Change a surgical mask if the front of the mask is touched by the wearer.

Resources and references

Resources

Therapeutic Goods Administration (http://www.tga.gov.au) guidance on personal protective equipment for health professionals

Australian Government Department of Health and Aged Care: Donning and doffing personal protective equipment in primary care (https://www.health.gov.au/resources/videos/covid-19-donning-and-doffing-personal-protective-equipment-in-primary-care)

Australian Commission on Safety and Quality in Health Care: Sequence for putting on and removing PPE (https://www.safetyandquality.gov.au/sites/default/files/2020-03/putting_on_and_removing_ppe_diagram_-_march_2020.pdf)

Occupational Dermatology Research and Educational Centre. Patient information: latex allergy (https://www.occderm.asn.au/patient-information/latex-allergy/) .

Relevant Australian standards

Royal Australian College of General Practitioners. GP Standard 4. Criterion GP4.1 – Infection prevention and control, including sterilisation (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/core-standards/core-standard-4/criterion-c4-1-health-promotion-and-preventive-car) . In: Standards for general practices (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/table-of-contents) . 5th Edition. East Melbourne, Vic: RACGP, 2020.

AS/NZS1715:2009 – Selection, use and maintenance of respiratory equipment

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ww.allergy.org.au/images/pcc/ASCIA_PCC_Latex_allergy_2019.pdf) . [Accessed 3 October 2022]
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4. Aseptic technique

Overview – Aseptic technique

Overview – Aseptic technique

Standard aseptic technique refers to work practices used by health professionals and other members of the practice team to minimise the risk of introducing and transmitting infection during clinical procedures.

Standard aseptic technique is used for treatment and dressing of wounds (such as lacerations and ulcers), minor invasive procedures (such as biopsy of skin lesions, hormonal implants, skin scrapings, and suture removal), and venipuncture.

All staff involved in procedures must be familiar with standard aseptic technique and know when to apply it.

Surgical aseptic technique refers to work practices that result in prevention or minimisation of microorganisms entering sterile body areas (eg skin lesion excision, wound suturing).

Aseptic technique involves applying the correct pre-agreed protocols before, during and after a procedure.

Before a procedure:

- assess the risk of infection transmission, including susceptibility of patient, and determine appropriate infection prevention and control protocols. Secure the area as required for the level of aseptic technique (eg ensure other staff or patients do not inappropriately enter the treatment area)
- ensure equipment and receptacles (eg sharps container, pathology collection containers) are ready for use
- perform hand hygiene appropriate to the type of procedure (standard or surgical)
- select personal protective equipment appropriate to the type of procedure (sterile or non-sterile gloves, gown, eye protection)
- ensure appropriate decontamination of equipment and patient's skin.

During the procedure, establish and maintain an aseptic field.

After the procedure, follow protocols for removing personal protective equipment, hand hygiene, and appropriate disposal or cleaning of other equipment according on whether it is reusable or single-use and disposable. Also consider the disposal of clinical waste (including sharps) and general waste, and cleaning of environmental surfaces.

Principles and terminology

Principles and terminology

An aseptic technique aims to prevent pathogenic organisms, in sufficient quantity to cause infection, from being introduced to susceptible sites by hands, surfaces and equipment in healthcare settings.[1]

The historical term ‘sterile technique’ is no longer used because it is not possible to achieve a sterile technique in a typical healthcare setting. Near sterile techniques can only be achieved in controlled environments such as a laminar air flow cabinet or a specially equipped theatre.[1]

Levels of aseptic technique are classified as either standard aseptic technique or surgical aseptic technique.

Note: Other systems for assigning the level required for various clinical activities use the term ‘no-touch’ or ‘non-touch’ technique (see More information: international framework and terminology below).

More information: international framework and terminology

Some healthcare practices use a clinical practice framework developed in the UK, which is known by the registered trademark ANTT (Aseptic Non-Touch Technique).[2] Australian healthcare practices are not required to use ANTT, but can choose to use it if they wish, provided they comply with Australian standards.[3]

This international standard and clinical practice framework for aseptic technique was developed to standardise clinical competency among health workers performing procedures that require techniques previously termed aseptic, 'sterile', and 'clean' techniques.[2]

This framework is based on identifying 'key sites' on the patient's body that require protection from pathogenic microorganisms, such as surgical wounds or intravenous cannula insertion sites,[4] and identifying 'key parts' – aseptic parts of the procedure equipment that will be in contact with the patient or infusion fluids.[4] Key sites and key parts are protected from contamination through a combination of hand hygiene, non-touch technique, and the use of new sterilised equipment and/or cleaning existing key parts to a standard that renders them aseptic prior to use.[1] Key parts are modelled as a system of aseptic fields classified as 'critical' or 'general'.[1,4]

The framework uses the simple rule that aseptic key parts must only come into contact with other aseptic key-parts and/or key-sites.[1]

The framework has been used for standardising training and competency assessment among health workers.[2,4]

Standard aseptic technique

Standard aseptic technique

Standard aseptic technique is used during treatment of wounds (eg lacerations and ulcers), minor invasive procedures that are technically simple and brief (such as biopsy of skin lesions, hormonal implants, skin scrapings, and suture removal), venipuncture, urinary catheterisation.

All staff involved in procedures must be familiar with standard aseptic technique and know when to apply it.

Standard aseptic technique is achieved by:

- using standard precautions (see Levels of precautions (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/5-levels-of-precaution/overview)), including hand hygiene and personal protective equipment where necessary
- using physical barriers (eg clean single-use gloves)
- using sterile water or saline to clean ulcers or lacerations
- using clean environmental surfaces
- ensuring that there is no direct contact between the health professional's hands and the patient during the procedure ('no-touch' technique), such as using forceps during dressings or clean single-use gloves. If direct contact may occur due to type of procedure or experience of practitioner, then a surgical technique is used.
- using drapes as a barrier between the operator and patient's surrounding skin or other surfaces
- using sterile instruments and equipment
- reprocessing reusable medical devices between each patient.

Surgical aseptic technique

Surgical aseptic technique

Surgical aseptic technique refers to work practices that result in preventing or minimising microorganisms entering sterile body areas (eg through surgical incisions). These are undertaken **in addition to** standard aseptic technique.

Surgical aseptic technique is necessary for surgical procedures that are technically complex, take longer than minor procedures (eg >20 minutes) to complete, and require large open sites and multiple pieces of equipment.

Surgical aseptic technique involves:

- setting up a ‘sterile’ operating field – a well-defined area within which everything is sterile
- using sterile gloves, gowns, drapes and instruments
- hand hygiene using a surgical handrub or surgical cleanser registered by the Therapeutic Goods Administration for that purpose
- using skin disinfection (antisepsis) to minimise microorganisms on the patient’s skin around the surgical site
- ensuring that only sterilised equipment comes within this sterile field.

Skin disinfection (asepsis)

Skin disinfection (asepsis)

Application

Agents used for skin asepsis in healthcare practices ('skin disinfectants') kill, and temporarily reduce, microorganisms on the skin.

Their use is appropriate for reducing the number of resident microorganisms on the skin in the following situations:

- when the level of microbial contamination is high (such as when managing open or contaminated wounds)
- when persistent antimicrobial activity is desired (such as during invasive procedures or surgery)
- before intravascular or joint or body cavity penetration
- before skin puncture (eg acupuncture)
- before intrathecal injection or similar (essential)
- for identified vulnerable groups before intradermal, subcutaneous or intramuscular injection (non-essential for non-vulnerable groups).

Practices must follow the guidance of the Australian immunisation handbook on skin hygiene when preparing the person receiving the vaccine (https://immunisationhandbook.health.gov.au/contents/vaccination-procedures/administration-of-vaccines#skin-cleaning) .

Skin disinfectants may compromise wound healing.[5]

Agents used in skin asepsis (skin disinfectants)

Agents sold as skin disinfectants are regulated by the Therapeutic Goods Administration and are labelled according to their appropriate use. They must be used according to the manufacturer's directions.

Skin disinfectants must be appropriate to the site. Some disinfectants are irritant to mucous membranes (eg alcohol) and some cause nerve damage (eg chlorhexidine can cause sensorineural deafness if used in the middle ear).

Resources and references

Resources and references

Resources

Australian Commission on Safety and Quality in Health Care: Aseptic technique (https://www.safetyandquality.gov.au/our-work/infection-prevention-and-control/aseptic-technique)

Applying standard and transmission-based precautions during procedures (https://app.magicapp.org/#/guideline/Jn37kn/section/jbwdpL) . In: NHMRC. Australian guidelines for the prevention and control of infection in healthcare (https://app.magicapp.org/#/guideline/Jn37kn) (2019)

Wounds Australia (https://www.woundsaustralia.com.au/) information and education resources

Australasian College of Perioperative Nurses (ACORN) standards for perioperative nursing (https://www.acorn.org.au/standards)

Relevant Australian standards

Royal Australian College of General Practitioners. GP Standard 4. Criterion GP4.1 – Infection prevention and control, including sterilisation (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/core-standards/core-standard-4/criterion-c4-1-health-promotion-and-preventive-car) . In: Standards for general practices (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/table-of-contents) . 5th Edition. East Melbourne, Vic: RACGP, 2020.

References

1. National Health and Medical Research Council. Australian guidelines for the prevention and control of infection in healthcare (2019) (https://www.nhmrc.gov.au/about-us/publications/australian-guidelines-prevention-and-control-infection-healthcare-2019) . Version 11.12 Updated March 2022. Canberra: National Health and Medical Research Council; 2019 [Accessed 1 September 2022].
2. Rowley S, Clare S. Standardizing the critical clinical competency of aseptic, sterile, and clean techniques with a single international standard: aseptic non touch technique (ANTT®). J Vasc Access 2019; 24: 12-17.
3. Atkins S. Australasian College for Infection Prevention and Control Aseptic Technique Symposium: ACIPC; 2017 (http://www.acipc.org.au/wp-content/uploads/2017/07/Aseptic-Technique-Presentation-1.pdf) . [Accessed 3 October 2022].
4. Rowley S, Clare S, Macqueen S, et al. ANTT v2: An updated practice framework for aseptic technique. Br J Nurse 2010; 19: S5-S11.
5. Atiyeh BS, Dibo SA, Hayek SN. Wound cleansing, topical antiseptics and wound healing. Int

Wound J 2009; 6: 420-430.

5. Levels of precaution

Overview – Levels of precaution

Overview – Levels of precaution

The blood and body substances of all patients must be considered infectious at all times, and must be managed as though infectious.

Standard precautions are work practices that consistently achieve a basic level of infection prevention and control.

Standard precautions must be used by all staff involved in patient care or who may have contact with blood or other body substances, secretions and excretions (except sweat), including through contact with mucous membranes and non-intact skin, regardless of the known or perceived infection status of the patient.

Transmission-based precautions are additional precautions specific to a known or suspected infection or during an outbreak, according to the relevant route(s) of transmission (contact, droplet or airborne). ❗ They are used with standard precautions to provide additional barriers between practice staff at risk and the infected patient.

Use transmission-based precautions (**in addition to standard precautions**) when a patient is known or suspected to be infected or colonised with microorganisms that cannot be contained by standard precautions alone (for example, microorganisms causing gastroenteritis, measles, or influenza).

Standard precautions

Standard precautions

Standard precautions are routine work practices that are implemented consistently to achieve a basic level of infection prevention and control.

Standard precautions consist of:

- hand hygiene (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/2-hand-hygiene/overview)
- use of appropriate personal protective equipment (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/3-personal-protective-equipment/overview)
- safe use and disposal of sharps (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/7-sharps/overview)
- routine environmental cleaning (see Cleaning, laundry and waste management (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/9-cleaning-laundry-and-waste-management/overview))
- appropriate reprocessing of reusable medical devices (#_10._Reprocessing_reusable)
- respiratory hygiene and cough/sneeze etiquette (#1)
- aseptic technique (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/4-aseptic-technique/overview)
- appropriate waste management (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/9-cleaning-laundry-and-waste-management/overview) (see Cleaning, laundry and waste management (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/9-cleaning-laundry-and-waste-management/overview))
- appropriate linen handling and laundry processes (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/9-cleaning-laundry-and-waste-management/overview) . (see Cleaning, laundry and waste management (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/9-cleaning-laundry-and-waste-management/overview))

When to apply standard precautions

It is essential that standard precautions are applied at all times because staff or patients may be:

- at risk of infection from others who carry infectious agents
- infectious while asymptomatic, undiagnosed, or before laboratory tests are confirmed
- at risk from infectious agents present in the surrounding environment, including surfaces, objects or equipment
- performing specific procedures or tasks that are associated with an increased risk of microorganism transmission.

Standard precautions are used when staff are likely to be in contact with:

- blood (including dried blood)
- other body substances, secretions or excretions excluding sweat (eg urine, faeces)
- non-intact skin
- mucous membranes.

Respiratory hygiene and cough/sneeze etiquette

Respiratory hygiene and cough/sneeze etiquette must be applied at all times as part of standard precautions. Covering sneezes and coughs reduces air dispersal of respiratory particles that could contain pathogenic bacteria or viruses.

Hand hygiene must be performed after coughing, sneezing, using tissues, or after contact with respiratory secretions or objects contaminated by these secretions. Place alcohol-based handrub within reach at all times to facilitate hand hygiene. However, if hands are visibly contaminated they must be washed with soap-based liquid hand cleanser and water.

Instruct everyone to follow respiratory hygiene and cough/sneeze etiquette, regardless of whether they have signs and symptoms of a respiratory infection, and regardless of the cause:

- Cover the nose/mouth with disposable single-use tissues when coughing, sneezing, wiping and blowing nose to contain respiratory secretions.
- Dispose of tissues in the nearest waste receptacle or bin after use.
- If no tissues are available, cough or sneeze into the inner elbow rather than the hand.
- Cleanse hands thoroughly immediately after contact with respiratory secretions and contaminated objects/materials before resuming other activities (see Hand hygiene (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/2-hand-hygiene/overview)).
- Keep contaminated hands away from the mucous membranes of the mouth, eyes and nose.

Patients requesting a consultation with respiratory symptoms should be triaged by a health professional via phone or videoconference to determine whether the consultation should be via telehealth or in person.

Patients presenting to the clinic must be routinely triaged (Table 5.1. Managing practice access and patient flow (#5.1)). Those with symptoms of respiratory infections arriving at the clinic must be given a surgical mask and shown how to wear it correctly. They can be either seen immediately, directed to a properly ventilated isolation area while waiting, asked to wait outside until called in, or even seen outside (see also Reception and triage (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/11-disease-surveillance-and-outbreak-response/practice-response-to-threats)).

Infective respiratory particles may remain suspended in the air for several hours. The risk can be reduced by wearing a mask and by adequate ventilation (a minimum of at least 6 air changes of fresh air per hour; see Ventilation (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/12-planning-a-practice-design-fit-out-equipment-an/building-design-and-fit-out)).

Staff could assist patients who need help with containment of respiratory secretions (eg elderly, children). Those who are immobile will need a receptacle (eg plastic bag) readily at hand for the immediate disposal of used tissues and will need to be offered hand hygiene facilities. All patients with symptoms of respiratory infection must be encouraged to wear a mask inside the clinic, if able, or seen outdoors to reduce risk to other patients and staff.

Staff with viral respiratory tract infections must remain at home until their symptoms have resolved, or according to health department advice on specific pathogens.

Table 5.1. Managing practice access and patient flow

The practice's infection prevention and control plan could include controlling the entry of patients with potentially infectious disease through the following strategies:

- Check the temperature of each person presenting to the practice and ask those who return a reading >37.5°C to remain outside of the practice until further assessment can be conducted.
- Use physical markers, such as lines taped on the floor, to promote physical distancing.
- Define the preferred flow of foot traffic through the practice using floor markings and signs.
- Display at the entrance any information about temporary or ongoing requirements of entry.
- Install screens at high-interaction areas such as reception.
- Minimise patient congestion in the practice waiting room by limiting the number of people on the premises at any one time.
- Space furniture in the waiting room
- Provide access to alcohol-based handrub at entry and exit (and at appropriate locations throughout the practice)
- Encourage patients to book an appointment rather than walk in.

During an infectious disease outbreak:

- have a space that can be used for patient isolation
- implement a management plan to enable immediate isolation of patients presenting with symptoms suggestive of the infection
- provide staff with data information sheets or resource links for the disease
- limit patient access to defined entries and exits
- display information at the entrance and ensure clear messaging on all platforms (ie website, hold message, social media etc) asking patients to call ahead if they have any symptoms suggestive of the disease to enable appropriate triage
- require all people entering the practice to wear a face mask unless an exception or lawful excuse applies
- encourage telehealth consultations (where appropriate).

Transmission-based precautions

Transmission-based precautions

Transmission-based precautions are used with standard precautions to further reduce the risk of infection via a specific mode of transmission: contact, droplet or airborne.

Preventing staff and patients with relevant infections from entering the practice

Practices could develop and implement a protocol to elicit self-reporting by staff and patients of any symptoms that could be due to an infectious disease (eg respiratory symptoms, gastrointestinal symptoms or rashes) before they enter the practice. Strategies include routine questioning by reception staff when booking appointments by telephone, a telephone 'on hold' recorded message, questions or instructions added to the online booking system, and notices on the practice website and main door.

These communications must explain that this information is necessary to keep staff and other patients safe, and reassure patients that they will still be given a consultation even if they report such symptoms. For patients who report symptoms, consultations can be arranged to take place by phone, videoconference, in a separate area, or outside the facility.

Preventing staff and patients with relevant infections from entering the practice

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These communications must explain that this information is necessary to keep staff and other patients safe, and reassure patients that they will still be given a consultation even if they report such symptoms. For patients who report symptoms, consultations can be arranged to take place by phone, videoconference, in a separate area, or outside the facility.

Aerosol-generating procedures

Practices must identify and follow the latest advice on infection prevention and control when performing aerosol-generating procedures (eg nebulisation, spirometry, peak expiratory flow, oxygen supplementation via nasal cannulas or mask) from national and state/territory health departments.

Guidance is also published by the Australian and New Zealand Society of Respiratory Science (https://www.anzsrs.org.au) and the Thoracic Society of Australia and New Zealand (https://www.thoracic.org.au) .

The *Australian guidelines for the prevention and control of infection in health care* provide guidance on the type and duration of precautions for specific infections and conditions (https://app.magicapp.org/#/guideline/Jn37kn/section/EZwl8j) .

Contact precautions

Contact precautions must be used if there is a risk of direct or indirect contact transmission of pathogenic microorganisms that are not effectively contained by standard precautions alone, such as when a patient presents with suspected norovirus or *Clostridioides difficile* infection, influenza, impetigo, or parvovirus infection, and whenever the presence of methicillin-resistant *Staphylococcus aureus* is likely or possible.

In addition to standard precautions, including hand hygiene, contact precautions include:

- appropriate use of personal protective equipment including gloves for all contact with patients, equipment and surfaces, a fluid-resistant apron or gown if contact with the patient or their immediate environment is likely, and a fluid-resistant surgical mask and eye protection if splash is likely (see Personal protective equipment (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/3-personal-protective-equipment/overview))
- segregating patients with suspected infectious diseases as appropriate and feasible (eg physical distancing in general waiting area or moving to a spare room, scheduling the visit a the end of the day when other patients will not be present, using telehealth).
- communicating the patient's infectious status to other health professionals involved in the patient's care (eg the primary health care nurse, or ambulance and emergency department staff if being transferred to another healthcare facility) so that appropriate transmission-based precautions can be maintained
- ensuring that infected or colonised areas of the patient's body are contained and covered if transfer between rooms or to another facility is necessary (for example, a suppurating wound or a baby with a leaking nappy).

Droplet precautions

Droplet precautions must be used if there is a risk of infectious microorganisms being transmitted by droplets generated by coughing, sneezing or talking (eg patients with pertussis) or vomitus.

In addition to standard precautions, including hand hygiene, droplet precautions include:

- appropriate immunisation of staff
- staff use of fluid-repellent surgical masks or filtering respirators as appropriate or as directed by health departments during outbreaks (see Personal protective equipment (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/3-personal-protective-equipment/overview))

- requiring all patients to wear surgical masks covering the nose and mouth, and to leave them on until after leaving the clinic
- segregating patients with suspected infectious diseases (or any patient with violent or frequent coughing), as appropriate and feasible (eg in a separate room before the consultation, or by arranging consultations offsite or outside)
- physical distancing in general waiting area (at least 1 metre between infectious person and others in the waiting area)
- requiring patients to observe respiratory hygiene and cough/sneeze etiquette by displaying signs and providing tissues, alcohol-based handrub and a waste bin within sight
- communicating the patient's infectious status to other health professionals involved in the patient's care (eg the primary health care nurse, or ambulance and emergency department staff if being transferred to another healthcare facility) so that appropriate transmission-based precautions can be maintained.

Airborne precautions

Airborne precautions must be used where there is a risk of transmitting microorganisms via aerosols that are generated by coughing, sneezing, talking, shouting, vomiting, and even breathing, and can remain infectious over time and distance when suspended in air (eg transmission of measles, varicella, tuberculosis, influenza or COVID-19).

In addition to standard precautions, including hand hygiene, airborne precautions include:

- appropriate immunisation of staff
- use of appropriate personal protective equipment (see Personal protective equipment (http://~/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/3-personal-protective-equipment/overview)), including:
    - filtering respirators as appropriate or as directed by health departments during outbreaks. Standard surgical masks are less effective for protecting against smaller particles.
    - eye protection (including face shield, if needed) where splash is likely
- implementation of processes to minimise exposure to other patients (eg arranging at the end of the day after other patients have left or making a home visit, segregating into a separate area such as a spare room, requiring the infectious patient to wear a surgical mask)
- ensuring that all reusable equipment is cleaned or reprocessed before use on the next patient
- communicating the patient's infectious status to other health professionals involved in the patient's care (eg the primary health care nurse, or ambulance and emergency department staff if being transferred to another healthcare facility) so that appropriate transmission-based precautions can be maintained.

Note: During a respiratory infection outbreak, follow advice on infection prevention and control from national and state or territory health authorities, as well as accessing up-to-date guidance from expert groups such as the Australian and New Zealand Society of Respiratory Science (https://www.anzsrs.org.au) . Office-based spirometry may be discontinued during a respiratory pandemic or restricted to specialised facilities with a negative-pressure room and/or appropriate ventilation. Where appropriate to perform (eg in nonfebrile patients at low risk), precautions may include the use of full personal protective equipment.

Contact tracing

Contact tracing

During epidemics and pandemics (eg COVID-19, pandemic influenza, measles and invasive meningococcal disease), it may be necessary to trace people who have been in contact with an infected patient. These may include practice staff and other patients, and the person's household members, work colleagues and other acquaintances. Contact your state or territory health department communicable disease unit for advice and direction (see Links (#_Links)).

Case study: measles outbreak

Immediate measures may include:

- checking that ventilation is adequate (6–8 fresh air changes per hour)
- placing signs at the entrance to the practice advising patients to phone if they suspect they have measles
- displaying patient information at reception warning that measles cases have been diagnosed at this time in this area
- for suspected cases, performing the consultation in a room with adequate ventilation that can remain vacant for at least 30 minutes post consultation
- identifying any patients known to be at risk (eg immunocompromised) who may have an appointment at the general practice and consider potential for exposure
- decontaminating door handles with detergent (or combined detergent/disinfectant) solution or wipes.

Urgently report confirmed cases to the local public health unit immediately on clinical diagnosis, pending confirmation by the pathology laboratory.

Urgently report suspected cases to the local public health unit.

Notify potentially exposed patients and advise them to attend an emergency department for immunoglobulin therapy (after first contacting the emergency department and receiving instructions on how to isolate and attend safely).

Resources

Resources

Standard precautions (https://app.magicapp.org/#/guideline/Jn37kn/section/nY7yPj) . In: NHMRC. Australian guidelines for the prevention and control of infection in healthcare (https://app.magicapp.org/#/guideline/Jn37kn) (2019)

Transmission-based precautions (https://app.magicapp.org/#/guideline/Jn37kn/section/jMYDWj) . In: NHMRC. Australian guidelines for the prevention and control of infection in healthcare (https://app.magicapp.org/#/guideline/Jn37kn) (2019)

Type and duration of precautions for specific infections and conditions (https://app.magicapp.org/#/guideline/Jn37kn/section/EZwl8j) . In: NHMRC. Australian guidelines for the prevention and control of infection in healthcare (https://app.magicapp.org/#/guideline/Jn37kn) (2019)

Multi-resistant organisms (https://app.magicapp.org/#/guideline/Jn37kn/section/Lrw6Wn) . In: NHMRC. Australian guidelines for the prevention and control of infection in healthcare (https://app.magicapp.org/#/guideline/Jn37kn) (2019)

Australian Commission on Safety and Quality in Health Care: Infection prevention and control posters – standard and transmission based precautions and signage (https://www.safetyandquality.gov.au/our-work/infection-prevention-and-control/infection-prevention-and-control-posters-standard-and-transmission-based-precautions-and-signage)

National Hand Hygiene Initiative user manual (https://www.safetyandquality.gov.au/our-work/infection-prevention-and-control/national-hand-hygiene-initiative-nhhi/national-hand-hygiene-initiative-manual)

The National Hand Hygiene Initiative (https://www.safetyandquality.gov.au/our-work/infection-prevention-and-control/national-hand-hygiene-initiative)

RACGP COVID-19 Infection control resources (https://www.racgp.org.au/clinical-resources/covid-19-resources/infection-control) (including COVID-19 infection control principles, COVID Safety Plan template and COVID Patient Alert Posters

Relevant Australian standards

Royal Australian College of General Practitioners. GP Standard 4. Criterion GP4.1 – Infection prevention and control, including sterilisation (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/core-standards/core-standard-4/criterion-c4-1-health-promotion-and-preventive-car) . In: Standards for general practices (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/table-of-contents) . 5th Edition. East Melbourne, Vic: RACGP, 2020.

6. Staff screening immunisation and infection management

Overview – Staff screening

Overview – Staff screening

Develop policies to ensure that all staff are either immunised or have natural immunity against vaccine-preventable diseases that can be transmitted in the practice environment.

Practice owners are responsible for advising staff of the risks of infection and ensuring that staff are aware they are expected to be covered for the vaccine-preventable diseases to which they may be exposed.

Practices can offer staff the opportunity to be vaccinated at work or use their preferred general practice or immunisation service.

Practices must maintain up-to-date records of staff immunisation status.

Practices must ensure that all staff are aware that:

- they must inform the infection prevention and control coordinator, practice manager or employer if they have a known or suspected infectious disease that could be transmitted in the workplace, and that they are not to come to work until they are considered no longer infectious
- if they have a notifiable disease, they must not come to work until they have completed the required isolation period or met testing requirements, following health department advice.

Practices could implement recommended exclusion periods for those with known or suspected infectious diseases. The infection prevention and control coordinator must stay up to date with health department requirements for notifiable diseases.

Principles for managing staff immune status

Principles for managing staff immune status

Develop policies for the assessment, screening and vaccination of healthcare workers to minimise the risk of transmission of vaccine-preventable diseases. Policies must align with relevant state and territory policies and/or legislation. Policies also apply to trainees undertaking placements in the practice, work experience students and volunteers.

Education could be provided to non-clinical staff members to support the vaccination policy.

Staff members' privacy must be respected. Staff members with chronic viral infections such as Hepatitis B, Hepatitis C or HIV are not required to disclose their status unless they are still infectious or perform procedures that carry the risk of blood-borne transmission.[1]

For each relevant vaccine-preventable disease, the practice must record each staff member's immune status, but need not record whether immunity was achieved through vaccination or naturally through a previous infection. Staff members who do not wish to provide details of vaccinations or infections and do not participate in the practice's immunisation activity can opt to obtain a letter from their own chosen healthcare provider stating that they are immune. Vaccine refusal or non-disclosure must be recorded in the staff member's human resource documentation.

Safe Work Australia (https://covid19.swa.gov.au/covid-19-information-workplaces/industry-information/general-industry-information/vaccination) provides useful information regarding situations where staff refuse vaccination, however, they reiterate that these situations are often intricate, and that legal advice is always recommended. Seek legal advice from a Medical Defence Organisation regarding the management of vaccine refusal.

Screening

Screening

Routine health assessment at the start of employment could include checking for evidence of immunisation/immune status, tuberculosis, immune disorders, and skin conditions/latex allergy in accordance with state/territory guidelines.

Staff with a diagnosis that increases their risk of infection (eg cystic fibrosis) could be encouraged to disclose their diagnosis during screening before they start work, to determine the safest workplace arrangements.

Before beginning employment or a trainee placement, all staff and students should be assessed and offered testing and/or vaccination for specific infectious diseases. Particular attention should be paid to immune status, skin conditions, pregnancy status, as well as risk factors for specific groups of patients. These conditions may vary according to state- and territory-specific requirements and recommendations.

Plain-language information on infection prevention and control guidelines, including screening, could be provided be provided to nonclinical managers who are responsible for employing new staff.

Assessment may need to be repeated and status updated during employment.

Staff immunisation policy and procedures

Staff immunisation policy and procedures

All staff require immunisation/immunity to ensure they are protected from vaccine-preventable infectious diseases, as appropriate to their duties. Specific requirements may vary according to risk assessment based on the type of practice and the duties performed by the staff member. For example, document immunity to hepatitis B virus for any staff member who might be given the task of cleaning a spill of blood or other body substances.

The practice's vaccination policy could incorporate individual assessments for staff members. Special consideration needs to be given to the vaccination status of staff born overseas and those who are pregnant or could become pregnant.

Practices must provide new employees with a list of recommended vaccinations, and give them the option of either receiving required vaccinations at work, or obtaining them from their own GP or immunisation service. Staff should obtain a copy of their immunisation history statements from Medicare or their regular GP and provide it to the practice manager.

If a staff member's immunity to any vaccine-preventable infectious disease is in doubt, serological testing is generally indicated. Otherwise, the vaccination should be repeated.

If a staff member cannot receive live vaccines, this must be documented in staff records. If an alternative is not available, special arrangements such as redeployment may be required during an infectious disease outbreak.

New staff should receive the vaccines they require before starting or within the first few weeks of employment, and as recommended by health departments (eg influenza vaccine annually in April–June, COVID-19 vaccination as advised by the Australian Government Department of Health and Aged Care).

Documentation of vaccination or immunity must be included in staff records.

Refer to the current edition of the Australian immunisation handbook (https://immunisationhandbook.health.gov.au/) [2] for comprehensive information on vaccination, and for information on steps and checklists for health worker vaccination requirements.

Employer responsibilities

Where staff are at significant occupational risk of acquiring a vaccine-preventable disease (for example, during an outbreak), employers should implement a comprehensive vaccination program, which may include:

- a vaccine policy
- reviewing and updating staff vaccination records
- provision of information about the infectious disease

- protocols to manage vaccine refusal.

Employers are not required to perform staff vaccination, but are responsible for advising of risks at work, recommending appropriate vaccination, maintaining records on staff vaccination/immunity status, and ensuring that unvaccinated staff comply with relevant exclusions and precautions (see Staff records (#staff)).

During an infectious disease outbreak, state and territory public health regulations may mandate exclusion of unvaccinated staff.

If a non-immune staff member is exposed to a vaccine-preventable disease, employers must ensure that the person receives assessment and is offered postexposure prophylaxis, if indicated.

Staff records

Employers must keep an up-to-date record of the immunisation status of their employees (Table 6.1. Sample staff immunisation record (#6.1)). These can assist in identifying nonimmune staff. Such records must be stored in accordance with confidentiality and privacy requirements.

The following could be recorded for each staff member:

- advice given about the need for appropriate vaccination suitable for the type of practice and their duties
- status of vaccinations, natural infection and serological results before present employment
- details of the vaccinations received and relevant infections since joining the practice (date given, type and brand, batch number, and antibody response if appropriate)
- agreement or refusal to be appropriately vaccinated or have antibody levels assessed, and any further discussion/information provided.

Staff must be informed that lack of immunity may exclude them from some duties, for example:

- those with lack of immunity to hepatitis B may not perform venipuncture
- those inadequately immunised against pertussis may not work with babies
- those with lack of immunity to measles should wear a mask during measles outbreaks and must be advised to do so.

Table 6.1. Sample staff immunisation record Download the staff immunisation record (https://www.racgp.org.au/getmedia/2a4b37d2-b394-4f2d-a115-69ff44146ed5/RACGP-Template-Staff-immunisation-record.docx.aspx)

Name:
Date of birth:
Address:
Vaccinations required:

Vaccine	**Up to date?**	**Pre-vaccination antibody status**	**Status**	**Post-vaccination antibody status** (if relevant)
COVID-19	Y/N Date last checked:		Number of doses received: Date of last dose received:	
Hepatitis A	Y/N Date last checked:		Number of doses received: Date of last dose received:	
Hepatitis B	Y/N Date last checked:		Number of doses received: Date of last dose received:	
Influenza	Y/N (within last 12 months)		Date last dose received:	
Measles-mumps-rubella	Y/N Date last checked:		Number of doses received: Date of last dose received:	
Diphtheria-tetanus-acellular pertussis	Y/N (within last 10 years) Date last checked:		Date last dose received:	
Varicella	Y/N Date last checked:		Number of doses received: Date of last dose received:	
Polio	Y/N (within last 10 years) Date last checked:		Date last dose received:	

Risk of infection and benefits of vaccination explained

Date:

Signature of person providing advice:

Signature of staff member acknowledging vaccination advice offered:

Consent for vaccination obtained from staff member: Y/N

Further counselling and/or education provided:

Vaccinations for health professionals

Vaccinations for health professionals

The Australian immunisation handbook (https://immunisationhandbook.health.gov.au/contents) recommends that all healthcare workers, including all workers and students directly caring for patients, or handling human tissue, blood or body substances, receive vaccines against the following:

- hepatitis B
- influenza
- measles-mumps-rubella (if non-immune)
- pertussis – diphtheria-tetanus-acellular pertussis (dTpa) vaccine
- varicella (if non-immune).

Hepatitis A vaccination is recommended for people who provide care for Aboriginal and Torres Strait Islander children, in the Northern Territory, Queensland, South Australia or Western Australia.[3]

The Australian immunisation handbook (https://immunisationhandbook.health.gov.au/contents) provides up-to-date information on serological testing for hepatitis B and measles-mumps-rubella.

Practices should also monitor and follow the latest guidance on vaccination against COVID-19 from the Australian Government Department of Health and Aged Care.[4]

Other vaccines may be recommended, such as inactivated poliovirus for healthcare workers who may have contact with people with polio, and bacille Calmette–Guérin (BCG) for healthcare workers who are likely to encounter patients with tuberculosis, or other vaccines during outbreaks.[3]

Health professionals with a blood borne virus

Health professionals with a blood borne virus

All health professionals with a blood borne virus must have appropriate and ongoing medical care.

Health professionals living with one or more blood borne viruses are required to monitor their viral load and only participate in clinical activities as deemed appropriate by the Communicable Disease Network Australia's *National Guidelines for healthcare workers on managing bloodborne viruses* (https://www.health.gov.au/resources/collections/cdna-national-guidelines-for-healthcare-workers-on-managing-bloodborne-viruses) .

Staff disease surveillance

Staff disease surveillance

Practices must ensure that all staff are aware that:

- they must inform the infection prevention and control coordinator, practice manager or employer if they have a known or suspected relevant infectious disease that could be transmitted in the workplace (or are a close contact of someone with such an infectious disease) and that they should not come to work until they are considered no longer infectious
- if they have a notifiable disease, they must not come to work until they have completed the required isolation period or met testing requirements, following health department advice.

Practices can implement routine protocols to reduce the risk of infection transmission between staff members (Table 6.2. Strategies for minimising risk of infection transmission between staff (#6.2)).

Practices should implement recommended exclusion periods for those with known or suspected infectious diseases (Table 6.3. Staff exclusion periods for infectious illness (#6.3)).

The infection prevention and control coordinator must stay up to date with health department requirements for notifiable diseases.

Table 6.2. Strategies for minimising risk of infection transmission between staff

Practices could implement the following strategies:

- Regularly communicate with all staff regarding the requirement to not attend the practice if they have any symptoms consistent with a current infectious disease outbreak, regardless of how mild.
- Encourage testing in line with local public health unit advice.
- Check the temperature of each staff member on commencement of each shift/ attendance at work and ask those with a temperature >37.5°C to seek further medical review.
- Support any staff member who tests positive for an infectious disease, or is identified as a close contact or is required to self-isolate including by making them aware of their leave entitlements.
- Encourage physical distancing in common areas (eg tea room), by setting density limits, by arrangement of furniture, and through floor markings and signage.
- Require all staff to thoroughly clean communal items (eg cutlery) immediately after use by washing with hot water and detergent or by placing them in the dishwasher to be washed on the hottest possible setting.
- During an infectious disease outbreak period:
    - require a verbal/written/electronic attestation from each staff member at the commencement of each shift confirming they do not have any symptoms consistent with the infectious disease outbreak, have not been in contact with a confirmed case, and have not been directed to isolate
    - where a staff member typically works across a number of sites within the business, minimise movement between sites by scheduling shifts at one location (where possible)
    - encourage tea breaks/lunchbreaks to be taken outside
    - stagger breaks to limit the number of people in common areas
    - encourage all team members to provide their own drinking vessels and cutlery
    - ban the sharing of food on site (eg cake and dips).

Table 6.3. Staff exclusion periods for infectious illness

Acute infection	Exclusion
Conjunctivitis	Must not provide patient care while eye discharge present
Gastroenteritis – norovirus infection suspected	Must not come to work for at least 48 hours after resolution of symptoms (eg diarrhoea and/or vomiting).

Acute infection	Exclusion
Gastroenteritis – infection with other pathogen suspected (eg giardiasis, *Shigella* infections, *Salmonella* infections, *Campylobacter* infections)	Must not come to work while symptomatic (eg diarrhoea and/or vomiting) and until 24 hours after symptoms have resolved.
Glandular fever	Not required (even for those with direct patient contact) if well enough to return to work and follow standard precautions.
Hand, foot and mouth disease	Must not come to work until all blisters have dried. Exclusion not necessary for contacts of someone who has hand, foot and mouth disease.
Herpes Simplex infections (cold sores)	If exposed herpetic lesion, must not provide direct care to neonates, newborns, patients with severe immunocompromise, patients with burns or extensive eczema, or patients undergoing minor surgical procedures. May provide direct patient care to other patients. Mask is unnecessary, but lesions should be covered with a dressing, if possible. Hand hygiene practices to minimise the risk of transmission need to be maintained.
Herpes Zoster infections (Shingles)	Must remain at home while unwell. Must not provide ANY direct patient care if lesions cannot be covered (eg ophthalmic zoster). 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.

<table>
<tr><th>Acute infection</th><th>Exclusion</th></tr>
<tr><td>Influenza</td><td>Must remain off work until at least one of the following applies:

· The person is asymptomatic

· The person has received 72 hours of influenza antiviral medication.

· It is 5 days or more since onset of respiratory symptoms.

Should not participate in the care of (or enter the same area as) patients who are more susceptible to infection (such as hematopoietic stem cell transplant recipients) until symptoms have completely resolved AND it is at least 7 days from the onset of symptoms.</td></tr>
<tr><td>Pertussis infections (Whooping cough)</td><td>Staff should remain away from work for whichever specified period applies:

Those taking appropriate antibiotic — At least 5 days from commencement of antibiotic treatment

Those not taking appropriate antibiotic — At least 21 days from onset of symptoms

or

At least 14 days after the onset of paroxysmal cough (if known)</td></tr>
<tr><td>Viral respiratory tract infections: COVID-19 [SARS-COV-2], SARS-COV-1, MERS [MERS-CoV]), RSV, hMPV, common cold</td><td>Follow directives by jurisdiction health authorities.

Note: restrictions based on vaccination status may apply.</td></tr>
<tr><td>Scabies or lice infestations</td><td>Staff member should remain off work until 24 hours after first treatment started.</td></tr>
</table>

Acute infection	Exclusion
Staphylococcal infection (eg boils, wound infections)	Swab for culture and sensitivity. If multi-resistant organism or highly pathogenic strain identified, follow directives by jurisdiction health authorities. Lesions must be covered with an occlusive dressing while at work. If lesions cannot be covered, staff must not perform patient care or handle food for others until they have received appropriate antibiotic therapy and the infection has resolved.
Streptococcal infection (eg impetigo, tonsillitis)	Lesions on skin (eg impetigo) must be covered with an occlusive dressing while at work. If lesions cannot be covered, staff do not attend work until 24 hours after commencement of appropriate antibiotic therapy. Staff with pharyngitis/tonsillitis should avoid patient contact for at least 24 hours after starting appropriate antibiotic therapy.
Tuberculosis (TB)	Exclusion until cleared – follow jurisdictional policy and TB service advice.

<table>
<tr><th>Acute infection</th><th>Exclusion</th></tr>
<tr><td>Viral rashes</td><td>Remain off work for specified exclusion period according to virus:

<table><tr><th>Virus</th><th>Exclusion period</th></tr><tr><td>Rubeola (measles)</td><td>Suspected: until test result known

Confirmed: until serological evidence of immunity (ie IgG sero-positive and IgM sero-negative)

If measles develops: at least 4 days after appearance of rash.</td></tr><tr><td>Mumps virus</td><td>Suspected: until test result known

Confirmed: until serological evidence of immunity (ie IgG sero-positive and IgM sero-negative)

If mumps develop: until resolution of parotid gland swelling or at least 9 days after the onset</td></tr><tr><td>Rubella (German Measles)</td><td>Suspected: until test result known

Confirmed: until serological evidence of immunity (ie IgG sero-positive and IgM sero-negative)

If rubella develops: until at least 4 days after appearance of rash</td></tr><tr><td>Varicella (chickenpox)</td><td>Until all blisters dried (usually at least 5 days)</td></tr><tr><td>Human parvovirus B19 (Slapped Face)</td><td>Exclusion not necessary as non-infectious once rash develops</td></tr></table>
Note: Staff should be screened for measles, mumps, rubella and Varicella infection before starting employment. If not immune, they should be offered vaccination unless contraindicated</td></tr>
</table>

Source: NHMRC (2019)[5]

COV: coronavirus; COVID-19: coronavirus disease 2019; hMPV: human metapneumovirus, IgG: immunoglobulin G; IgM: immunoglobulin M; MERS: Middle Eastern respiratory syndrome; RSV: respiratory syncytial virus; SARS: Severe acute respiratory syndrome

Resources and references

Resources and references

Resources

Health status screening and immunisation (https://app.magicapp.org/#/guideline/Jn37kn/section/LkzJWj) . In: NHMRC. Australian guidelines for the prevention and control of infection in healthcare (https://app.magicapp.org/#/guideline/Jn37kn) (2019)

Communicable Diseases Network Australia series of national guidelines (https://www.health.gov.au/resources/collections/cdna-series-of-national-guidelines-songs)

Communicable Diseases Network Australia national Guidelines for healthcare workers on managing bloodborne viruses (https://www.health.gov.au/resources/collections/cdna-national-guidelines-for-healthcare-workers-on-managing-bloodborne-viruses)

Relevant Australian standards

Royal Australian College of General Practitioners. Core Standard 3. Criterion C3.5 – Work health and safety (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/core-standards/core-standard-3/criterion-c3-5-work-health-and-safety) . In: Standards for general practices (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/table-of-contents) . 5th Edition. East Melbourne, Vic: RACGP, 2020.

Royal Australian College of General Practitioners. GP Standard 4. Criterion GP4.1 – Infection prevention and control, including sterilisation (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/core-standards/core-standard-4/criterion-c4-1-health-promotion-and-preventive-car) . In: Standards for general practices (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/table-of-contents) . 5th Edition. East Melbourne, Vic: RACGP, 2020.

References

1. Australian Government Department of Health and Aged Care. CDNA National Guidelines for healthcare workers on managing bloodborne viruses. Australian Government (https://www.health.gov.au/resources/collections/cdna-national-guidelines-for-healthcare-workers-on-managing-bloodborne-viruses) ; 2022 [Accessed 3 October 2022].
2. Australian Government Department of Health and Aged Care. Preparing for vaccination. Australian immunisation handbook (https://immunisationhandbook.health.gov.au/contents) . Canberra: Australian Government; 2021. [Accessed 3 October 2022].
3. Australian Technical Advisory Group on Immunisation of the Australian Government

Department of Health and Ageing. The Australian immunisation handbook. Canberra: Australian Government Department of Health and Ageing (https://immunisationhandbook.health.gov.au) . [Accessed 3 October 2022].
4. Australian Government Department of Health and Aged Care. COVID-19 vaccines (https://www.health.gov.au/initiatives-and-programs/covid-19-vaccine) . Australian Government; 2022 [Accessed 30 April 2022].
5. National Health and Medical Research Council. Australian guidelines for the prevention and control of infection in healthcare (2019) (https://www.nhmrc.gov.au/about-us/publications/australian-guidelines-prevention-and-control-infection-healthcare-2019) . Version 11.12 Updated March 2022. Canberra: National Health and Medical Research Council; 2019 [Accessed 30 September 2022].

7. Sharps

Overview – Sharps

Overview – Sharps

A ‘sharp’ in health care is defined as anything that can penetrate the skin. Sharps encountered in general practices and other office- and community-based practices include needles and syringes (considered as a single unit as they are not to be disconnected), scalpel blades, stitch cutters, glass ampoules and vials, sharp plastic items, punch biopsy equipment, lancets, any other sharp surgical instrument for disposal, retractable sharps such as lancets for glucose testing, wire cytology brushes, razors, scissors and box cutters.

Healthcare workers are at risk of injury from sharps during many routine procedures and during disposal. The safe handling, transport and disposal of sharps is necessary to prevent injury and the possible transmission of infection to patients, doctors, other health professionals, practice staff and cleaning contractors.

Sharps may be contaminated by biological substances (eg blood, microorganisms) as well as other hazardous substances (eg medicines, chemicals). All sharps, unless known to be sterile, should be considered contaminated and disposed of in appropriate sharps containers.

Clear protocols for safe handling, use and disposal of sharps are necessary to prevent injury that could lead to infection.

Staff must never handle sharps needles or blades directly, even while gloved.

All staff who may come in contact with sharps need education about the safe use and disposal of sharps.

The infection prevention and control coordinator could educate, train and lead the team to practising safe sharps management consistently.

Responsibilities for sharps management

Responsibilities for sharps management

Employers are responsible for minimising workplace hazard and risk under work health and safety legislation.

While the risk of sharps injury will vary between staff members, it will never be eliminated for all. Therefore, risks must be strategically managed. The infection prevention and control coordinator must take an active role in sharps management to reduce risk without compromising patient safety or quality of care.

An organisation-wide approach to sharps management includes training and education on the risks associated with procedures and devices, as well as implementing safer working practices.

All individuals in the practice are responsible for:

- being familiar with protocols for handling and disposal of sharps and following them correctly (including users disposing of their own sharps)
- knowing which sharps incidents are notifiable under relevant legislation as exposure incidents, and knowing who to report to within the practice (see Exposure to blood and other body substances (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/8-exposure-to-blood-and-other-body-substances/overview))
- reporting needlestick injuries or other sharps-related injuries immediately as relevant (eg to the infection control coordinator or other designated staff member on duty)
- making sure anyone with a sharps injury receives appropriate first aid, assessment, and follow-up care (see Exposure to blood and other body substances (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/8-exposure-to-blood-and-other-body-substances/overview)), and that the source patient is assessed immediately, if known ❗
- making sure they are vaccinated against hepatitis B and have sufficient immunity (see Staff immunisation policy and procedures (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/6-staff-screening-immunisation-and-infection-manag/staff-immunisation-policy-and-procedures))
- participating in education sessions and professional development sessions on handling sharps, as well as those on the use of new safety devices.

Safe sharps handling practices

Safe sharps handling practices

Sharps injuries can be significantly reduced when the person who is using or generating the sharp takes responsibility for its safe management and immediately disposes of it into an appropriate container at the point of use (Table 7.1. Essentials of safe sharps management (#7.1)).

Sharps containers

Sharps containers must meet current relevant standards (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/7-sharps/resources) and must be:

- mounted (eg on a wall or trolley) to prevent movement during use and to prevent tipping, and
- placed so that they are at an accessible height for the healthcare worker, with the opening of the container visible, but out of reach of children and others, to prevent hands and fingers entering the disposal unit (approximately 1300 mm or more off the ground).

Place sharps containers at the point of care.

To minimise the risk of incorrect disposal, sharps containers could be positioned away from general waste bins. They could be positioned so that no other bin or skip can be placed underneath, to reduce the risk of sharps dropping into other containers during disposal.

A wide-necked sharps container must also be available for any sharps that must be collected by brush and pan, such as shattered glass.

Avoid the use of reusable scalpel handles in favour of disposable sterile single-unit scalpel blades and handles. However, if they are used, blade-remover sharps containers must be used.

Picking up sharps

Instruments – never fingers – must be used to grasp needles, and load/unload needles and scalpels.

Staff must not pick up needles or blades directly with their hands, pass a sharp directly to another person, or leave an undisposed sharp exposed.

Staff should develop and practice safe protocols for working together when sharps are present.

Exercise standard precautions when managing dropped sharps, including wearing gloves. Use tongs, artery forceps or a brush and pan and immediately place the sharp in a sharps container using a retrieval method that minimises the risk of exposure. Empty sharps containers should be available for this purpose; staff should bring the sharps container to the site of a dropped sharp item, not carry the item to a wall-mounted or trolley-mounted sharps container unless immediately alongside.

Needles mounted on syringes can be carefully picked up by the attached syringe while wearing gloves, pointing needle away from the body and bringing sharps container to the sharp to avoid carrying the unit any distance.

Table 7.1. Essentials of safe sharps management

✓ **Do**	**Think about safe disposal before generating sharps.** Sharps are disposed of at the point of use. **Minimise handling of sharps.** Strategically placed sharps containers must be immediately available in all areas where sharps are generated – no more than 1–2 metres travel should be needed. **Accept responsibility for the safe disposal of sharps.** The person who generates sharps is responsible for its safe disposal. **Set up a neutral zone for sharps.** Designate an area where sharps may be placed and retrieved exclusively ('neutral zone'). This practice reduces the incidence of percutaneous injuries and blood exposures by reducing the occurrence of hand-to-hand transfer of sharp instruments. **Dispose of sharps correctly.** Ensure that sharps are immediately placed into an approved sharps container at the point of use. Place disposable surgical sharps used during a procedure into a puncture-proof container (eg a colour-coded kidney dish), tray, or suture needle holder located in the neutral zone. **Make sure sharps containers are correctly selected, installed and managed.** Ensure that sharps containers: • are compliant with Australian standards • are positioned so that the opening is clearly visible by the health professional when disposing of sharps, to avoid accidental injury from protruding sharps • are placed out of the reach of children • are properly mounted (eg on a wall or trolley) to prevent falling over • are closed and replaced as appropriate • are not over-filled. **Make sure scalpel blade removers are securely mounted to the wall or trolley.** **Lock/seal and store full sharps containers safely until collected.**

✕ **Don't**	**Don't re-cap, remove, bend or break/clip used needles.** Most sharps injuries occur when attempting to manipulate a used needle. **Don't handle scalpel blades.** When loading scalpel blades (if disposable units not used), use artery forceps to hold the blade. When removing used blades, use a wall-mounted, approved scalpel blade removal device. **Don't pass sharps directly from hand to hand.** **Don't overfill sharps containers (ie do not fill above the fill line).** The practice of compacting sharps by shaking the container without the lid on, or forcing more sharps into an already full container can lead to a sharps injury. **Don't reopen a full sealed sharps container.** Attempting to reopen a full container can lead to a sharps injury. **Don't hold 'hands free' scalpel removal devices by hand.** Mount according to the manufacturer's instructions securely (eg on a wall or trolley) and do not remove for replacement until the full bin is locked/sealed.

Safety-engineered medical devices

Safety-engineered medical devices

Practices may reduce the risk of sharps injuries through the use safety-engineered medical devices and other technologies that significantly reduce the risk of sharps injury, such as:

- self-retracting single-use lancets for blood glucose testing
- self-retracting cannula insertion devices
- round-tipped scalpel blades instead of pointed sharp-tipped blades
- vacuum blood collection tubes
- properly installed scalpel blade removal devices
- plastic ampoules in place of glass
- sharps containers meeting Australian Standards and appropriately mounted (eg on a wall or trolley).

Reducing risk of infection after a sharps injury

Reducing risk of infection after a sharps injury

Sharps injuries (including needlestick injuries) must be reported to the state or territory safe work authority if there has been exposure to blood or other body substances. Staff members must report any sharps injury to senior practice staff, who may be required to report it to the work health and safety authority in their state or territory.

The infection prevention and control coordinator and practice owner must maintain up-to-date information on requirements according to jurisdiction work health and safety laws.

If a sharps injury exposes a staff member to blood or other body substances, staff must follow the procedures for managing exposure to blood and other body substances (see 8. Exposure to blood and other body substances (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/8-exposure-to-blood-and-other-body-substances/overview)).

Resources

Resources

Use and management of sharps, safety engineered devices and medication vials (https://app.magicapp.org/#/guideline/Jn37kn/section/jDWlzE) . In: NHMRC. Australian guidelines for the prevention and control of infection in healthcare (https://app.magicapp.org/#/guideline/Jn37kn) (2019)

RACGP Position statement. Mandatory COVID-19 vaccination for healthcare workers including GPs (https://www.racgp.org.au/advocacy/position-statements/view-all-position-statements/clinical-and-practice-management/mandatory-covid-19-vaccination-healthcare-workers) (2021)

Relevant Australian standards

Royal Australian College of General Practitioners. GP Standard 4. Criterion GP4.1 – Infection prevention and control, including sterilisation (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/core-standards/core-standard-4/criterion-c4-1-health-promotion-and-preventive-car) . In: Standards for general practices (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/table-of-contents) . 5th Edition. East Melbourne, Vic: RACGP, 2020.

AS 23907 Sharps injury protection — Requirements and test methods — Sharps containers

AS/NZS 3825 Procedures and devices for the removal and disposal of scalpel blades from scalpel handles

AS/NZS 4261 Reusable containers for the collection of sharp items used in human and animal medical applications

AS/NZS 4261 AMDT 1 Reusable containers for the collection of sharp items used in human and animal medical applications

8. Exposure to blood and other body substances

Overview – Exposure to blood and other body substances

Overview – Exposure to blood and other body substances

All staff must be aware of how to prevent exposure to blood or body substances (except sweat).

Any blood or other body substances to which a staff member is exposed must be managed as potential sources of blood-borne viral infections, regardless of the individual's diagnosis or perceived risk.

All staff need to know what to do if they are (or someone else is) exposed to blood or body substances, including who to report the incident to and what immediate actions are needed.

Management of an occupational exposure involves first aid, including immediate decontamination of the exposed area, risk assessment, rapid testing of the exposed person and the source person for blood-borne viruses, prompt post-exposure prophylaxis (if indicated), full documentation of the incident to enable investigation, counselling of the exposed person and source person, analysis of the cause of the exposure incident and modification of procedures as required to reduce the risk of recurrence, and staff education.

Some steps must be done within the practice. These include decontamination, documentation, analysis, risk reduction and staff education.

Allocation of responsibilities for other steps depends on the individual practice's policy. Practices may choose to refer to external providers (eg occupational health physicians or hospital emergency departments) for risk assessment, blood-borne virus testing and post-exposure prophylaxis if required (these must occur within a few hours of the exposure), and for counselling.

Practices must follow requirements for reporting sharps injuries and exposures to blood or other body substances according to legalisation in their state or territory.

Blood-borne viral infection risk

Blood-borne viral infection risk

Exposure to blood and other body substances is a risk for transmission of blood-borne viral infections such as hepatitis B, hepatitis C or HIV between healthcare workers and patients.

Procedures associated with risk of exposure of blood-borne viral infections include management of traumatic injury and invasive procedures where there is potential for direct contact between the skin (usually finger or thumb of the healthcare worker) and sharp surgical instruments, needles, or body parts (such as fractured bones or teeth). The degree of risk depends on the amount of blood or body substance injected and the viral load of the person whose blood or body substances were involved in incident (the source).

The risk of transmitting a blood-borne virus from an untreated infected healthcare worker to a patient during an episode of exposure varies between studies and has been reported as 0.2–13.19% for hepatitis B virus, 0.04–4.35% for hepatitis C virus, and 0.0000024–0.000024% for HIV. The risk of transmission from an untreated infected patient to a healthcare worker during an exposure episode has been reported as 1– 62% for hepatitis B, 0–7% for hepatitis C, and 0.3% for HIV infection.[1]

All blood and body substances must be treated as though infectious, regardless of the person's diagnosis or perceived risk of transmitting infection. Blood carries the highest risk (see Assessing risk of infection transmission (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/10-reprocessing-reusable-medical-devices/risk-assessment)).

Strategies for preventing exposure to blood and body substances

Strategies for preventing exposure to blood and body substances

Preventing blood and body substance exposure is achieved by implementing standard precautions (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/5-levels-of-precaution/standard-precautions) and other well-defined safe work practices. All staff at risk of blood or body substance exposure must be able to demonstrate an understanding of the principles of standard precautions and transmission-based precautions.

Depending on their role and duties, staff may also need to:

- use safety-engineered devices where available
- practise safe handling and disposal of sharps
- practise safe handling and transport of specimens
- practise safe handling and disposal of waste
- use standard precautions for environmental cleaning
- use appropriate cleaning methods for blood and body substance spills
- practise safe handling and cleaning of reusable medical devices.

Responsibilities for managing exposure to blood and body substances

Responsibilities for managing exposure to blood and body substances

The practice must have written policies and procedures to manage accidental exposure to blood or body substances, whether by penetrative injury or splash to eyes, mucous membranes or broken skin. These policies should be relevant to the daily routines of the practice and must be reviewed and updated regularly (Table 8.1. Policies and procedures to prevent blood-borne infections (#table81)).

In the event of an exposure incident, all staff must know:

- what to do immediately after an exposure
- who is responsible for ensuring that necessary activities are carried out
- who to report to.

Staff must have immediate access to contact details of the nearest emergency department (including location), the nominated external service provider to whom the practice refers, and the health authority to which they must report exposures.

Employers must ensure that staff receive regular training and education appropriate for the tasks they are expected to perform.

Staff involved in exposure-prone procedures must have access to appropriate information, training, counselling and vaccination programs.

It is mandatory to report occupational exposures immediately to a designated person, if present, for advice and further treatment, if indicated and available. All testing procedures and follow-up treatment must be fully documented. Practices must follow their state or territory requirements for reporting sharps injuries and exposures to blood or other body substances.

If the incident occurred during a procedure, the possibility of the patient being exposed to the injured health professional's blood must also be considered. If there is a risk of that a patient was exposed to a health professional's blood, the guidance on risk assessment, screening test and treatment for the exposed person must be applied to the patient.

After exposure incident has occurred and been managed, the employer must analyse the cause and modify procedures as required to reduce the risk of recurrence and protect staff.

Healthcare workers have a responsibility to know whether they have blood-borne infections. Practices could encourage self-disclosure by ensuring confidentiality and, where practical, by providing counselling and modification of work practices or redeployment to reduce risk of transmission, if necessary.

Healthcare workers with blood-borne infections should be advised by their treating clinician about any limitations to exposure-prone procedures they can perform.

Table 8.1. Policies and procedures to prevent blood-borne infections

Each practice must have clear policies and procedures for all of the following:
Safe handling and disposal of sharps
Safe handling and transport of specimens
Safe handling and disposal of waste
Environmental cleaning
Appropriate management of blood and body substance spills
Safe handling and cleaning of reusable medical devices
Exposure to blood and body substance
Hand hygiene
Where patients and staff can access personal protective equipment
How and when staff members are educated on the appropriate application, removal, and disposal of personal protective equipment.

Summary of steps for managing an exposure incident involving a staff member or patient

Summary of steps for managing an exposure incident involving a staff member or patient

Blood or body substance exposure must be assessed and managed immediately to reduce the risk of infection.

Response to an exposure incident includes both care of the exposed person, and actions directed towards the person whose blood or body substances were involved in the incident (source person), if known.

Recommended steps include:

- immediate decontamination of the exposed area and treatment of any wounds
- immediate reporting of the exposure to the infection prevention and control coordinator or designated responsible person
- immediate assessment of the risk of transmission of infection. The practice may choose to refer the exposed person to an occupational health physician or transfer them to a hospital emergency department for this assessment and counselling.
- prompt treatment if indicated, eg post-exposure prophylaxis against a known or suspected blood-borne virus, tetanus vaccination or immunoglobulin, as required. If the exposed person is referred for assessment, treatment is administered or arranged by the hospital or consulting physician. (Post-exposure prophylaxis is not delayed while waiting for results of testing of the source person, but is administered immediately when indicated on the basis of the assessment.)
- confidential counselling for the source person and testing for hepatitis B virus, hepatitis C virus and HIV (or verifying documented carrier status). The practice may choose to refer to source person to an infectious disease physician for counselling and testing.
- documentation of the exposure incident
- testing the exposed person for blood-borne viruses.

Some steps must be done within the practice. These include decontamination, documentation, analysis, risk reduction and staff education.

Allocation of responsibilities for other steps depends on the individual practice's policy. Practices may choose to refer to external providers (eg occupational health physicians or hospital emergency departments) for blood-borne virus testing, risk assessment, post-exposure prophylaxis, and counselling (Table 8.2. Summary of responsibilities when preparing for and responding to a blood/other body substance exposure incident (#8.2)).

Table 8.2. Summary of responsibilities when preparing for and responding to a blood/other body substance exposure incident

Before an incident (always)	All staff: Use standard precautions and follow safe work practices. **Clinical staff:** Keep up to date on knowledge of blood-borne diseases and current procedures for immediate actions in managing blood or body substance exposure, including current prophylaxis measures. **The practice:*** Establish clear policies and educate staff on: • correct use of safety-engineered medical devices or safe-sharp devices • safe handling and disposal of sharps and waste • safe handling and transport of specimens • environmental cleaning, including appropriate management of blood and body substance spills • safe handling and cleaning of reusable medical devices.
Immediately after exposure	**Exposed person (staff member or patient):** • Decontaminate exposed area, (eg wash wound, rinse eyes if splashed). • Report exposure immediately. • Obtain or arrange referral for assessment and possible prophylaxis immediately. • Ensure the incident is documented. **Clinician managing incident:** • Verify that an exposure has actually occurred. (Body fluid contact with intact skin, or accidental skin penetration by an unused sharp will not necessitate management as an exposure incident.) • Ensure the exposed site has been decontaminated. • Arrange or perform risk assessment, testing and counselling for the source person. Contact the source person's treating clinician for information about risk. • Arrange or perform wound care, counselling and post-exposure prophylaxis for the exposed person, as indicated according to the risk assessment **The practice:*** • Ensure risk assessment is completed for the incident. • Arrange/provide immediate assessment and treatment of the exposed person. • Ensure that the incident is documented.

Follow-up after exposure	**Exposed person (staff member or patient):** Follow all instructions **Clinician managing incident:** • Arrange referral to infectious disease specialist, if necessary • Arrange testing for blood-borne viruses. **The practice:*** • Perform a risk analysis to determine any need for a change to systems. • Make any changes necessary. • Reassess to ensure changes are effective in preventing recurrence.

* Duties assumed by the infection prevention and control coordinator, practice manager or owner

More information: caring for the exposed person (staff member or patient)

Immediate decontamination of exposed area – within the practice

Skin: wash with soap and water or a skin disinfectant product. Do not squeeze the wound. Do not use caustic agents (eg bleach) as these may compromise skin integrity.

Mouth, nose, or eyes: rinse well with water or saline.

Treat the wound as appropriate (eg suturing, dressing).

Immediate reporting of the incident by the practice

Report exposure to a doctor to ensure prompt and appropriate commencement of treatment.

> **Note: If possible, the exposed person must then be referred outside the practice (eg to an emergency department or specialist).**
>
> The following information describes the steps that are usually performed by an external provider.

Testing the exposed person for blood-borne viruses and providing instructions and information

If the source (patient on whose blood or body substances the person was exposed to) is unknown, the exposed person is tested for blood-borne viral infections. Baseline tests for antibody levels of HIV, hepatitis B virus and hepatitis C virus are performed to establish the person's immune status and identify previously acquired infection. The request should be marked as urgent and fast-tracking of results should be arranged with the laboratory.

Privacy legislation and public health guidelines for handling the exposed person's personal information and maintaining confidentiality must be followed.

An exposed staff member may choose to have these tests performed outside the practice (eg at a different general practice, hospital emergency department, infectious diseases consultant, or sexually transmitted infection clinic).

If post-exposure prophylaxis is required, it should commence within 48 hours. This is normally provided by a hospital, specialist clinic or s100 prescribers.

The exposed person should avoid unprotected sex (eg use a barrier method, such as condoms) until their results are known and discussed and the source patient's risk history have been reviewed.

The exposed person must be given the phone number for the state/territory health department communicable/infectious diseases unit (see Links (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/links)).

If the injury is high risk, or if the source patient has risk factors for blood-borne viral infections the exposed person should be referred to an infectious diseases specialist and/or s100 prescriber, where relevant.

Assessing risk of infection transmission

The degree of risk of infection transmission after exposure to blood or other body substances depends on the type of injury, the type and volume of body substance, and the source patient's infection status.

The highest risk is associated with percutaneous exposure to blood from an infected person with a high titre of hepatitis B virus, hepatitis C virus or HIV. The risk of transmission of blood-borne viruses is very low after exposure to faeces, nasal secretions, saliva, sputum, sweat, tears, urine and vomitus, unless the substance is visibly bloody.[2]

Practices must contact health authorities for advice on risk level in a specific case, or refer the injured person for expert risk assessment.

Post-exposure prophylaxis

Post-exposure prophylaxis can include HIV prophylaxis, hepatitis B immunoglobulin, hepatitis B vaccine, tetanus-containing vaccination and/or immunoglobulin.

Prophylaxis is normally arranged by the infectious diseases referral clinic/hospital. If it is not possible to refer the exposed person for specialist assessment and treatment, practices must consult their state/territory health department communicable disease unit for advice about appropriate post-exposure prophylaxis (see Links (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/links)).

More information: caring for the source person

Explaining the process

If the source is known and contactable, the practice must explain to the source that a health professional was inadvertently exposed to their blood or body substance, and that assessment and testing is required because:

- every healthcare facility follows this protocol after an exposure of a health professional to blood or body substances
- all sources are assessed and tested – there is no discrimination
- it would be of benefit to the exposed health professional, eg to help their managing clinician decide if any follow-up is needed.

If relevant, the source should be reassured that they are not responsible for the accident, that they have not been exposed, and that there will be no cost to them.

The practice should explain that the incident is being investigated to prevent a recurrence, and reassure the source that their confidentiality will be maintained within privacy and public health guidelines.

Arranging pre-test counselling for the source person

Pre-test counselling should be offered to the source. This is required by legislation in some states and territories. Counselling must be provided by a qualified person.

The source should be informed about the expected waiting time for test results, and that this lag time is the reason it is necessary to ask them personal questions about activities that are known to carry risk of viral transmission.

Taking a history from the source person

- unprotected sexual intercourse, multiple partners, or partners from a high-risk region
- sharing injecting needles or inhalation equipment
- tattoos or body piercing
- sharing razor blades or toothbrushes
- blood or body substance exposure of mucous membranes or nonintact skin
- blood transfusion before February 1990 (for hepatitis C virus)
- previously diagnosed infection with HIV, hepatitis B or hepatitis C.

Testing the source person for blood-borne viruses

Most patients will agree to a blood test if they are approached in a sensitive manner. In some states and territories there is legislation that includes mechanisms requiring testing if the source refuses or is unable to consent to testing.

Informed consent must be obtained from the source for testing for hepatitis B, hepatitis C and HIV.

The source's blood should be tested as soon as possible. Results can be available within 1 hour if received at an appropriate testing laboratory. The referring hospital or specialist clinic would normally conduct this testing.

Commencement of prophylaxis, if required, should not be delayed while waiting for blood test results.

Documentation of the exposure

Documentation of the exposure

After the exposure has been managed, document the following information:

- what procedure was being undertaken when the exposure occurred
- how the injury occurred
- the nature and extent of the injury
- exactly what caused the injury (eg specify the needle gauge)
- the type of body substance involved
- how much blood/body substance the staff member was exposed to
- what personal protective equipment was being used
- the source person, if identified. This must be managed in a way that protects the source person’s privacy.

Resources and references

Resources and references

Resources

Australasian Society for HIV, Viral Hepatitis and Sexual Health Medicine (ASHM). Post-exposure prophylaxis after non-occupational and occupational exposure to HIV. Australian National Guidelines (https://ashm.org.au/wp-content/uploads/2022/04/PEP_GUIDELINES_2016.FINAL_ONLINE_VERSION.pdf) (2nd edition). 2016

The Australian immunisation handbook (https://immunisationhandbook.health.gov.au/)

See Links (#_Links) (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/links) for a list of state and territory communicable diseases/infectious disease units.

Victorian Department of Health: Managing exposures to blood and body fluids or substances (https://www.health.vic.gov.au/infectious-diseases/managing-exposures-to-blood-and-body-fluids-or-substances)

NSW Health: Work Health and Safety - Blood and Body Substances Occupational Exposure Prevention (https://www1.health.nsw.gov.au/pds/ActivePDSDocuments/GL2018_013.pdf)

SA Health: Handling blood and other body substances (https://www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/conditions/infectious+diseases/handling+blood+and+other+body+substances)

Western Australia Department of Health: Communicable Disease Control Directorate Guideline: Management of Occupational Exposure to Blood or Body Fluids in Healthcare Settings (https://ww2.health.wa.gov.au/~/media/Corp/Documents/Health-for/Infectious-disease/HISWA/Management-of-OEs-to-Blood_Body-Fluids-2022.pdf)

Queensland Health: Management of occupational exposure to blood and body fluids (https://www.health.qld.gov.au/__data/assets/pdf_file/0016/151162/qh-gdl-321-8.pdf)

ACT Health: Occupational Risk Exposure (ORE) Pack (https://www.health.act.gov.au/sites/default/files/2018-09/Blood%20Borne%20Virus%20-%20Occupational%20Risk%20Exposure%20Management%20Attachment.pdf)

Relevant Australian standards

Royal Australian College of General Practitioners. GP Standard 4. Criterion GP4.1 – Infection prevention and control, including sterilisation (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/core-standards/core-standard-4/criterion-c

4-1-health-promotion-and-preventive-car) . In: Standards for general practices (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/table-of-contents) . 5th Edition. East Melbourne, Vic: RACGP, 2020.

References

1. Communicable Diseases Network Australia. Australian national guidelines for the management of healthcare workers living with blood borne viruses and healthcare workers who perform exposure prone procedures at risk of exposure to blood borne viruses (https://www.health.gov.au/resources/collections/cdna-national-guidelines-for-healthcare-workers-on-managing-bloodborne-viruses) (revised 2019): Australian Government Department of Health; 2018 [Accessed 31 March 2022].
2. Pierce A. Exposure to blood-borne viruses. In: Symons J, Myles P, Mehra R, Ball C, editors. Perioperative medicine for the junior clinician. Sussex, UK: Wiley Blackwell; 2015. p. 370-373.

9. Cleaning, laundry and waste management

Overview – Cleaning, laundry and waste management

Overview – Cleaning, laundry and waste management

Practices must have a current cleaning policy that identifies staff members' responsibilities, work health and safety issues, and procedures for routine scheduled cleaning, unscheduled cleaning, and monitoring of effectiveness.

The practice must perform a risk analysis to determine the methods, frequency and thoroughness of cleaning and the products used.

Avoid reusable linen where possible (eg through use of single-use paper sheets on examination tables, single-use disposable surgical drapes, disposable sterile barrier systems for surgical packs).

If reusable linen is used, the practice must have a policy on when to change linen, precautions when handling soiled linen, and the procedures for washing, drying (if done on site) and storing linen in accordance with the current relevant standard (https://www.standards.org.au/standards-catalogue/sa-snz/manufacturing/tx-016/as-slash-nzs--4146-2000) .

Clinical linen must not be laundered in a staff member's home, because most domestic washing machines cannot achieve the washing cycle temperature, time and detergent dosing or the drying time and temperature specified in the relevant standard for laundering linen. (Clinical linen includes all linen used in the practice except tea towels used only in the practice kitchen/lunchroom.)

Staff members responsible for cleaning and on-site laundry must be given education and training to perform these duties correctly and in accordance with the current relevant standard (https://www.standards.org.au/standards-catalogue/sa-snz/manufacturing/tx-016/as-slash-nzs--4146-2000) .

All staff, including those without primary responsibility for cleaning, laundry or waste management, must understand and follow policies for cleaning and hygiene throughout the practice.

The practice must have an up-to-date policy for waste management that conforms to state or territory regulations and meets the current national standard for management of clinical and related wastes.

Waste must be safely and appropriately segregated into clinical (and related) waste and general waste as it is generated. Staff responsible for handling waste must receive regularly updated education and training on safe handling and disposal.

Policy and responsibilities

Policy and responsibilities

Cleaning is fundamental to infection prevention and control. Routine cleaning of all surfaces and equipment reduces dust and dirt, which can harbour microorganisms. Prompt unscheduled cleaning and disinfection is required as part of standard precautions whenever blood or other body substances unintentionally contaminate surfaces that come into direct contact with skin.

All practices must have a cleaning policy that includes both routine and scheduled cleaning (Table 9.1. What to include in a practice cleaning policy (#9.1)). The cleaning policy could set out the roles and responsibilities of all staff.

Specific cleaning requirements will vary for each practice. Risk analysis must be undertaken to determine the methods, frequency and thoroughness of cleaning and the products and equipment used.

All staff members with responsibility for cleaning, including cleaners who are not part of the practice team, must adhere to the practice cleaning policy.

If cleaning activities are outsourced to cleaning service providers, document all cleaning delivery procedures , including minimum cleaning frequencies and methods, staffing, equipment (including chemicals for standard and transmission-based precautions, monitoring/auditing, and management of the cleaning service. Include the practice's cleaning policy in any contract and conduct audits to ensure the policy is being adhered to.

Table 9.1. What to include in a practice cleaning policy

The name of the infection prevention and control coordinator and the staff member responsible for implementing cleaning policies (if different).

Work health and safety issues (use of standard precautions, use of transmission-based precautions where required, use of personal protective equipment, relevant immunity/immunisation, eg against hepatitis B virus (see 6. Staff screening, immunisation, and infection management (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/6-staff-screening-immunisation-and-infection-manag)), procedures for managing exposure to blood or other body substances, safe use of chemicals used, poisons information).

Scheduled cleaning details procedures: schedule and description (areas, surfaces and items to be cleaned at which intervals and with which products and equipment).

Safety data sheets for hazardous chemicals used in cleaning (more information available from Safe Work Australia (https://www.safeworkaustralia.gov.au/safety-topic/hazards/chemicals/safety-data-sheets)).

Unscheduled cleaning procedures: method and products to be used in each likely scenario.

Monitoring process: when and how the effectiveness of cleaning will be checked.

Each practice must appoint a person responsible for ensuring implementation of practice cleaning policies, and ensure that all staff, including any contract cleaners, need to know who has this role.

All staff and contractors must report to this person if there are any problems with scheduled cleaning or if an event occurs that requires unscheduled cleaning (eg contamination of any surface or equipment with blood or body substances).

Work health and safety issues

Work health and safety issues

The cleaning policy must address work health and safety issues relevant to environmental cleaning, including:

- the use of standard precautions
- immunisation against hepatitis B virus (see Staff screening, immunisation, and infection management (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/6-staff-screening-immunisation-and-infection-manag/overview))
- the use of personal protective equipment in specified circumstances (see Personal protective equipment (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/3-personal-protective-equipment/overview))
- the protocol for managing exposure to blood or body substances (see Exposure to blood and other body substances (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/8-exposure-to-blood-and-other-body-substances/overview))
- correct product use and the location of safety data sheets in the event of chemical exposure
- contact details for the relevant jurisdictional poisons authority.

Employers have an obligation under work health and safety legislation to obtain safety data sheets for hazardous chemicals used in the workplace, including potentially toxic cleaning products, and to ensure staff have appropriate immunity to blood-borne viruses.

Safety data sheets identify the chemical ingredients, related hazards, information on safe handling and storage, first aid information, and other safety information. Safety data sheets are available free of charge from suppliers of hazardous chemicals.[1]

A register of hazardous chemicals used, handled or stored at the workplace must be prepared and kept up to date at the workplace. This register must include the current safety data sheet for each of these chemicals, and must be readily available to all workers who use or may be affected by the chemicals at the workplace.[1]

Scheduled cleaning

Scheduled cleaning

Practices must have a cleaning schedule that ensures that the practice is systematically and appropriately cleaned. The cleaning schedule sets out the staff who are responsible for cleaning, the surfaces that need cleaning, the frequency of cleaning, the cleaning method, and the products and equipment to be used (Table 9.2. Examples of items in a practice cleaning schedule (#9.2)).

In addition to scheduled cleaning (routine cleaning that occurs at pre-planned intervals, regardless of events), opportunistic cleaning may also be necessary throughout the working day. This may include cleaning surfaces after they are touched by a patient with a potentially transmissible infection (for example, disinfecting a chair or examination table after a patient with influenza).

The cleaning agent, method and frequency depend on the risk of transmission of clinically significant pathogenic microorganisms. The practice's risk assessment for each surface or item will depend on:

- the potential for exposure (eg high-touch versus low-touch surfaces)
- the pathogenic microorganisms likely to be present, including the possible presence of multidrug-resistant microorganisms (Table 9.3. Examples of persistence of microorganisms on dry surfaces (#9.3)). This may change over time, eg during an outbreak.
- and the vulnerability of patients or staff to infection.

Table 9.2. Examples of items in a practice cleaning schedule

Surface	Usual cleaning agent[(a)]	Usual method[(b)]	Frequency	Person responsible
Door handles (consultation rooms, examination room)	Detergent and water	Damp wipe	Daily	[*Name*]
Door handles (toilets)	Detergent and water	Wipe	Twice daily and after use by patient with suspected relevant infection	[*Name*]

Surface	Usual cleaning agent[a]	Usual method[b]	Frequency	Person responsible
Surfaces (bench tops, couches, sinks, toilets, sanitary bin lids, floors) Frequently touched surfaces (light switches, handrub dispensing pumps)	Detergent and water	Damp wipe with a disposable cloth or wipe	As determined by the practice, e.g: Bench tops, sinks, toilets and treatment room floors daily Other floors every second day Frequently touched surfaces twice daily during an outbreak	[*Name*]
Hard floors	Detergent and water (Detergent and disinfectant if required for a specific organism)[c]	Vacuum (using vacuum cleaner with HEPA-filter) then damp-mop to ensure dust is captured and not dispersed into the air. Spot cleaning with detergent and paper towel (Note: mops must be cleaned and left to dry after use, not left wet in a bucket)	As determined by the practice	[*Name*]
Carpet[d] – regular vacuum cleaning	Vacuum cleaner with high-efficiency particulate absorbing filter	Vacuum	As determined by the practice (eg daily)	[*Name*]

Surface	Usual cleaning agent[a]	Usual method[b]	Frequency	Person responsible
Carpet[d]/carpet tiles – spot cleaning	Carpet cleaning solution recommended by manufacturer or Vacuum cleaner	Replace carpet tiles that are marked or contaminated Use spill kit to blot excess moisture and other matter (eg vomitus) Clean according to directions for use Dry carpet quickly (ventilation/heating) and quarantine room until dry Use carpet cleaning solution for other spills Use vacuum cleaner for solid objects	As determined by the practice (eg when soiled)	[*Name*]
Carpet – steam[e]/dry cleaning	Usually performed by a carpet cleaning contractor using a hot water extraction method recognised by the current relevant standard (https://www.standards.org.au/standards-catalogue/sa-snz/manufacturing/tx-009/as-slash-nzs--3733-colon-2018) to minimise chemical and soil residue	Perform out of hours if possible Dry carpet quickly (ventilation/heating) and quarantine area until dry	As determined by the practice (eg when soiled or yearly)	[*Name*]

Surface	Usual cleaning agent[a]	Usual method[b]	Frequency	Person responsible
Fabrics (eg upholstered furniture)[f]	Fabric cleaner recommended by the manufacturer or Detergent and water	Clean according to directions for use and quarantine the item until dry	As determined by the practice (eg when soiled)	[*Name*]
Drug refrigerator (outside surface and handle grooves)	Detergent and water or disinfectant	Wipe	Daily spot check Weekly clean	[*Name*]
Other items (eg stethoscopes,[g] plastic blood pressure cuffs, pulse oximeters, digital thermometers, tape measures, digital devices)	Detergent and water, detergent wipes	Clean thoroughly, wipe over with detergent wipe	As determined by the practice	[*Name*]
Mobile phones, tablets	Detergent and water, detergent wipes, alcohol wipes	Wipe	Frequently	[*Name*]
Computer keyboard[h]	Detergent and water, detergent wipes, alcohol wipes	Wipe	Twice daily and when visibly soiled	[*Name*]

HEPA: high-efficiency particulate absorbing

a. The choice to use a disinfectant depends on the local epidemiology and a local risk assessment, such as the presence of a multi-drug resistant organism or other pathogen of concern.

b. Does not apply to blood and body substance spills management

c. The use of a TGA-listed hospital-grade disinfectants with specific claims for efficacy against relevant microorganisms, or a chlorine-based product such as sodium hypochlorite, should be based on assessment of the risk of transmission of infectious agents from the particular spill and the compatibility of the disinfectant with the floor material where the spill occurred.

d. Carpet should not be installed in treatment areas, which should have hard smooth flooring that can be easily cleaned.

e. Steam cleaner must operate at correct temperature to inactivate microorganisms.

f. Upholstered chairs should be avoided and replaced with chairs that have non-porous, smooth surfaces and smooth edges with no grooves or crevices.

g. Some products can damage stethoscope tubing. Check the manufacturer’s advice. stethoscope tubing

h. Washable keyboard covers may be installed.

Table 9.3. Examples of persistence of microorganisms on dry surfaces

Microorganism	Persistence (days)
Acinetobacter species	3 days to 5 months
Clostridium difficile (spores)	5 months
Enterococcus species	5 days to 4 months
Escherichia coli	1.5 hours to 16 months
Klebsiella species	2 hours to >30 months
Mycobacterium tuberculosis	1 day to 4 months
Pseudomonas aeruginosa	6 hours to 16 months
Salmonella typhimurium	10 days to 4.2 years
Shigella species	2 days to 5 months
Staphylococcus aureus	7 days to 7 months
Haemophilus influenza	12 days

Microorganism	Persistence (days)
Adenovirus	7 days to 3 months
Human coronaviruses*	Up to 9 days
Influenza virus	1–2 days
Norovirus	8 hours to 7 days

Reported time ranges for microorganisms detected on dry surfaces (range of surface types as investigated in studies).

*human coronaviruses such as severe acute respiratory syndrome (SARS) coronavirus, Middle East respiratory syndrome (MERS) coronavirus or endemic human coronaviruses

Sources: Siani et al (2015),[2] Kampf (2020)[3]

Scheduled cleaning duties

The cleaning schedule must identify the staff who have responsibility for cleaning and their specific duties. These staff members need task-specific education and training.

If cleaning activities are outsourced to cleaning service providers, practices should make sure that contract cleaners clearly understand their role in the practice's infection prevention and control, including when, how and why they need to clean specific surfaces and equipment. Document all cleaning delivery procedures, including minimum cleaning frequencies and methods, staffing, equipment (including chemicals for standard and transmission-based precautions, monitoring/auditing, and management of the cleaning service.

Scheduled cleaning of surfaces

All environmental surfaces within the practice must be included in the cleaning schedule to ensure that the practice is systematically cleaned. The level of cleaning must be determined based on the risks of contamination and transmission of infection. Risk assessment considers the frequency of traffic or bodily contact of each surface.

Surfaces in frequent use and likely to become soiled over a day include carpets, toilet/bathroom fixtures, consultation room furniture and equipment (examination couch, desk and medical equipment).

Surfaces with minimal contact include windows, walls, doors and general furniture.

It is unfeasible to clean some frequently touched items (eg pens, handles, phones, keypads, computer keyboard, mouse) after each use. These items may be considered as always contaminated; after touching any of these items, health professionals must clean their hands before patient contact (see Hand hygiene (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/2-hand-hygiene/overview)).

A practice's risk assessment should determine if and when frequently touched items should be cleaned.

Frequency of scheduled cleaning

The cleaning schedule must allow for more frequent cleaning of surfaces that are subject to frequent contact (eg heavily trafficked or high-use areas).

Clean frequently touched surfaces at least daily. During an outbreak, cleaning may be necessary twice daily or more often, as advised by health authorities.

In addition to scheduled cleaning, clean high-use surfaces whenever they are visibly soiled and after every known contamination by a likely pathogen.

Surfaces that are subject to less frequent contact can be scheduled for less frequent cleaning, as well as being cleaned when visibly soiled or immediately after contact with blood or other body substances.

Cleaning agents and methods

Cleaning agents and methods

Cleaning agents must be appropriately selected for the intended use.

Factors to consider when selecting cleaning agents include:

- which pathogenic microorganisms are likely to be present. For standard precautions, detergents and/or low-level disinfectants such as quaternary ammonium compounds are suitable. The appropriate agent will change when precautions against a specific pathogen are required. For example, if norovirus is likely to be present, a chlorine-based agent ('bleach') or improved hydogren peroxide is needed.
- kill claim by manufacturer – whether the product kills relevant pathogens and how quickly, has sustained antimicrobial activity after it has been applied to a surface, and will work in the presence of organic matter
- wet-contact times – how rapidly the product will kill microorganisms and whether it will evaporate before the required kill time is reached. The contact time for various common pathogens is shown on disinfectant labels.
- compatibility – with the surfaces to be cleaned, with other cleaning agents used on the same surface
- safety – including whether staff must use personal protective equipment while using the product
- ease of use – whether the product is available in squeeze or pour bottles or wipes, whether it needs dilution, whether the instructions are easy to follow, what training is required
- value for money.

For ease of convenience, safety, and to improve compliance, practices may consider standardising and minimising the number of products kept in the practice.

For surfaces, including hard surfaces such as floors, the choice between detergent only and detergent followed by a disinfectant depends on the local epidemiology and a local risk assessment. A disinfectant must be used, in addition to or combined with detergent, when there is a higher risk of contamination with infectious agents and when transmission-based precautions apply (see 5. Levels of precautions (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/5-levels-of-precaution/overview)).

When disinfectant is required and a combined cleaning/disinfectant product is not used, manual cleaning with water and detergent must be performed before using disinfectant (two-step process).

Common low-level and intermediate-level disinfectants that can be used for this purpose include quaternary ammonium compounds, alcohols (ethel or isopropyl alcohol), chlorine-releasing agents and improved hydrogen peroxide.

Therapeutic Goods Administration-approved products purchased in single-use, pre-diluted containers are preferred, to both reduce error and contamination associated with dilution.

If dilution is required for a detergent or disinfectant product, solutions must be prepared by the practice in accordance with the manufacturer's directions. The practice must date the container and develop a policy to ensure appropriate storage and consideration of shelf life and stock rotation. Ideally, disinfectant solutions (for practices not using pre-diluted products) should be freshly prepared each day or as needed in accordance with the practice's policy. Containers must not be topped-up and unused solution must not be returned to the stock container.

After cleaning, surfaces must be allowed to dry completely, which will only take a few minutes. Excessive moisture, such as pooling in an uneven floor, promotes bacterial growth and may lead to contamination.

Under workplace safety legislation, business owners must ensure safe use and handling of any hazardous chemicals, which includes:

- correct labelling
- correct storage
- maintaining a hazardous chemical register
- holding and supplying current data safety sheets
- training, educating and supervising staff to use them safely.

Selecting a detergent

For general cleaning detergents with a pH range 6–8 are generally appropriate.

Disposable detergent-impregnated wipes are useful for spot cleaning by clinical and other staff. There are many brands of suitable TGA-listed detergent wipes in varying sizes.

Conveniently place detergent wipes where they can be used by staff immediately when needed (eg on dressing trolleys).

The use of detergent wipes is inappropriate for cleaning larger surfaces or for general use (eg by the contract cleaner).

Selecting a disinfectant

When a disinfectant is required, it can be used after cleaning with detergent and water, or can be used in combination with detergent when available in a suitable combined product (often called a 'two in one' approach).

Combined detergent/disinfectant products are available as wipes or solutions. These are suitable for cleaning and disinfecting of visibly clean surfaces, if required after spot cleaning, and for cleaning of frequently touched surfaces during an outbreak.

Disinfectants can reduce the number of microorganisms on a surface, but they are not a replacement for thorough cleaning. The cleaning process determines the effectiveness of any disinfectant.

Requirements for effective disinfection

To kill microorganisms, a disinfectant must:

- be in contact with the surface for long enough (refer to the manufacturer's instructions)
- be used at the right concentration
- be applied to a clean, dry surface
- be effective against the particular microorganism.

Disinfectants used in healthcare settings typically have a contact time of between 30 seconds and 5 minutes for relevant microbial species. Contact time means the period for which the surface must stay wet, after applying the disinfectant solution, to achieve a 99.9% reduction in the number of relevant microbes. The effectiveness of disinfectants in practice can be overestimated for those with long contact times (eg 10 minutes), because it would be difficult to achieve this contact time without reapplying the product.[2]

Cleaning technique

Only use disinfects after the surface has been manually cleaned with a mechanical action; they must not just be applied to a contaminated surface. Disinfectants may fail to kill/inactivate microorganisms when the surface has not been manually cleaned or cleaning was ineffective, because they can be inactivated by organic matter and/or fail to penetrate the matter.

When using combined detergent/disinfectant solutions or wipes, the cleaning method will depend on whether the surface is visibly soiled or not, the agents in the product, and the manufacturer's instructions for use. If the surface is visibly soiled with organic matter, a two-step process is required: clean with one wipe, then disinfect with a second wipe. This technique is required when using either a disposable impregnated wipe or a disposable/reusable cloth to apply the solution.

Disinfectants must be compatible with the surface material to avoid damage to the surface, which could compromise future cleaning.

Classification and types of disinfectants

Disinfectants are classed as low, intermediate or high level (Table 9.4. Classification of disinfectant activity (#9.4)).[4]

Alcohol-based disinfectants can be used on non-critical equipment (equipment in contact with intact skin), such as thermometers, tape measures and stethoscopes, after use. The surface must be clean before application, and sufficient wet contact time is required. Alcohol-based disinfectants may be available as wipes. Hazards of alcohol-based disinfectants include flammability and damage to some substances (eg rubber, plastics and glues).

Quaternary ammonium compounds have detergent as well as disinfectant properties. When used for surface cleaning on a visibly soiled surface they must be applied twice: first the surface should be manually cleaned. Then a fresh wipe or solution should be applied and the surface left wet for the

required contact time to kill microorganisms. They should not be used in combination with soaps or anionic detergents because these agents can deactivate the disinfectant. Quaternary ammonium compounds can cause contact dermatitis of the hands.

Chlorine-based disinfectants such as bleach have limited application in general practices and other office- and community-based practices, but may be used to decontaminate some surfaces during a suspected norovirus outbreak. The solution should be made up just before use (1 part bleach to 9 parts water) and should stay in contact with the surface for at least 10 minutes before drying. Chlorine-based disinfectants are associated with work health and safety hazard (eg lung and skin irritation), can cause instruments to rust, bleach soft fabrics and have an unpleasant odour.

Accelerated hydrogen peroxide[5] is widely used in healthcare including office-based practice. It is highly effective and efficient for killing or inhibiting a broad spectrum of microorganisms including yeasts, fungi, bacteria, viruses, and spores. It physically removes organisms and cleans, has rapid action requiring short contact times (1 minute), and is effective for controlling biofilm. It spreads easily across a surface and penetrates it, leaving no residue on surfaces, and is non-corrosive when used on metals. Accelerated hydrogen peroxide poses a lower risk the user and the environment than other disinfectants because it is non-irritating, non-toxic (free of volatile organic compounds), and safe for use near foods).

Emerging disinfectants and techniques such as ultra violet (UV) irradiation, hydrogen peroxide vapour and other fogging/misting technologies, steam vapour, and high-Intensity narrow-spectrum light, are not routinely used in general practices and other office-based practices.[6] Most require special training.

Disinfectant wipes

There is limited guidance on the use of disinfectant wipes in environmental decontamination in health care.[2]

Disinfectant-impregnated wipes are intended for single use. Their efficacy depends on leaving a layer of liquid disinfectant on a clean surface. If rapid drying occurs, the contact time may be less than required to kill target microorganisms.[7]

Some detergent/disinfectant wipes claim activity against norovirus so it may be convenient to use these instead of chlorine disinfectants, noting the wet contact time required.

Table 9.4. Classification of disinfectant activity

Level	Definition*	Notes
Low	Rapidly destroys/inactivates most vegetative bacteria as well as medium-sized lipid-containing viruses	May not destroy all bacterial endospores, mycobacteria, fungi or inactivate all small nonlipid viruses

Intermediate	Destroys/inactivates all microbial pathogens including *Mycobacterium tuberculosis*, fungi and viruses, except bacterial endospores and some fungal spores	
High	Destroys/inactivates all microbial pathogens except large numbers of bacterial endospores	Generally not used in general practices and other office-based healthcare practices

*when used according to the manufacturer's instructions

Regulation of disinfectants

Chemical disinfectants are regulated by the Therapeutic Goods Administration. Hospital-grade disinfectants that make specific claims to kill microorganisms, and disinfectants intended for use on medical devices, are required to be on the Australian Register of Therapeutic Goods (indicated by AUST R number on label).[8] Other disinfectants not intended for use on skin or medical devices are not required to be registered, but must meet regulatory requirements (indicated by AUST L number on the label).

In response to the COVID-19 pandemic, the Therapeutic Goods Administration has also permitted manufacturers to claim a product is effective against SARS-CoV-2.[9] A list of disinfectant products with specific claims against SARS-Cov-2 or COVID-19 on the product label is available on the Therapeutic Goods Administration website (https://www.tga.gov.au/disinfectants-use-against-covid-19-artg-legal-supply-australia) .

Cleaning of mobile items

Items in waiting areas

In the past, practices often provided magazines and toys in the waiting room. This is no longer the norm.

Without cleaning after each use, shared or re-used toys can be a source of cross-infection between patients and should not be provided.

Magazines and books should not be provided in waiting areas. Reading matter for patients and visitors should be restricted to items that are taken away (eg brochures, fact sheets).

Electronic equipment

Staff members' electronic devices, including mobile phones and tablets, can harbour and transmit pathogens. As it is impractical to clean these often enough to be confident they will not transmit microbial pathogens, they should be regarded as contaminated. Staff must clean their hands after touching these devices before they touch patients.

Clinically relevant pathogenic bacteria have been detected on mobile phones of hospital medical staff.[10] Phones should be frequently wiped with detergent or a disinfectant and must not be handled in the toilet area.

Daily disinfection of tablet computers with isopropanol wipes has been reported to reduce microbial load.[2] Devices could be decontaminated following the device manufacturer's instructions and those of the cleaning agent manufacturer. Otherwise they should be assumed to be contaminated and hand hygiene practised accordingly.

Transferable clinically relevant pathogenic bacteria have been detected in dry surface biofilms on keyboards in healthcare settings.[11] Washable plastic keyboard covers can be used to reduce contamination and facilitate cleaning.

EFTPOS/payment terminals that are handled by staff and patients, including keyboards, should be frequently wiped with detergent or a disinfectant. Practices could use contactless terminals to reduce physical contact. Receptionists should use alcohol-based handrub after handling patients' credit, Medicare or health fund cards.

Lanyards and neckties

Avoid wearing lanyards and neckties as they may facilitate transmission of infection.[12] If a lanyard must be worn, it should frequently be wiped with detergent or disinfectant.

Cleaning reprocessing area

Cleaning reprocessing area

The area dedicated to reprocessing reusable medical devices must be kept very clean, which involves multiple cleaning episodes during use. Do not use the same cleaning equipment in ‘clean’ and ‘dirty’ zones. For example, the disposable cloth used to clean the sinks and bench space used to clean reusable medical devices (such as instruments) should not also be used for cleaning the packing area and loading where clean devices are placed, or the area where packs are placed after sterilisation.

The steriliser, ultrasonic cleaner and washer disinfector also require cleaning.

Cleaning after contamination by blood or other body substances (spills)

Cleaning after contamination by blood or other body substances (spills)

Blood or body substances other than sweat (including faeces, urine, saliva or vomitus) need to be treated as potentially infectious substances that can transmit disease on contact.

Incidents that result in contamination of surfaces by blood or other body substance need to be managed promptly. Faeces is highly contaminated. Blood and body substances that contain blood also carry a risk of transmission of blood-borne viruses.

All staff members need to be familiar with the practice's policy and procedure for managing blood and body substance spills. They should be managed promptly to reduce the potential for contact with other patients or staff or visitors and minimise damage to surface materials.

Overview of procedure for cleaning spills

Detergent is be used for initial treatment and may be sufficient for very small spills that require only spot-cleaning.

Disinfectant is necessary for:

- small (<10 cm) spills
- large (≥10 cm) spills
- any spill on a surface that is in contact with the skin
- spills involving a potentially serious pathogen.

Small and large spills require a two-step process, in which immediate treatment of the surface is followed by thorough cleaning with detergent or disinfectant, using the usual cleaning supplies (see Procedure for cleaning spills.

When a surface is soiled by blood or other body substances, when the presence of multi-resistant organisms (eg *C difficile*) is suspected, or during transmission-based precautions, manual cleaning with a detergent solution must be followed by (or combined with) the use of an appropriate-grade disinfectant with specific claims for efficacy against the relevant microorganisms, and which is listed on the Australian Register of Therapeutic Goods (see Table 9.4. Classification of disinfectant activity (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/9-cleaning-laundry-and-waste-management/cleaning-agents-and-methods#9.4)).

Spills kit

Practices must have a kit readily available to manage contamination of floors or other surfaces by blood or other body substances.

A spills kit usually consists of a suitable rigid-walled, labelled container (eg bucket or plastic sealable box) containing materials for basic cleaning (Table 9.5. Sample contents of a basic spills kit (#9.5)).

Practices can purchase commercially available ready-made spills kits or assemble their own.

Practices that provide consultations off-site could carry a spills kit in the vehicle. This is required if carrying sharps or clinical waste.

Table 9.5. Sample contents of a basic spills kit

Laminated printed guide with a list of spill kit contents and the management procedure
Single-use gloves
Eye protection (eg goggles/face shield)
Surgical masks
Disposable waterproof aprons
Clinical waste bags (marked as hazardous waste)
General waste bags
Emesis bags
Absorbent agent (eg clumping cat litter, polymerising beads or other absorbent material)
Paper towels (will need ample to absorb liquids such as urine)
Scoop and scrapers (eg two small pieces of cardboard)
Detergent wipes (for spot cleaning only)
Disinfectant wipes (a larger volume of disinfectant may sometimes be needed, but need not be kept in the kit)
Hospital-grade disinfectant or sodium hypochlorite listed or registered by the Therapeutic Goods Administration
Hazard signs to place around the area to be quarantined Note: All components should be disposable, to ensure against cross-contamination between uses.

Precautions

Standard precautions apply, including personal protective equipment appropriate to the task (eg gloves, goggles/face shield, apron). The person performing this cleaning must put on personal protective equipment while keeping well away from the spill.

Method

The method for cleaning spills will depend on the volume of the spill and where it occurs (hard surfaces or textiles; see Table 9.6. Sample spills cleaning protocols (#9.6)).

Do not use liquid on a spill, as this will spread the spill.

If the spill is on a **hard surface**:

1. Confine and contain the spill with an absorbing agent suitable for that spill type:

- For blood, use wads of paper towel or purpose-designed absorbent agent.
- For vomitus, use a clumping agent to cover and deodorise.

Scoop or wipe up and safely remove any solid matter and excess material.

2. Clean with detergent and water or detergent wipes.
3. Dry the surface.
4. Use disinfectant, if required.
5. Dispose of contaminated material, including personal protective equipment, as instructed in the cleaning and waste management policies.
6. Cleanse hands (see 2. Hand hygiene (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/2-hand-hygiene/overview)).

If the spill is on **soft textile fabric or carpet**:

For non-removeable textile fabric (eg upholstery) or standard carpet:

1. Cover the site with an absorbent agent (cat litter, polymerising beads or other absorbent material).
2. Scoop up residue safely without causing material to disperse.
3. Damp-pat surface (do not wipe or scrub) to remove more material.
4. Dispose of contaminated material, including personal protective equipment, as instructed in the cleaning policy.
5. Clean fabric or carpet by damp patting with dampened disposable cloth using detergent and water or recommended carpet cleaning agent.
6. Quarantine the area until the soft fabric or carpet is dry. (Arrange steam cleaning when dry, if needed – do not vacuum-clean.)
7. Discard the used cleaning materials in the appropriate waste container.
8. Cleanse hands (see 2. Hand hygiene (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/2-hand-hygiene/overview)).

For removable fabric or carpet tiles, remove from the area, clean as for non-removable textiles, and replace when completely dry. Heavily contaminated carpet tiles can be discarded.

Table 9.6. Sample spills cleaning protocols

Spot cleaning (very small, well-defined spills that do not require use of spill kit)	Use examination gloves. (If glass suspected, use protective utility gloves and discard them afterwards.) Wipe up spot immediately with a damp cloth, tissue or paper towel. Consider disinfecting according to potential for skin contact with the site and suspected pathogens. Discard contaminated materials and dispose of gloves. Perform hand hygiene.
Small spills (up to 10 cm diameter)	Select appropriate personal protective equipment. Wipe up spill immediately with absorbent material. Place contaminated absorbent material into impervious container or plastic bag for disposal. Clean the area with detergent. Wipe the area with [*Insert name of TGA-approved disinfectant used in the practice*]. Ensure surface remains wet for the required time [*insert number of minutes*] (reapply if necessary). Allow to dry. Perform hand hygiene.
Large spills (> 10 cm diameter)	Select appropriate personal protective equipment. Cover entire area of the spill with an absorbent clumping agent and allow a few seconds to absorb Using two scoops, lift absorbed material into waste bag placed at the site. Change gloves. if visibly soiled. Clean site with detergent. Remove bag to waste storage area and remove personal protective equipment. Perform hand hygiene. Don fresh gloves. Wipe the area with a suitable disinfectant and allow to dry for the time advised by the product manufacturer. Perform hand hygiene.

TGA: Therapeutic Drug Administration

Cleaning tools

Cleaning tools

Mops

Mops and buckets must be thoroughly dry before reuse. Only use a clean, dry mop, as wet mops can develop unacceptable levels of contaminating bacteria. The practice may need more than one mop or detachable mop head to ensure a clean, dry mop is always available.

If buckets used, they must be cleaned after use and allowed to dry upside-down to dry.

Single-use mop heads are available, but increase landfill waste and may increase cost to the practice.

Detachable, reusable mop heads or pads could be laundered in accordance with the current relevant standard (https://www.standards.org.au/standards-catalogue/sa-snz/manufacturing/tx-016/as-slash-nzs--4146-2000) .

Cleaning cloths

Disposable cleaning cloths or paper towel may be more convenient and less contaminating than reusable cloths.

If reusable cleaning cloths are used, they must be laundered in accordance with the current relevant standard (https://www.standards.org.au/standards-catalogue/sa-snz/manufacturing/tx-016/as-slash-nzs--4146-2000) after each use.

Avoid using sponges because they do not dry easily and therefore promote microbial growth.

Brooms

Brooms must not be used in any healthcare area as they disperse dust and microorganisms into the air.

Vacuum cleaners

Filters, including high-efficiency particulate-air (HEPA) filters, require regular replacement.

If the practice uses an external contract cleaning service, they should use a vacuum cleaner that is used only for that practice and remains on site, to avoid cross-contamination with other premises.

Monitoring of cleaning

Monitoring of cleaning

Adherence to the cleaning schedule can be monitored by setting up a cleaning record in which staff record completion of scheduled cleaning rounds and extra cleaning after spills.

Contract cleaners can be required to complete a checklist of cleaning tasks. From time to time, records can be audited for adherence.

The effectiveness of cleaning is usually done through visual inspection, such as spot checking of surfaces each morning to confirm the previous day’s scheduled cleaning has been completed.

Routine microbiological sampling and other methods applicable to larger health facilities (fluorescent markers, tracing agents) is generally not feasible or required in general practices and other office-based practices.

Discrepancies in the cleaning record or any observed problems in cleaning must be reported to the staff member responsible for overseeing cleaning.

Laundry

Laundry

Where possible, practices could reduce the need for reusable linen by using disposable paper roll on the examination couch and in the treatment room, disposable pillow slips and paper towels. Examination couches may not need to be covered at all if cleaned appropriately between uses and designed with an adjustable headrest, which avoids the need for a separate pillow.

If the practice has reusable linen, it should have a policy on when to change linen, precautions when handling soiled linen, and the procedures for washing, drying and storing linen in accordance with the current relevant standard (https://www.standards.org.au/standards-catalogue/sa-snz/manufacturing/tx-016/as-slash-nzs--4146-2000) . The policy should be informed by assessment of the risk of infection to patients.

Reusable linen must be laundered in accordance with the current relevant standard (https://www.standards.org.au/standards-catalogue/sa-snz/manufacturing/tx-016/as-slash-nzs--4146-2000) . All onsite and offsite facilities that process or launder linens for health care must have documented operating policies consistent with the standard.

Laundry services in some areas of Australia offer linen services for health facilities. The practice is responsible for ensuring that the service meets the healthcare linen standard. Other services, such as hospitals or aged care facilities, may also provide laundry services to general practices and other office and community-based practices. The practice must obtain instructions on linen handling and appropriate bags for collecting and transferring heavily soiled or wet linen.

If laundering is done onsite, staff responsible for laundering linen must receive education and training to perform these duties in accordance with the current relevant standard (https://www.standards.org.au/standards-catalogue/sa-snz/manufacturing/tx-016/as-slash-nzs--4146-2000) .

During a pandemic, extra precautions may be needed. For example, If scrub suits are worn, they are bagged for safe transportation and either laundered separately at home, or laundered in accordance with the current relevant standard (https://www.standards.org.au/standards-catalogue/sa-snz/manufacturing/tx-016/as-slash-nzs--4146-2000) , either on-site or by an accredited laundry service provider.

More information: managing linen (if used)

Laundering must in accordance with the current relevant standard (https://www.standards.org.au/standards-catalogue/sa-snz/manufacturing/tx-016/as-slash-nzs--4146-2000) .

How often to change linen (if used)

Single-use disposable hand cloths and drapes are now considered preferable to linen. However, if reusable sterile hand cloths or drapes are used for surgical procedures, they must be laundered, packaged and sterilised after a single use, either onsite or by an accredited laundry service provider.

If the practice uses linen for other purposes, it should be changed if:

- it has been used by a patient whose clinical status necessitates the use of contact precautions (eg known or suspected of having scabies, lice or skin infections such as methicillin-resistant *Staphylococcus aureus*)
- there has been a blood or body substance spill on the linen
- linen is visibly soiled
- linen has absorbed odour.

Linen must also be changed before a minor surgical procedure.

If staff wear scrub suits at work, the same principles apply.

Both reusable linens and single-use disposables are associated with costs to the environment.

Precautions when changing linen

Staff handling linen must use appropriate personal protective equipment, as required within standard or transmission-based precautions. Staff must wear gloves if linen is soiled, and also wear a mask, apron and safety glasses if dripping with blood or other body substances.

The person changing linen must:

- before handling the linen, check for and safely remove any sharps or other objects (see Sharps (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/6-staff-screening-immunisation-and-infection-manag/overview))
- avoid squeezing linen or rolling it up tightly in case there are hidden sharps
- avoid unnecessary handling or shaking linen, as this could disperse microbes

- place used linen into a covered, lined container while awaiting cleaning
- store containers for used linen away from clean linen, preferably in a designated ‘dirty’ utility area.

Linen that is wet with blood or other fluid body substances should be collected into a transparent plastic bag or alginate bag supplied by the laundry, before being placed in the used linen receptacle.

After removing linen that is contaminated with blood or body substances or has been in contact with a patient necessitating contact precautions, the examination or treatment couch must be first cleaned according to the practice’s policy for spills, then wiped with detergent wipes or solution and paper towel. If linen has been in contact with a patient with an antimicrobial-resistant organism or norovirus, cleaning with detergent must be followed by disinfection using appropriate disinfectant wipes or solution (see 8. Exposure to blood and other body substances (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/8-exposure-to-blood-and-other-body-substances/overview)).

Pre-wash stain treatment

If linen is heavily soiled (eg by vomitus) or likely contaminated by a clinically significant pathogen that could be dispersed by splashing, the item must be discarded via the clinical waste stream.

Blood and other stains on linen can be managed by rinsing and applying an oxygenated stain remover (while wearing appropriate personal protective equipment), in accordance with the current relevant standard (https://www.standards.org.au/standards-catalogue/sa-snz/manufacturing/tx-016/as-slash-nzs--4146-2000) . Soaking linen in a bucket is not recommended.

Washing

Laundering of clinical linen must be in accordance with the current relevant standard (https://www.standards.org.au/standards-catalogue/sa-snz/manufacturing/tx-016/as-slash-nzs--4146-2000) , whether it is done onsite, at home (not recommended), or by a commercial laundry service.

Either a hot or cold wash cycle with appropriate detergent must be used.

When using a hot wash cycle, the temperature and time specified by the standard may be unattainable or impractical for most practices and with domestic washing machines.

If hot water disinfection cannot be achieved in accordance with the current relevant standard (https://www.standards.org.au/standards-catalogue/sa-snz/manufacturing/tx-016/as-slash-nzs--4146-2000) (for example, because the load contains heat-sensitive items), then chemical disinfection is acceptable. However, the disinfectant must be validated for antimicrobial efficacy equivalent to hot water disinfection.

Activated oxygen-based laundry detergents provide antimicrobial activity in addition to their stain-removing properties. Chlorine bleach is also an economical, broad-spectrum chemical germicide, but is unsuitable for some fabrics.

Drying

Mechanical drying in a tumble dryer is the preferred method because of the effects of thermal disinfection.

Hands must be clean when transferring washed linen from the washing machine to the dryer.

All linen must undergo a hot cycle until completely dry. The dryer temperature and cycle time depends on the fabric.

The standard for laundry practice specifies a minimum temperature and required time at temperature that may not be practical for practices to achieve.

Condenser and heat-pump driers typically have lengthy cycles (and in case of heat pump, low temperature) and are not suitable for use in healthcare facilities.

Storage

Clean linen must be stored in a clean, dry and dust-free environment.

Waste management

Waste management

The practice needs a regularly updated policy for waste management that conforms to state or territory regulations and meets the current national standard for management of clinical and related wastes.

Staff responsible for handling waste must receive education and training on safe handling and disposal.

The practice's waste management policy must cover:

- the correct segregation of waste according to the waste streams designated by the state or territory
- storage of waste
- disposal of waste
- work health and safety procedures
- who is responsible for monitoring waste management and educating and training staff to correctly follow waste management procedures.

These are typically categorised as general waste/recyclables, clinical waste and clinical-related waste (such as pharmaceutical, chemical and cytotoxic waste). Confidential waste (eg patient records, hard copies of referral letters) must also be correctly disposed of. Specified categories differ between jurisdictions.

Work health and safety considerations

When developing a waste management policy, employers need to consider and identify optimal strategies for:

- minimising human contact with waste (including strategies to reduce or avoid double handling)
- incorporating standard precautions, including appropriate use of personal protective equipment
- avoiding manual compaction of any waste
- ensuring safe transfer of waste from clinical areas to the waste storage area
- safe storage
- ensuring correct documentation for clinical waste transporter, as required by the relevant environmental protection authority.

The policy must incorporate and align with the practice's procedures to deal with spills and protocols for managing exposure to blood or other body substances.

Responsible person

The practice must nominate a person responsible for waste management. Their responsibilities may include:

- monitoring appropriate waste disposal (eg checking that waste is being appropriately segregated)
- acting as the contact person for waste transport/disposal companies
- providing task-specific waste management education for staff.

Monitoring can involve photographing the visible contents (top layer) of each bin at random intervals to assess content.

Waste segregation

Waste needs to be segregated into the waste streams required by local authorities. Categories and requirements differ between jurisdictions. Practice waste typically falls into the categories of general waste, clinical waste, and clinical-related waste (Table 9.7. Examples of waste streams (#9.7)).

Staff must segregate waste as it is generated. The practice must provide a separate bin for each waste stream. Bins must be made of appropriate material, big enough, placed in the right position, and emptied regularly.

The correct packaging is the responsibility of the practice, and staff must have training in the handling and disposal of wastes.

Waste segregation and handling in the practice may be subject to specific requirements of the state or territory environmental protection authority. This may include documentation of waste composition. Waste transport and disposal companies may be required to notify practices in writing of waste segregation requirements, and may refuse to collect waste that is incorrectly segregated or unsafely presented.

Table 9.7. Examples of waste streams

Waste stream	Description	Examples
Clinical waste	Items with potential to cause infection, sharps injury or public offence. Definitions and requirements can differ between jurisdiction – refer to relevant state or territory regulations. If appropriately segregated, only a small percentage of the total waste produced by a practice will be clinical waste.	Discarded sharps Human blood, other body substances and tissues (excludes teeth, hair, nails, urine and faeces, unless visibly blood-stained) Waste from patients known or suspected to have an epidemiologically significant communicable disease (eg influenza) or are suspected or known to be colonised/infected with an antibiotic-resistant organism (eg multi-resistant *S. aureus*)
Clinical-related waste	Pharmaceutical, chemical and cytotoxic waste	Discarded medicines Chemotherapy Cleaning products over use-by date
General waste	All other waste not classified as clinical waste or clinical-related waste. It includes recyclable and non-recyclable wastes, and hazardous non-clinical waste such as e-waste. Definitions and requirements can differ between jurisdiction – refer to relevant state or territory regulations.	Office waste (material with confidential details or information that identifies an individual patient requires shredding before recycling) Kitchen waste Urine, faeces, teeth, hair, nails (unless visibly bloodstained) Disposable nappies Used tongue depressors (unless patient has an infectious disease that requires extra precautions) Non-hazardous ‘pharmaceutical’ waste (eg out-of-date saline) Waste generated by non-clinical activities

All practices must meet national standards for waste management, but specific categories and requirements differ between jurisdictions. Practices must consult their state or territory environmental protection authority or other relevant local authority responsible for waste management.

Clinical waste containers

Clinical waste containers must be puncture-resistant and leak-proof.

Standard clinical waste containers must be:

- rigid-walled
- located in an area that prevents unauthorised access
- sealable with a secure lid or lined with a standard labelled bag that can be tied off
- safe for disposal – no swing lids or loose lids (ideally with hands-free operation)
- appropriately labelled: yellow, displaying a biohazard symbol, and labelled ‘clinical waste’.

Liquid clinical waste must be absorbed using an absorbent (‘clumping’) agent such as cat litter or polymerising beads, then bagged (preferably double-bagged) to avoid leakage and potential for splash.

Sharps containers must meet the current Australian standard. They should be mounted either on a wall or bench or trolley at the point of care. The recommended height above the ground is 1.3 m to limit child access but allow the user to see the opening. Mounted sharps containers may be designed specifically to remove blade. The ‘do not fill above this line’ instruction must be strictly followed for the safety of all staff.

Cytotoxic waste containers for sharps must have the same properties as sharps containers. They must be purple, display the telophase symbol on white background, and be labelled ‘cytotoxic waste’.

Cytotoxic waste containers for non-sharps must have the same properties as clinical waste containers. They must be purple, display the telophase symbol on white background, and be labelled ‘cytotoxic waste’.

Unused or expired pharmaceuticals can be returned to pharmacies for safe disposal. Full or partial vaccine vials can alternatively be disposed of in a sharps container. These items must be managed as clinical waste.

General waste containers

Practices must consider their waste segregation practices and decide on what type of containers are required.

Practices may provide receptacles for disposal of recyclables (eg appropriately placed separate waste and confidential waste bins, glass and plastic recyclables bins).

Storage of waste

Before collection and disposal, clinical and related waste must be appropriately stored:

- The storage area should be dedicated to waste storage (no mixing with other stored materials such as supplies). Separate spaces should be designated for clinical waste and general waste (eg by tape or paint on the floor).
- The storage area should be appropriately signed.
- Clinical waste bags may need to be removed from small bins and tied off safely and transferred to the storage bin. Double-bagging when transferring will reduce leakage of bags. Clinical waste should not be decanted from one bag to another.
- Bags should remain within secure outer containers that are appropriately labelled.
- The waste storage area should be secure (not accessible to the public). Accessible free-standing or secured bins, even with locked lids, may still pose a risk if placed in a yard at the rear of the practice. The waste collection company may require after hours access via code or key.

A spill kit could be located in the storage area or nearby.

General waste must be stored in covered receptacles such as rubbish bins in a secure location. This can be in the same area as the clinical waste bins, but each should be in a separate, defined area.

Practices that provide services off site (eg aged care or home visits) will need to manage and safely store clinical waste such as sharps in private vehicles. Practices must check regulations for transporting waste in their state or territory.

Collection and disposal of waste

The waste collection company replaces full bins with clean empty lined bins. Contractors do not debag any bins on site – this is done mechanically at the waste treatment site.

Clinical and related waste must be transported by a licensed transport and disposal company that offers appropriate treatment and disposal services. The practice is responsible for waste it has generated until it has been rendered safe.

The transport/disposal company may refuse to collect from overflowing, wrongly segregated or unlabelled bins.

Practices must document clinical waste collection and keep these records.

Toilets

Toilets

Toilets must be easily accessible and well signposted. They will ideally be located inside the practice but, if this is not possible, they must be as close to the practice as possible.

You could provide separate toilets for the practice team and patients.

Toilets must be supplied with:

- toilet paper for each toilet
- hand washing facilities, including a sink and liquid hand cleanser (see Hand hygiene technique (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/2-hand-hygiene/hand-hygiene-technique))
- rubbish bins
- sanitary bins or hygienic means to dispose of sanitary items
- exhaust fan/s for ventilation (see Ventilation (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/12-planning-a-practice-design-fit-out-equipment-an/building-design-and-fit-out)).

Supply paper towel wherever liquid handwash and water is used for hand hygiene, including adjacent to toilets. The use of hot air driers is acceptable in toilets (see Drying hands (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/2-hand-hygiene/hand-hygiene-technique)).

Resources and references

Resources and references

Resources

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Australian Commission on Safety and Quality in Health Care. Environmental cleaning: emerging environmental cleaning technologies (https://www.safetyandquality.gov.au/publications-and-resources/resource-library/fact-sheet-environmental-cleaning-emerging-cleaning-technologies)

Therapeutic Goods administration. Disinfectants for use against COVID-19 in the ARTG for legal supply in Australia (https://www.tga.gov.au/disinfectants-use-against-covid-19-artg-legal-supply-australia)

Relevant Australian standards

Royal Australian College of General Practitioners. GP Standard 4. Criterion GP4.1 – Infection prevention and control, including sterilisation (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/core-standards/core-standard-4/criterion-c4-1-health-promotion-and-preventive-car) . In: Standards for general practices (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/table-of-contents) . 5th Edition. East Melbourne, Vic: RACGP, 2020.

Royal Australian College of General Practitioners. GP Standard 5. Criterion GP5.1 – Practice facilities (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/general-practice-standards/gp-standard-5/criterion-gp5-1-practice-facilities) . In: Standards for general practices (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/table-of-contents) . 5th Edition. East Melbourne, Vic: RACGP, 2020.

AS 3816 – Management of clinical and related wastes

AS/NZS 4146 – Laundry practice

AS/NZS 3733 – Textile floor coverings – cleaning

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10. Reprocessing reusable medical devices

Overview – Reprocessing reusable medical devices

Overview – Reprocessing reusable medical devices

> **Note on standards:** The current Australian standard applicable to reprocessing reusable medical devices (**AS/NZS 4815:2006** *Office-based health care facilities—Reprocessing of reusable medical and surgical instruments and equipment, and maintenance of the associated environment*) is under review and will be superseded by the new standard: **AS 5369***Reprocessing of reusable medical devices and other devices in health and non-health related facilities*. This guidance will be updated after the new standard comes into effect.

Reusable medical devices that require reprocessing to achieve the required level of asepsis (standard or surgical) include surgical instruments, medical devices, and other equipment.

Practices can choose to reduce the volume of medical devices that require reprocessing by replacing some or most categories with disposable alternatives.

Practices that reuse medical devices that require sterilisation, such as surgical instruments, can choose either to do all reprocessing on site, or outsource to an off-site provider (eg hospital) for sterilisation. Reprocessing of items that require sterilisation should only occur within the practice if the current relevant standard (https://www.standards.org.au/standards-catalogue/sa-snz/health/he-023/as-slash-nzs--4815-2006) can be met.

For each reusable medical device, practices need to check information provided by the manufacturer on the validated processes for cleaning, disinfection, packaging (if required), and sterilisation.

Practices must ensure that staff involved in reprocessing have received adequate education (eg a course), training and regular competency assessment, and that these are documented.

Practices should have a designated area for processing reusable medical devices, and must establish a workflow pattern that prevents the packaging, sterilisation and storage areas becoming contaminated. This involves systematically moving from ‘dirty’ to ‘clean’ within the designated area. The reprocessing area must be separate from treatment and administration areas.

Personal protective equipment must be worn during reprocessing, and may require changing between stages.

Immediately after use, reusable medical devices should be initially wiped/rinsed to remove visible soiling, then thoroughly cleaned in the equipment reprocessing area before sterilisation. This process can involve manual cleaning, the use of an ultrasonic cleaner followed by manual cleaning, or the use of a washer/disinfector that may incorporate an ultrasonic cycle. Ultrasonic cleaners and washer/disinfectors require performance monitoring and validation.

If an item cannot be cleaned, it cannot be further processed or reused.

Steam under pressure is the most reliable method for sterilising cleaned reusable medical devices, and is recommended in general practices and other office- and community-based practices.

Using the correct sterile barrier system (pack, pouch, wrap or rigid container) for each item or set of items is important to ensure that they are effectively sterilised and remain sterile. Packages for sterilising should be labelled to enable monitoring, appropriate stock rotation, and other affected items to be identified if a problem with a processed item is later discovered.

Correct loading of the steriliser is important to ensure air is removed and steam can penetrate the load. The correct processing and drying times must be used, according to the load to be sterilised. Correct handling of the sterile load when it is taken out of the steriliser is vital to ensure items remain sterile. If an item contained in a sterile barrier system emerges from the steriliser wet or damaged in any way, it cannot be considered sterile. Correct storage of sterilised packs is also vital.

Every time the steriliser is used, the process must be documented for quality assurance and review purposes.

Routine monitoring of every sterilisation cycle is required to check that the selected cycle parameters (including time, temperature, and pressure) are met. These must be recorded as evidence that the cycle has achieved sterilising conditions.

Chemical indicators are used in addition to physical monitoring, to provide evidence that the load has reached the correct temperature.

Regular routine maintenance is required for all reprocessing equipment, including sterilisers, ultrasonic cleaners, washer-disinfectors with or without ultrasonic capacity, drying cabinets and incubators, and biological indicator readers.

Validation of steriliser cycles must be performed annually and as needed (eg after any major repairs and if the practice changes the type of loads sterilised).

Practices that perform procedures in other locations, such as aged care facilities, home visits and at sporting events, must develop policies and procedures to ensure sterility of equipment during transport, and safe handling of used equipment, including correct pre-cleaning/treatment immediately after use.

Choosing whether to reprocess or use disposables

Choosing whether to reprocess or use disposables

Single-use disposable alternatives are now available for most categories of medical devices that were traditionally reprocessed (cleaned, disinfected and/or sterilised).

The practice's policy on whether to use disposable or reusable medical devices could be determined based on a thorough analysis of factors including risk of contamination and costs (including labour for reprocessing, as well as unit costs), and optimal use of staff time (Table 10.1. Simple cost-benefit analysis framework for single-use disposable versus reusable medical devices (#10.1)).

Table 10.1. Simple cost-benefit analysis framework for single-use disposable versus reusable medical devices Download the simple cost-benefit analysis framework for single-use disposable versus reusable medical devices document (https://www.racgp.org.au/getmedia/116df486-42fa-4aca-a0ad-3edea37d9b60/RACGP-Template-Cost-benefit-analysis-framework-for-single-use-disposable-versus-reusable-medical-devices.docx.aspx)

Item	Number used (per day/ week)	Options	Unit cost	Waste	Associated costs	Labour costs	Power and water	Maintenance (steriliser etc)
Ear speculum		Disposable						
		Reusable						
Ear syringe/ pulse/ suction and parts		Disposable						
		Reusable						
Sterile vaginal speculum		Disposable						

Item	Number used (per day/ week)	Options	Unit cost	Waste	Associated costs	Labour costs	Power and water	Maintenance (steriliser etc)
		Reusable						
Dressing pack with forceps		Disposable						
		Reusable						
Spacer		Disposable						
		Reusable						
Artery forceps		Disposable						
		Reusable						
Forceps		Disposable						
		Reusable						
Scissors		Disposable						
		Reusable						
Excision sets		Disposable						
		Reusable						
Scalpel handles		Disposable						

Item	Number used (per day/ week)	Options	Unit cost	Waste	Associated costs	Labour costs	Power and water	Maintenance (steriliser etc)
		Reusable						

Waste: include waste removal costs

Associated costs: include materials used in packaging for sterilisation, other steriliser-associated costs

Labour costs: Include staff time performing reprocessing tasks, supervisor time training staff, costs of training courses

Source: Marjen Education Services. Adapted with permission.

Policies and procedures

Policies and procedures

If a practice reprocesses reusable medical devices onsite or offsite, it must have policies and procedures describing every aspect of instrument and equipment reprocessing, in accordance with the current relevant standard (https://www.standards.org.au/standards-catalogue/sa-snz/health/he-023/as-slash-nzs--4815-2006) .

These are guided by:

- assessment of the probability of harm to a patient and the likely seriousness of the harm
- feasibility considerations
- instructions for use by manufacturers of reusable medical devices and manufacturers of reprocessing equipment

Single-use items must not be reprocessed.

Risk assessment

Risk assessment

The practice's infection prevention and control coordinator must ensure the level of processing for specific reusable medical devices and equipment is appropriate to the risk of infection posed by their reuse.

Risk assessment is based on the Spaulding classification[1] (Table 10.2. Spaulding classification (#10.2)). The site of use (eg intact or non-intact skin, mucous membranes, sterile sites such as surgical wounds) is a key determinant of the level of risk to the patient.

Table 10.2. Spaulding classification – application to reusable medical devices

Classification	Examples	Process	Storage
Critical Contact with sterile tissue, sterile cavity, or bloodstream	Surgical instruments used for excision Podiatry instruments used to penetrate or abrade skin (nail cutters, scalers, files) Sharps used in neurological testing	Sterilisation by steam under pressure (autoclaving)	Sterility must be maintained Integrity of the package must be maintained Must be protected from environmental contamination
Semi-critical Contact with intact nonsterile mucosa or nonintact skin	Vaginal speculum used for routine cervical sampling Instruments used in wound care (eg forceps, scalpel handles, scissors)	Sterilisation by steam under pressure	Must be protected from environmental contamination
Noncritical Contact with intact skin	Stethoscope Plastic* cuff on sphygmomanometer Pulse oximeter Auroscope	Cleaning with detergent or Cleaning and disinfection with low-level disinfectant	Storage in clean, dry place

*Fabric sphygmomanometer cuffs cannot be cleaned.

Summary of steps in reprocessing medical devices that require sterilisation

Summary of steps in reprocessing medical devices that require sterilisation

For items that require sterilisation, reprocessing involves (Table 10.3. Summary of steps for processing reusable medical devices (#10.3)):

- initial treatment (wiping or rinsing immediately after use, at the point of use)
- collection and transportation to the reprocessing area
- pre-cleaning using an ultrasonic cleaner (if the practice has one)
- cleaning (manual scrubbing followed by rinsing and drying, or processing in an automatic washer/disinfector with or without an initial ultrasonic cycle)
- inspection and packaging
- sterilisation.

Packaging and sterilisation steps include:

- packaging items for sterilisation in an appropriate covering material ('sterile barrier system'; pouches, packs, wraps, or rigid containers), using correct materials and technique
- using appropriate indicators in or on every load to identify packs that have been through the steriliser
- labelling packs
- loading the steriliser
- running the cycle
- unloading the steriliser
- before releasing the load for use, checking the printout or data logger to verify that the correct heat, time and pressure parameters were attainted for the cycle
- recording the name of the person who loaded the steriliser, the load description and load number, results of cycle monitoring, unloading, pack condition (dry, intact seals, chemical indicators show correct colour change), date and signature of staff member authorising release of the load for use or rejection of the load (with details of the issues causing the rejection, where appropriate), and process abnormalities detected (and corrective action, where appropriate)
- storage, distribution and handling of sterilised packs to the point of use
- daily, weekly and annual steriliser cleaning and maintenance
- annual servicing, calibration and validation.

Regular routine maintenance also is required for all other reprocessing equipment, including ultrasonic cleaners, washer-disinfectors with or without ultrasonic capacity, drying cabinets, heat sealers, incubators, and biological indicator readers.

To achieve consistently reliable sterility, the practice must set up a comprehensive sterility assurance program incorporating every aspect of reusable equipment processing, including staff education, to avoid common errors (Table 10.4. Common reprocessing errors (#10.4)).

Table 10.3. Summary of steps for processing reusable medical devices

Initial treatment (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/10-reprocessing-reusable-medical-devices/initial-treatment-at-point-of-use)	**Remove visible soiling** by damp or dry wiping at point of care (eg in consulting or treatment room). **Transport to reprocessing area.**
Pre-cleaning (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/10-reprocessing-reusable-medical-devices/cleaning-processes-before-sterilisation)	**Run ultrasonic cleaner cycle** (optional) followed by rinsing (before manual cleaning). ⚠ Items should not be left in detergent solution for later cleaning
Cleaning (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/10-reprocessing-reusable-medical-devices/cleaning-processes-before-sterilisation)	**Manually clean items** OR **Run a washer–disinfector cycle.** ⚠ Use personal protective equipment

Rinsing and drying (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/10-reprocessing-reusable-medical-devices/rinsing-and-drying-after-manual-cleaning) (required after manual cleaning or ultrasonic cleaning)	Note: Rinsing and drying is not required after cleaning with an instrument washer–disinfector **Rinse in designated 'clean' sink.** **Drain on clean surface.** **Dry manually or in drying cabinet.** ⚠ Wear clean latex-free gloves (eg utility gloves or nitrile chemically resistant examination gloves) while drying
Preparing the load for sterilising (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/10-reprocessing-reusable-medical-devices/preparing-the-load-for-sterilising)	**Check items are clean, intact and functioning.** **Select packaging of appropriate size** – to match the item or set of items to be sterilised. **Ensure each package has Class 1 chemical indicator incorporated into its surface.** **Seal the package** – ensure there are no gaps through which air can enter and contaminate the contents. **Label packages** (date, load number and, if required, description of contents, and the signature of person responsible for packing).
Loading the steriliser (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/10-reprocessing-reusable-medical-devices/loading-the-steriliser)	**Place items in steriliser:** • Items that could collect condensate are placed on their sides • Packages are separated to facilitate air removal, steam penetration and drying. Trays are loosely loaded with a single layer of packs per tray, within the boundaries of the loading tray. • Ensure that no pack touches the chamber wall. • Do not exceed the validated challenge load parameters – check validation record. **Enter description of contents into the logbook.**

Running the sterilisation cycle (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/10-reprocessing-reusable-medical-devices/running-the-sterilisation-cycle)	**Check water level** – add if necessary (follow manufacturer's instructions for use). **Choose correct cycle** (if steriliser has multiple cycles). **Select correct cycle parameters** (if steriliser validated for multiple load types) – check validation record. **Enter required details in steriliser logbook** (date, load description and load number, name of the person who prepared the load). **Close door and start steriliser cycle.** ⚠ **Do not attempt to open the steriliser door while the cycle is in operation.**
Unloading the steriliser (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/10-reprocessing-reusable-medical-devices/unloading-the-steriliser)	⚠ **Do not attempt to open the steriliser door while the cycle is in operation.** When the cycle is completed: **1. Check the physical parameters** **2. Remove trays using tray lifter or heat-resistant gloves** – do not touch packages while hot **3. Place trays on drying surface** – allow to cool for minimum of 30 minutes **4. With clean hands, check cooled packages for class 1 indicator pass and for moisture or damage.** **Classify load as PASS or FAIL.**
Documenting the cycle (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/10-reprocessing-reusable-medical-devices/documenting-reprocessing-including-steriliser-cycl)	**Record details in the steriliser logbook** (in addition to previously recorded details): • confirmation that Class 1 chemical indicators changed colour • results of any other indicators used (eg • chemical or biological) • correct time, temperature and pressure was achieved • condition of the packs (ie dry and intact) • comments (eg action taken for failed cycle) • name of the person who released the load.

Storing sterilised equipment (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/10-reprocessing-reusable-medical-devices/storing-sterilised-equipment)	**When cool, store sterilised packs in clean enclosed storage area.** **Only handle packs with clean hands.** **Rotate stock so that items sterilised earlier are used first.**

TGA: Therapeutic Goods Administration

Table 10.4. Common reprocessing errors

Inadequate instrument cleaning leaving debris
Incorrect choice of packaging material type
Too many items in package
Excessive wrapping material used on package
Overloading of steriliser
Inadequate maintenance of steriliser
Use of sterilisation equipment not registered by the Therapeutic Goods Administration for the purpose

Staff education, training and competency assessment

Staff education, training and competency assessment

Correct reprocessing of reusable medical devices to minimise the risk of infection transmission requires technical expertise and knowledge. Practices must ensure that staff involved in reprocessing have received adequate education (eg a course), training and regular competency assessment, and that these are documented.

It is essential that staff responsible for reprocessing reusable equipment completely understand the tasks, know exactly how to perform all steps (and have immediate access to clear and comprehensive instructions), and can be relied on to follow them completely. Responsibility for reprocessing tasks must not be delegated to administrative staff or other staff without first providing adequate initial and ongoing training.

Courses on these techniques are available from education providers. Additional education and retraining need to be provided when new procedures or equipment are introduced. The Sterilizing Research Advisory Council of Australia provides a list of sterilising courses (https://www.fsraca.org.au/sterilizing-courses-available-in-australia/) available in all states and territories.

Regular competency checking can be performed onsite as part of ongoing training, to ensure consistency of performance.

Tasks that require competency assessment include:

- correct application of standard precautions, including hand hygiene and personal protective equipment
- cleaning of equipment and the reprocessing area, correctly following the practice's protocols (including cleaning products, cleaning equipment and cleaning methods)
- adherence to workflow protocols in the reprocessing area to avoid cross-contamination
- correct inspection and packaging of reusable medical devices and equipment
- correct loading of the steriliser
- choosing the correct sterilisation cycle
- monitoring and recording the sterilisation cycle
- unloading the steriliser
- parameters for releasing reusable medical devices and equipment for reuse
- correct storage of equipment and reusable medical devices
- tracking of sterilised items used in procedures
- rotation of sterile stock
- detecting abnormalities in the process, recording them, and taking appropriate corrective action
- steriliser cleaning and maintenance requirements (daily, weekly, monthly, quarterly and annual maintenance, annual calibration and servicing, validation)

- cleaning and maintenance requirements for all other reprocessing equipment including ultrasonic cleaners, washer-disinfectors with or without ultrasonic capacity, and biological indicator readers
- following the practice's procedures for steriliser operation and maintenance.

Initial treatment at point of use

Initial treatment at point of use

Initial treatment of reusable medical devices must occur immediately after use at the point of use. This generally involves wiping with damp or dry low-lint or lint-free disposable cloth (eg non-woven gauze) to remove visible soiling, or treatment with a TGA-registered instrument precleaning product, if necessary.

Devices should then be safely transported to the reprocessing area in a cleanable, sealable, puncture- and leak-resistant container dedicated to that purpose.

If cleaning must be delayed, items that have undergone initial treatment to remove visible soiling may be held in a suitable labelled container, covered with a TGA-registered instrument precleaning product that is suitable for metals and plastics, for up to the maximum time specified in the manufacturer's information for use.

⚠ **Items should not be left in detergent solution for later cleaning**

Managing the area for reprocessing for reusable medical devices

Managing the area for reprocessing for reusable medical devices

The reprocessing area must be in a low-traffic area of the practice. It must be set aside for this purpose and not also used for linen or waste processing, or storage of any supplies except personal protective equipment and consumables required for these tasks.

Within the reprocessing area, no materials or equipment may be left out and nothing should be stored on benches or floors. Any materials in the area can contaminate items for reprocessing (eg cardboard boxes can shed paper fibres).

Ideally, a reprocessing area is fitted with a type B handbasin.

One or more (as required) alcohol-based handrub dispensers could be installed on the wall adjacent to the bench areas where reprocessing is done, but not directly over the work area.

For information on the design requirements of sinks and benches, see 12. Planning a practice: design, fit-out, equipment and consumables (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/12-planning-a-practice-design-fit-out-equipment-an/overview) .

Workflow planning

It is essential to establish a workflow pattern systematically moving from designated ‘dirty’ to designated ‘clean’ zones within the dedicated processing area. A one-way workflow will ensure that dirty reusable medical devices do not come into contact with clean reusable medical devices.

Designating purposes of sinks

The equipment processing area should have two sinks: one designated ‘dirty’ (for washing used reusable medical devices) and the other designated ‘clean’ (for rinsing the washed reusable medical devices).

If this is temporarily not possible (eg while refitting the room), a rinsing sink and a separate washing bowl can be used. Avoid routine use of a washing bowl in place of designated sinks.

The reprocessing sinks must never be used for:

- washing hands
- disposing of wastewater from cleaning

- disposing of leftover beverages
- laundering
- washing dishes.

After each reprocessing session, all sinks and fixtures (and the immediate area, including splashback and benches) must be cleaned with water and detergent, then dried.

See also 12. Planning a practice: design, fit-out, equipment and consumables (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/12-planning-a-practice-design-fit-out-equipment-an) .

Work benches

Packaging items for sterilisation must take place in the 'clean' zone, away from the 'dirty' zone and drying zone, with adequate space or a physical barrier to minimise contamination.

Equipment, activities and sub-zones within the designated 'clean' zone include:

- the holding area for reusable medical devices awaiting sterilisation (before the steriliser)
- the steriliser
- the cooling area for packages unloaded from the steriliser.

The bench top must be cleaned and dried between uses. Any containers in the area need regular wiping to remove dust. There should be no open shelves with materials that can accumulate dust.

Hand hygiene

Within the reprocessing area, hand hygiene must be performed:

- before putting gloves on
- when moving from 'dirty' to 'clean' areas
- after handling soiled equipment
- after removing gloves
- before opening the steriliser
- before handling or packaging clean items
- before handling sterilised packs.

Appropriate gloves must be worn at all times when handling contaminated reusable medical devices. For example, latex-free, puncture resistant, chemical-resistant utility gloves (preferably longer cuffed).

Alcohol-based handrub should be readily available and accessible in all work zones within the reprocessing area.

Hand cream must not be used when performing reprocessing, because it can contaminate instruments or compromise the integrity of packaging.

Cleaning agents and other materials used in reprocessing

Detergents

If cleaning is delayed, pre-treated items can be held in a labelled container for a short, pre-specified ❗ time, covered with a TGA-registered instrument precleaning product that is suitable for metals and plastics.

Items should not be left soaking in detergent solution for later cleaning because bacteria can multiply at room temperature, leading to excessive contamination, and due to splash risk.

Cleaning agents used in reprocessing reusable medical devices must be:

- listed in the Australian Register of Therapeutic Goods
- suitable for the reusable medical devices being processed and the selected method of cleaning (for example, non-abrasive and non-corrosive)
- diluted and used in accordance with the product's instructions
- compatible with the available water quality
- non-toxic at the specified dilution
- low-foaming
- free-rinsing.

For example, a mildly alkaline, free-rinsing, low-foaming, biodegradable liquid instrument-grade detergent can be used.

Avoid:

- abrasive cleaners such as steel wool, domestic cleaning powders and pastes, as these may damage the surfaces of reusable medical devices or leave a residue
- strongly alkaline detergents for manual cleaning. Although these are more effective, they are caustic and are only safe for use in washer disinfectors
- chlorine-based products such as bleach, as they can corrode and rust reusable medical devices and sterilisers
- normal household detergents, as they are generally high foaming and often leave a film that is hard to rinse away and could harbour microorganisms High-foaming detergents increase risk to staff injury because they make items more difficult to see when washing, and can generate aerosols.

Enzymatic detergents are rarely used in general practice and other office-based practices. These are usually used in automated processes and reserved for lumened instruments with internal surfaces that are difficult to access , such as endoscopes.

Brushes

Clean brushes of various sizes, with firm plastic bristles capable of withstanding cleaning agents, should be kept in the cleaning area for use during the cleaning stage.

Reusable brushes must be reprocessed after each use to reduce cross-contamination and biofilm formation. They can be manually cleaned (if the practice does not have a washer-disinfector) and sterilised, or mechanically cleaned and heat disinfected in a washer-disinfector at the end of each working day. Ultrasonic cleaners are generally not suitable for plastics.

Where reusable validated cleaning brushes for instrument cleaning are used, reprocess them in accordance with the manufacturers' information for users.

Thin disposable brushes (eg cytology brushes) are useful to clean items with lumens, holes or valves. These cannot be reprocessed.

Cloth/paper for drying

Residual lint on instrument surfaces must be avoided because it could cause a foreign body reaction in a patient tissue.

If the practice does not use an automatic washer/disinfector with drying cycle or a drying cabinet, drying must be performed using a reusable lint-free cloth or a disposable low-lint cloth.

If reusable lint-free cloths are used, they must be correctly laundered in accordance with the current relevant standard (https://www.standards.org.au/standards-catalogue/sa-snz/manufacturing/tx-016/as-slash-nzs--4146-2000) for laundering of healthcare linen (see 9. Cleaning, laundry and waste management (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/9-cleaning-laundry-and-waste-management/overview)), following a protocol that ensures they are not exposed to dust or contamination while drying.

Disposable kitchen wipes, paper hand towel or tea towels must not be used because they leave a large amount of lint.

Cleaning processes before sterilisation

Cleaning processes before sterilisation

Effective cleaning to remove all organic matter and other soiling is essential for ensuring successful sterilisation. If items to be sterilised are not cleaned thoroughly, adherent soiling can protect microorganisms from the action of the sterilisation cycle. If any matter is allowed to dry or harden on the item, the cleaning process will be more difficult and may be compromised. If an item cannot be cleaned due to its shape (eg narrow lumen), effective sterilisation cannot be guaranteed.

The sequence before sterilising involves initial treatment (above), optional pre-cleaning using an ultrasonic cleaner, then cleaning in an automatic dishwasher–disinfector (best practice) or by manual cleaning (not best practice). Some automatic dishwasher–disinfectors include an initial ultrasonic cycle (Table 10.5. Advantages and disadvantages of washing and drying devices used in reprocessing of reusable medical devices (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/10-reprocessing-reusable-medical-devices/rinsing-and-drying-after-manual-cleaning#10.5)).

> **Manual cleaning is no longer acceptable as a method of pre-cleaning before sterilisation, except where specified by the manufacturer of a reusable medical device. Manual cleaning should only be used for pre-treatment before using a washer-disinfector, or if the practice does not yet have a washer-disinfector.**

Pre-cleaning with ultrasonic cleaners

Ultrasonic cleaners pass ultra-high frequency sound waves through water, creating microscopic bubbles which implode, causing high-energy vacuum and movement (cavitation). Cavitation pulls dirt and contaminants from the surfaces of the items being cleaned. Therefore, before packaging for sterilisation, items must immediately be thoroughly cleaned after the cycle to avoid redepositing of matter, either by thorough rinsing followed by manual cleaning (including scrubbing), or using a washer-disinfector (if the practice's washer-disinfector does not provide an ultrasonic cycle).

Ultrasonic cleaners are efficient and effective in pre-cleaning, but they are not suitable for all items as they may damage some materials (eg soft plastics, rubber, metallic instruments with poor-quality chromium plating, and mirrors). Check the manufacturer's instructions for each reusable medical device.

Ultrasonic cleaners are used for delicate instruments, difficult-to-clean instruments such as jointed and serrated stainless steel instruments.

Ultrasonic cleaners are not suitable for cleaning:

- internal surfaces of cannulated reusable medical devices
- plastics and other similar materials
- cemented glass syringes
- mirrors and lenses (these will be damaged if repeatedly subjected to this process)
- fine-pointed reusable medical devices (the vibration caused by the process can blunt fine points).

Method

When using ultrasonic cleaners:

- operate according to the manufacturer's instructions
- items with gross residual soil must first be dry-wiped, damp-wiped, or rinsed in warm water before immersion into the ultrasonic cleaner
- items must form only one layer in the machine – they must not be placed on top of other items and the basket must not be filled
- the solution must be changed before the next use if it has become cloudy.

After removing items, they must be cleaned using one of the following methods:

- Place in an automatic instrument washer–disinfector (#auto)
- Rinse under running warm water and then scrub manually (see manual cleaning (#_Manual_cleaning)). Wear an apron or gown and face shield during rinsing.

Maintenance monitoring of ultrasonic cleaners

Testing of the ultrasonic cleaner is required every day. This involves filling and degassing according to the manufacturer's instructions. Degassing is necessary after each fill, before instruments are processed.

The use of commercially available validated cleaning verification products is recommended. These use a colour change to indicate that the ultrasonic cleaner is supplying sufficient energy and conditions are correct. Alternative non-validated methods, such as the aluminium foil test or pencil test, are complicated and difficult to perform correctly.

The machine must be emptied, degassed, cleaned and dried at the end of each day of use, in accordance with the manufacturer's instructions for use.

Practices that use ultrasonic cleaners must refer to the manufacturer's instructions.

Record testing, solution changes and degassing in a log.

Washer–disinfectors

The use of automatic washer-disinfectors to clean reusable medical devices before sterilising is now considered to represent best practice, in preference to manual cleaning or ultrasonic cleaning.

Automatic washer–disinfectors use high temperatures and alkaline detergents to clean reusable medical devices. They clean and disinfect (by heat), but do not sterilise.

Their use is preferable to manual cleaning because the process can be validated by objective measures of temperature reached, time at temperature, and cleaning parameters. It also avoids operator contact with contaminated solutions and sharps.

Items that have been subjected to a washer-disinfector cycle do not require further rinsing and drying before being packaged for the steriliser.

Small benchtop or under-bench models are suitable for general practice. Cycles typically take 35–50 minutes.

Practices that use washer disinfectors must refer to the manufacturer's instructions for their appropriate use.

Washer-disinfector cycles must be monitored to ensure that the required variables have been achieved. If not, the load must be failed and the items reprocessed before a steriliser cycle.

Washing/drying devices need regular servicing, maintenance, calibration and validation.

Domestic dishwashers, while similar, are not suitable for washing reusable medical devices and must not be used for this purpose.

Manual cleaning

⚠ When handling soiled devices, staff must use personal protective equipment, including long-cuffed, chemically resistant gloves, eye protection (eg full face shield), and apron/gown, as appropriate.

It is not appropriate to limit pre-cleaning to manual cleaning, unless validated instructions provided by the manufacturer of a reusable medical device specifies this (eg for a very delicate item that cannot be machine-cleaned). Automatic cleaning is recommended as best practice. Manual cleaning should only be used for pre-treatment before using a washer-disinfector, or if the practice does not yet have a washer-disinfector.

Manual cleaning involves the following steps:

- Fill the designated 'dirty' sink or bowl with warm water and dilute instrument-cleaning detergent.
- Scrub all used devices (even those not visibly soiled) under the surface to reduce generation of aerosols.

Rinsing and drying (after manual cleaning)

Rinsing and drying (after manual cleaning)

Note: This step is not required after cleaning with an instrument washer–disinfector

Rinsing and trying after manual cleaning involved the following steps:

- In the designated ‘clean’ sink, rinse all devices in gently running warm-to-hot running water.
- Drain on a suitable clean surface (eg a corrugated insert in a container with a lid, or low-lint towel) but do not allow to air-dry.
- Wearing clean latex-free gloves (eg utility gloves or nitrile chemically resistant examination gloves), dry with a disposable lint-free or low-lint cloth or place in drying cabinet.
- Check that all items are clean, intact and functioning.

If the next step (steriliser cycle) is delayed, place cleaned and dried items in a clean (nonsterile), labelled, sealable container and store it where it cannot be accidentally used. Items can remain safely stored indefinitely, provided that recontamination is prevented.

Table 10.5. Advantages and disadvantages of washing and drying devices used in reprocessing of reusable medical devices

	Advantages	Disadvantages
Ultrasonic cleaners	Clean surfaces and cavities without scratching, brushing or scraping Time-efficient (short cleaning times) Reduce the work health and safety hazards of instrument cleaning by staff, compared with manual cleaning Very simple and easy to use May require lower concentrations of chemicals than conventional cleaning Smaller models are inexpensive	Unsuitable for some reusable practice equipment Less time-efficient for large loads (require longer cleaning times due to energy absorption) Large, heavy items can cause poor cleaning due to 'shadowing' effect Immediate rinsing required after cycle ends before debris resettle on items, followed by cleaning (unless ultrasonic pre-cleaning followed by washer-disinfector cycle) Solution must be changed if it becomes cloudy Verification of cleaning effectiveness using validated cleaning verification products is recommended Machine must be emptied, degassed, cleaned and dried at the end of each day of use or more frequently.
Automatic washer-disinfectors	Clean, disinfect and dry items ready for packaging and sterilisation Process can be validated Reduce the work health and safety hazards of instrument cleaning by staff, compared with manual cleaning (no splash, less handling) Manual drying not necessary	Expensive to purchase, run and maintain Cycles can take up to approximately 1 hour Requires validation Requires soil test
Automatic washer-disinfectors with ultrasonic cycle	Pre-clean, clean, disinfect and dry items ready for packaging and sterilisation Process can be validated Reduce the work health and safety hazards of instrument cleaning by staff, compared with manual cleaning (no splash, less handling) Manual drying not necessary	Expensive to purchase, run and maintain Long cycles Requires validation Requires soil test

Sterilisers

Sterilisers

In general practices and other office- and community-based practices, sterilisation of instruments should be achieved by steam sterilisation under pressure (autoclaves). Other sterilisation systems that use dry heat, ionising radiation, ethylene-oxide, peracetic acid or hydrogen peroxide plasma sterilisation are not generally applicable due to cost, size or complexity.

Routine cycle monitoring and validation are required for all sterilisers to ensure they are performing correctly. The practice must also ensure that the steriliser is operated and maintained according to the practice's documented procedures, based on the manufacturer's instructions.

Under Therapeutic Goods Administration regulations, all new devices sold in Australia must perform the essential functions of their intended purpose. Practices must only use a steriliser model with an Australian Register of Therapeutic Goods certificate. Older sterilisers without certification should be replaced.

Steam sterilisers are classified according to the type of cycles they perform (class S or . Dry-heat sterilisers must no longer be used.

Benchtop steam sterilisers (autoclaves)

Steam under pressure kills/inactivates organisms on the surfaces of the reusable medical equipment by using the latent heat of condensation to coagulate protein. The use of steam under pressure is the most reliable method for sterilising cleaned reusable medical devices.

Steam sterilisers are recommended as the method of choice for sterilisation of items in general practices and other office- and community-based practices.

Benchtop and portable sterilisers sold in Australia must be listed on the Australian Register of Therapeutic Goods. Sterilisers must also comply with state or territory regulations.

'Small steam sterilisers' are benchtop (portable) sterilisers that are unable to accommodate a sterilisation module and have a chamber volume of less than 60 litres.

Steriliser classification

Sterilisers are classified according to the types of cycles they can run (Table 10.6. Steriliser types (#10.6)). Some sterilisers can run more than one type of cycle.

Class S cycles

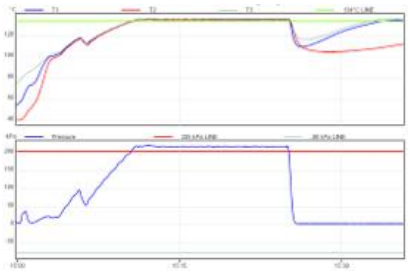
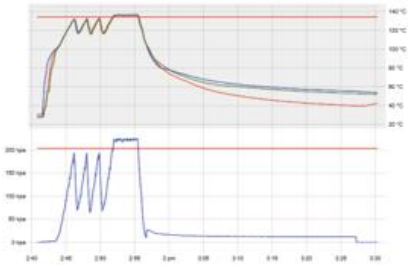
Class S cycles are defined as those provided by sterilisers that have an active drying cycle and are capable of sterilising unwrapped solid goods and at least one of the following:

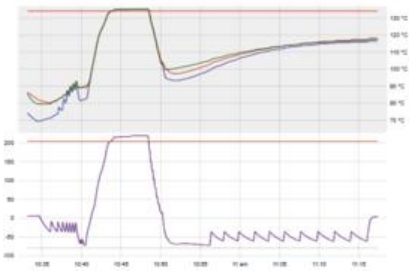
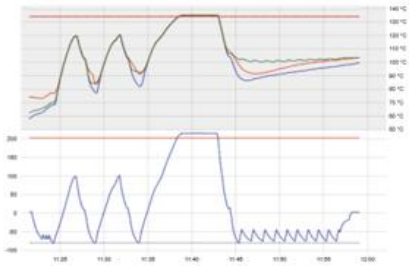
- porous products (limited/no relevance to office-based practice)
- small porous items (such as gauze swabs; limited relevance to office-based practice)
- narrow-lumen (hollow A) items: long, thin hollow items – these are not sterilisable by most sterilisers that provide class S cycles and are generally reprocessed using a class B cycle
- simple hollow items (hollow B): shorter hollow items such as punch biopsy tips
- single wrapped products
- multiple wrapped products.

The use of Class S cycles is adequate for most general practices and other office- and community-based practices. Various steriliser designs can provide Class S cycles (Table 10.6. Steriliser types (#10.6)).

Gravity (downward displacement) sterilisers are the easiest to monitor and the most cost-efficient.

Table 10.6. Steriliser types

Type	Class	Description	Example of temperature -pressure curve
Gravity (downward displacement) and active drying	N	Traditional type Relatively slow drying phase Air removal by continual release of air/steam mixture via chamber drain line (eg back to internal water reservoir)	
Purge under pressure (assisted air removal)	S*	Air removal by alternating inflow and outflow of steam	

Type	Class	Description	Example of temperature -pressure curve
Single vacuum pulse (pre-vacuum, preliminary vacuum, vacuum assisted)	S	Air removal assisted by pump before sterilisation stage Drying time reduced by active ('post-vacuum') removal of steam by pump	
Multiple vacuum pulse (fractionated)	B	Complete air removal via vacuum pump in multiple vacuum pulses before the sterilisation phase, to ensure complete air removal and steam penetration into complex hollow and porous items. Pulsed vacuum is also used in the drying phase to reduce the time and temperature during drying to ensure the porous / wrapping/ packaging is dry at the end of the cycle.	

Class B cycles

Class B classes are cycles capable of sterilising:

- all packaged items (single and double wrapped)
- narrow lumen items (Table 10.7. Definitions of hollow medical devices (#10.7))
- solid and porous items.

Class B cycles are suitable for sterilising very long narrow hollow devices, which are rarely used in general practices and most other types of office-based practices. Class B sterilisers are commonly used in dentistry due to the frequent use of long, hollow reusable medical devices and the need for rapid processing of instruments.

In this type of steriliser cycle, air is removed by one or more vacuum stages to vent the air and allow in pressurised steam under pressure (fractionated vacuum system). Chamber pressures vary between types of systems: above and below atmospheric pressure (trans-atmospheric), above atmospheric pressure (supra-atmospheric) or below atmospheric (sub-atmospheric).

Sterilisers with Class B cycles (fractionated vacuum) are the most expensive to buy and operate and may require an onsite supply of deionised water.

Table 10.7. Definitions of hollow medical devices

Type	Definition	Examples
Not hollow	Ratio of the length of the cavity to the diameter is <1	Kidney dish Bowl
Simple hollow	Single-ended open-space items where the ratio of length to diameter of the cavity is ≥1 and ≤5 and where the diameter is ≥5 mm **or** Double-ended open-space items where the ratio of the length to diameter of the cavity is ≥2 and ≤10 and where the diameter is ≥5 mm.	Punch biopsy tip
Narrow lumen	Hollow device beyond the range for a simple hollow item, and neither solid nor porous	Hormone implant insertion device

Disposable materials used in the sterilisation process

Disposable materials used in the sterilisation process

Sterile barrier systems (packaging)

The purpose of sterile barrier systems is to provide an effective barrier against sources of potential contamination during storage, and permit aseptic removal of the contents of the sterile barrier system at the time of subsequent use.

Sterile barrier systems need to allow for air removal, steam penetration, removal of steam and drying of the contents. Using the correct sterile barrier system ensures that reusable medical devices are sterilised and remain sterile. Sterile barrier systems standardised for quality.

Types of barrier systems include:

- bags made of paper that require tape for sealing
- self-sealing pouches made of paper backed with clear plastic (laminate)
- rolls of paper with laminate, which must be cut to size and sealed at both ends using tape or heat sealing
- sheets of low-lint single-use nonwoven material made from spunbond-meltblown-spunbond polypropylene and/or cellulose
- rigid reusable sterilisation containers and cassettes.

Reusable linen wraps are no longer used in general practices and other office- and community-based practices.

Sterile barrier systems need to be suitable to their purpose. The type of sterile barrier system chosen depends on:

- the size and contents of the sterile barrier system (eg laminate pouches come in a limited range of sizes, while nonwoven purpose-designed fabric is suitable for large packs.)
- the type of reusable medical devices/equipment to be placed in the sterile barrier system.

Most practices use pre-made bags or pouches, which are suitable and convenient for most small-to-medium items or sets of items.

Larger items (such as surgical instruments on a tray) require wrapping using specific approved techniques, which require specialist training to perform correctly. The Sterilizing Research Advisory Council of Australia provides a list of sterilising courses (https://www.fsraca.org.au/sterilizing-courses-available-in-australia/) available in all states and territories.

Whichever type of barrier system is used, an external Class 1 chemical indicator must be incorporated into the pack. Pouches and bags are made of material that incorporates a Class 1 indicator. When using rolls or sheets, the wrapped package is secured and sealed with adhesive tape that contains a Class 1 indicator.

Pouches and bags must be correctly sealed to reduce risk of contamination. Laminate rolls require a heat sealer (spare elements should be kept as they can burn out) or tape to seal the ends.

Annual validation confirms the suitability of the sterile barrier system.

Packs of pouches or rolls of barrier system materials must not be exposed to dust and contamination. They must be stored in cupboards or drawers, not on open shelves or benches.

Class 1 chemical indicators

All items placed in a sterile barrier system must incorporate a Class 1 chemical indicator on the bag or pouch, or on the tape used to seal the item.

Class 1 chemical indicators are designed to demonstrate that the sterile barrier system has been exposed to the physical conditions of the sterilisation process, but do not guarantee sterility. They are designed to react to one or more of the critical variables (eg change colour when the correct temperature is reached).

Distilled water

Most new sterilisers capable of Class S or B cycles require a large amount of demineralised (distilled or deionised) water, which can be purchased in containers of 5–20 litres from a commercial supplier or produced on site using a demineraliser. The steriliser draws the water through a tube placed in the water supply under the bench.

Installation of small reverse osmosis water filtration systems to supply small sterilisers and washer-disinfectors avoids the inefficiency and high costs of purchasing demineralised bottled water.

Most modern sterilisers employ inbuilt water recycling. With some older sterilisers, water must be to be added to the chamber and the reservoir must be topped up.

Water that is discharged from any steriliser is not suitable for reuse.

Preparing the load for sterilising

Preparing the load for sterilising

Reusable medical devices required to be sterile at the time of use must be protected by a sterile barrier system (bags, pouches or wrap; see Sterile barrier systems (packaging) (#barrier) .

Packaging of cleaned, dried reusable medical devices for sterilisation into sterile barrier systems takes place in the ‘clean’ zone of the reprocessing area, protected from splash and movement in the ‘dirty’ area.

Reusable items may be dried and placed in packs directly while wearing clean nonsterile latex-free, puncture resistant, chemical-resistant utility gloves (preferably longer cuffed). However, gloves are not necessary if dried items are being placed in packs – hands must be clean.

General principles for packing devices into sterile barrier systems

Packaging must be large enough to contain the items in accordance with the manufacturer's instructions for use and allow for adequate air removal, steam penetration and drying.

Before sealing a pack, as much air as possible must be expelled from the inside.

Individual packs must not include combinations of types of devices that would require different sterilisation parameters, such as combinations of hollow items, instruments, gauze dressings, drapes and tubing.

All hinged or ratcheted items must be open and unlocked to allow for expansion of the metal and steam contact with all surfaces. Scissors must only be loosely opened, not to the maximum extent. Multi-part instruments must be disassembled or loosened.

Validated tip protectors can be used to prevent sharp reusable medical devices from perforating the sterile barrier system and protect the tip, following the device manufacturer’s instructions.

Reusable medical devices with handles should be placed with the handle towards the end of the pack/ pouch that will be opened. This allows aseptic removal and decreases the possibility of injury from the instrument tip when the bag is opened.

Kidney dishes, gallipots or bowls that require sterilisation should be placed with the open side against the non-laminate surface (for example, the paper surface) to avoid condensation on the inside of the item if being sterilised in paper/laminate rolls or pouches. They should be tilted on their edges (ie in a draining position) to allow steam to displace the air and adequate drainage of condensate.

If placing several of these type of items together in a sterile barrier system, ensure that all openings are facing the same way and that each item can move freely. This allows adequate steam penetration and drying. Use spacers between tightly fitting identical items (eg when sterilising two or more identical and stackable kidney dishes).

If instruments trays are used, they must be metal and perforated to allow air removal and steam penetration during sterilisation.

Sterilising of textiles (eg gauze, towels or drapes) is not recommended. It is preferable to use single-use disposables.

Each package must be checked to ensure it does not exceed the contents of the validated ‘challenge pack’ (the test pack representing the hardest to sterilise; see Validation (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/10-reprocessing-reusable-medical-devices/validating-reprocessing-procedures)). ❗ Photographs of the validated contents and their arrangement within the sterile barrier system are useful as a valuable ready reference.

If reprocessing items from a failed sterilisation cycle, they must be repacked in a new sterile barrier system, but do not require recleaning unless they have been contaminated (eg dropped on the floor) after opening.

Rubber bands must not be used when transporting or storing packs.

Packaging items for sterilisation in pack/bag/pouch-type barrier systems

(For information on the use of rolls and sheets, see Packaging items for sterilisation using wrapping-type barrier systems (#barrier) .)

Remove the number of packs anticipated and close the container before returning to its storage cupboard/drawer.

Check each pack for damage and check the expiry date.

Choosing the correct size

Choose correct-sized pouch for contents:

- Fill only three-quarters of the volume of each pack.
- Leave approximately 2 cm space around each item.
- Allow an empty space of at least 5 cm from the seal area for aseptic opening.

Sealing the pouch or bag

The pouch or bag must be sealed with no gaps that could allow contaminants to enter after removal from the steriliser. Follow the instructions provided by the manufacturer of the sterile barrier system.

Pouches and bags are self-sealed, heat-sealed or sealed with sterilising indicator tape, depending on the type.

If using a self-sealing pouch, precisely fold seals along the ‘dotted’ line, from the middle to the edges with both thumbs to facilitate an effective seal.

Sterilising indicator tape must not be used on self-sealing or heat-sealed pouches.

If using sterilising indicator tape to seal a non-self-sealing bag or pouch, the open end of the bag/pouch should be sequentially folded over 2–3 times, then taped across the folded edge with one continuous piece of tape extending across at least 25 mm around the back of the pouch on both sides.

String, non-adhesive tape, staples or elastic bands must not be used to seal bags and pouches because these items can compromise the integrity and sterility of these barrier systems.

Packaging items for sterilisation using wrapping-type barrier systems

Preparing packages for sterilisation using barrier systems supplied as sheets or rolls (including wrapping and the use of class 1 chemical indicators) requires specific, validated (envelope-fold or square-fold) techniques that are outside the scope of this document.

The Sterilizing Research Advisory Council of Australia provides a list of sterilising courses (https://www.fsraca.org.au/sterilizing-courses-available-in-australia/) available in all states and territories.

The wrapping material must be checked before use to ensure that it is not damaged or past the expiry date.

Instrument trays used to contain instruments must be metal and perforated to allow air removal and steam penetration.

Labelling

All packages for sterilisation must be labelled with the date of sterilisation and the batch number (which includes the cycle or load number if more than one load processed on the same day), as a minimum. This enables appropriate stock rotation and the identification of other affected items if a problem with a processed item is identified.

If appropriate, additional labelling may include:

- steriliser identification number (in practices using more than one steriliser)
- identification of the contents, if items are not clearly visible (eg when using paper bags or wraps or if reusable medical devices within a kidney dish are sterilised in laminate pouches, as the hollow side faces the paper)
- identification of the person responsible for cleaning and placing items in the sterile barrier system (if more than one staff member prepares items for sterilisation)
- location of storage post-sterilisation (this may be applicable in larger practices to enable storage of different packs near their locations of use).

This information can be recorded using various codes, which varies in complexity.

Packages for sterilisation can be labelled with barcode adhesive labels (using barcode generator and scanner), prepared sterilisation labelling systems, or manually using a felt-tipped marking pen with non-toxic, water-resistant ink (preferably a validated purpose-designed sterilisation marker) or rubber stamp.

Sharp-tipped, water based or ball-type pens must not be used as they may compromise pack integrity.

When writing on laminate pouches and reels, the writing must be on the laminate side outside the sterile window area. Typically, flat wrappers are labelled by writing on the chemical indicator (steriliser) tape.

Loading the steriliser

Loading the steriliser

Correct loading of the steriliser is important to ensure steam can reach and sterilise every surface of the load, to prevent sterile barrier systems from damage, and to facilitate drying (Table 10.8. Principles of steriliser loading (#10.8)).

A load must not exceed the practice's validated parameters. This means a load cannot be larger or more difficult to sterilise than the 'challenge load' tested at time of annual validation/performance re-qualification. Any new load configurations that could possibly exceeding that of the validated 'challenge load' require re-validation (or the use of a Class 5 or 6 chemical indicator in emergency situations until validation is able to be performed as soon as possible).

It is preferable not to sterilise wrapped and unwrapped items in the same load. If this is necessary, do not place unwrapped items above the tray of wrapped items, because condensate may drip onto the wrapped packs below it.

Equipment used when loading the steriliser

Separators, trays and racks assist with correct loading.

Only validated, ARTG-listed sterilisation containers, load separators, perforated metal trays or cassettes may be used. The correct type depends on the steriliser model. These can be obtained through the steriliser manufacturer or medical supply company if not provided with the steriliser.

Load separators are used to space items (eg identical kidney dishes that would stack closely together, hindering air removal, steam penetration and drying).

Trays used in the steriliser must be perforated to allow steam penetration and condensation drainage during the sterilisation cycle. Use trays specifically designed and validate for the specific model of steriliser. Multiple trays may be required if packs are sterilised flat as single layers.

Solid trays must not be used as they inhibit steam movement and steam can condense on them, leaving pools of moisture and possibly wetting packs.

Method of loading

Follow the loading instructions provided by the manufacturer.

General principles apply:

- Follow the manufacturer's instructions on placement of packs and use of equipment.
- Ensure adequate space between each pack/pouch to facilitate air removal, allow steam penetration and facilitate drying – load trays loosely with a single layer of packs on each tray,

within the boundaries of the loading tray.
- Load the steriliser so that no items touch the walls. A square frame insert to achieve this may be supplied with the steriliser.
- Loading of the steriliser follows the same pattern of loading described in the validation protocol.

Photographs or diagrams of the validated loading pattern and any lesser loading patterns used are useful as a reference.

Table 10.8. Principles of steriliser loading

✓ DO	✕ DON'T:
Place only a single layer of packs on each tray and allow space between packs for air removal and steam penetration. Place lighter items on top shelves and heavy items on lower shelves. For items that are prone to entrap air and condensate, such as bowls, tilt on sides (eg 45° angle using a vertical rack) to allow air removal and steam penetration, and facilitate drainage and drying at the completion of the cycle. Place single laminated pouches vertically in a spacer with paper to laminate, or horizontally, according to steriliser manufacturer's instructions. Load items within the boundaries of the shelf.	Do not place into the steriliser until the complete load is ready to be loaded. Do not overload the chamber or allow packs to overlap. Do not allow packages to touch the sides of the steriliser chamber. Do not exceed the maximum weight or volume specified by the steriliser manufacturer Do not exceed the challenge load. Do not place instrument trays, hollow items or items that could collect moisture (eg bowls) above packs containing soft materials.

Running the sterilisation cycle

Running the sterilisation cycle

For sterilisers that produce printouts, the paper position and ink levels must be checked before running each cycle to ensure the data are recorded.

Processing time

The time (and temperature, if more than one option) selected for sterilising a load is a critical factor in ensuring sterility of the load. The processing time is the sum of the penetration (equilibration) time and the holding time.

Often manufacturers pre-set the processing time on sterilisers. These times must be checked during the validation process when the steriliser is commissioned, and altered if necessary to ensure adequate time at temperature to kill all microorganisms.

The penetration time is the time it takes for the hardest to reach part of the load to achieve the required temperature, once the chamber has reached that temperature). It is determined at the time of validation using a ‘challenge’ pack.

The holding time is the time the load must be held at the sterilising temperature, and includes a safety factor. The holding time for the cycle will depend on the type of items loaded. It must be determined by the steriliser technician during validation procedures for the steriliser.

Drying time

The validation process determines the minimum drying time for cycles, based on the challenge load(s).

Heat distribution

Heat distribution studies are not required for small steam sterilisers (< 60 L) and may not be effective in identifying a ‘cold spot’ in a small benchtop steriliser).

For large sterilisers, a heat-distribution study is required to ensure that monitoring reflects the temperature in the coolest part of the chamber. This study is only required once and may be available either from the manufacturer, a previous validation, or can be determined by the service technician.

This can be checked during routine calibration and should not be an additional expense.

Unloading the steriliser

Unloading the steriliser

The steriliser must be unloaded correctly by following a standardised protocol (Table 10.9. Steps for unloading the steriliser (#10.9)). Sterile barrier systems, chemical indicators and printouts are checked during this stage (see Monitoring the sterilisation cycle (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/10-reprocessing-reusable-medical-devices/monitoring-each-sterilisation-cycle)).

The cycle must not be interrupted or the sterilisers door opened until the steriliser has completed the entire cycle and the pressure has returned to zero.

Loads must be removed from the steriliser as soon as the cycle has finished. Do not allow the load to cool in the steriliser.

Any pouches or packs that are wet (see More information: wet packs below), dropped, torn, damaged, or have broken seals are considered unsterile and must be completely reprocessed.

Recleaning is required only if the reusable medical devices have been contaminated. Any reprocessing must be recorded.

More information: wet packs

All packs should be dry. A wet pack is a sign that the steriliser may not be operating correctly or there has been processing error. The problem should be identified and corrected immediately.

A wet pack can lead to contamination because excessive moisture can act as a pathway for microorganisms, re-contaminating the sterilised load. Handling wet packs can cause microorganisms to migrate inside the package, contaminating the contents.

Table 10.9. Steps for unloading the steriliser

⚠ **Do not attempt to open the steriliser door while the cycle is in operation.**

1. Cleanse hands.
2. Before opening the steriliser, check the printout or onscreen digital display to confirm the sterilisation parameters have been met. Check and sign/initial the printout or verify electronic record to confirm that the sterilisation process has achieved the correct sterilisation parameters.
3. Open the steriliser and carefully remove the load, using a tray lifter (supplied with the steriliser) or heat-resistant gloves. Handle only the loading trays, if possible; packaging is easily contaminated until it has cooled.
4. Place the load on a perforated tray or rack (not on a solid surface) so that air can move underneath to both facilitate rapid cooling and prevent condensation. The drying area must be in a low-activity area (eg adjacent the steriliser in the dedicated reprocessing area), protected from splash. Doors and windows must be closed and there must be no fan or boosted air conditioning.
5. Check class 1 external chemical indicators.
6. Without touching, visually check that the load is dry.
7. Allow the load to cool in the 'clean' zone of the reprocessing area, away from high levels of activity, before handling. Ideally, items should be allowed to cool for a minimum of 30 minutes (more than 1 hour for large items) before handling or storing. Do not use fans or high-flow air conditioning to dry items.
8. Cleanse hands. Using dry hands, check that each pack is dry, intact with seal secure.
9. Check that the batch/item information matches the load documents and that the batch label and/or ID label has/have not dislodged during sterilisation.
10. Check and record results of process challenge devices (if used) on steriliser cycle record.
11. Record results of biological indicator (if used) on steriliser cycle record.
12. Classify load as failed if any of the following occur:
    - Packs are wet or damaged.
    - Class 1 (and any other chemical indicators used) do not show the correct colour change.
    - Cycle monitoring parameters are not correct.
13. Report any failures. All items in a failed load must be rejected, the fault identified, corrected and recorded, and the entire load completely reprocessed. (A single wet pack does not fail the load, but the cause must be identified so it does not recur.)
14. In the steriliser cycle log, record the time of release and name of the person releasing the load.
15. When a load has passed the checks, store the contents correctly.

Documenting reprocessing including steriliser cycles

Documenting reprocessing including steriliser cycles

Logbooks are required when using washer-disinfectors or sterilisers.

Types of logbooks

Practices may develop their own logbook, use templates provided by RACGP or other organisations, or use commercially available logbooks. The log can incorporate tracking functions.

There are links to examples of logbooks in the resources (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/10-reprocessing-reusable-medical-devices/resources-and-references) section.

Logbooks must be retained with the records of validation and maintenance details. These are treated as medical records and retained for the required period in accordance with state/territory regulations.

Information required for steriliser logs

For every cycle, record the following information in the steriliser logbook:

- date
- steriliser identity (if the practice has more than one steriliser)
- load number
- load contents
- name of the person who prepared the load
- results of the cycle monitoring (pass/fail) – See Monitoring the sterilisation cycle (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/10-reprocessing-reusable-medical-devices/monitoring-each-sterilisation-cycle)
- confirmation of change in Class 1 chemical indicators
- results of any other indicators used (eg chemical or biological)
- condition of the sterile barrier systems (ie dry, seals intact and no damage)
- signature of the person releasing or rejecting the load
- comments on any faults/fails identified and the corrective action that was taken.

The printout of the cycle can be attached to the logbook and verified as correct in the logbook. If a data logger is used, verify in the logbook that the data logger recording was viewed and the cycle met required parameters.

In larger practices where more than one person is responsible for reprocessing reusable medical devices, the identity (eg initials) of the staff member who performed each stage of the process should be logged to enable follow-up.

On completion of each sterilisation cycle, the staff member responsible for releasing the load should:

- view the process record (printout/data logger/onscreen digital display chart) to verify that the time, temperature and pressure parameters were correct for the load contents in accordance with the validated specification
- record that they have completed this check, with their name or initials to enable later identification of the staff member who released the load.

Printouts should be checked for legibility as well as verification of correct parameters, then signed or initialled before filing.

Any variation from the normal parameters should be reported immediately to a supervisor, and the load should not be released. The discrepancy must be recorded and corrective action taken.

Note: Older sterilisers without process recorders need to be upgraded or replaced to ensure automatic monitoring of cycle parameters.

Documenting performance data for other equipment

Documenting performance data for other equipment

If the practice uses an ultrasonic cleaner, performance testing, solution changes and degassing should be recorded in a log.

If the practice has an automatic washer-disinfector, monitoring, servicing, maintenance, calibration and validation. This includes checking of charts, gauges, or printouts to verify that the correct variables were achieved.

Storing sterilised reusable medical devices

Storing sterilised reusable medical equipment

Maintaining integrity of sterile stock is crucial to ensuring sterility of reusable medical devices at the time of use. Correct storage and handling of sterile stock is critical to the maintenance of sterile barrier system integrity.

Requirements for sterile stock storage

All sterile stock must be stored in a way that keeps it clean, dust-free, and dry. It must be stored away from sources of moisture (eg not next to or below sinks, above sterilisers, or on open shelves).

Suitable storage areas include clean, well-sealed cupboards, drawers, or enclosed shelving (sliding doors must be kept closed), or sealable plastic containers with plastic dividers (not cardboard). Packs/pouches can be covered in protective packaging such as plastic dust covers, bags or containers.

Avoid paper/cardboard dividers because these shed fibres which settle on pouches. When opened, the fibres may contaminate the instrument.

Drawers must be deep enough so that pouches are not damaged by opening and closing.

Use cleaned hands when accessing sterile packs and fully close lids or doors every time.

Keep packs/pouches out of sunlight, because it can affect the integrity of some types of sterile barrier systems. Sterilised laminate can become brittle over time, so unused laminate packs must be checked regularly (eg every 2–3 months). If brittleness is noted, the contents must be fully reprocessed, including cleaning (in case dust has penetrated packaging) and sterilisation.

Duration of sterility

If items contained within a sterile barrier system are stored and handled correctly, there is no specific time limit on storage. However, the practice's system for stock rotation must ensure that sterilised packages are not left indefinitely. If a package has not been used within 12 months, re-sterilisation should be considered.

Unused packs should regularly be checked for moisture, brittleness, damage and other signs that they require reprocessing. The frequency of checking should be documented.

Packs/pouches that are used infrequently can be wrapped in plastic dust covers or stored in sealed plastic containers when cooled, before storage. This will further protect the sterile barrier system from dust and damage.

Repeated or rough handling, the use of rubber bands, unclean or wet hands and other exposure to moisture can compromise sterility by damaging sterile barrier system. If water is splashed onto the outside of a pack/pouch, this renders it ‘unsterile’. The items must be placed in a new sterile barrier system and resterilised.

Unwrapped sterilised reusable medical devices cannot be stored for later use as sterile supplies.

Rotation of stock

Ensure the practice has a procedure for sterile stock rotation such as ‘use from the left, restock from the right’ or ‘use from the front, restock from the rear’. Use the dates on the items within the sterile barrier system to assist.

Practices could develop a protocol for stock rotation that specifies the interval for checking unused items, and what actions should be taken and documented. The system should be designed to avoid frequent handling.

Hands must be cleaned before handling stock.

Monitoring each sterilisation cycle

Monitoring each sterilisation cycle

Effective sterilisation of used instruments to prevent transmission of microorganisms depends on temperature, pressure and time – each of these parameters must be monitored.

The sterilisation cycle is monitored by multiple methods:

- mechanical/physical/electronic indicatorsrecorded by automatic printout or computerised data logger – must be checked for every cycle before the load contents are released for use
- chemical indicators – included with every pack/pouch and load, and placed on each tray containing unwrapped items
- biological/enzymatic indicators – used during validation and when steriliser operation needs to be rechecked.

All sterilisers must automatically generate log data (see Record keeping (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/10-reprocessing-reusable-medical-devices/record-keeping)).

Mechanical/physical/electronic monitoring

Sterilisers must be fitted with devices (gauges/timers/digital readout) that provide visible evidence of the time, temperature and pressure during a cycle.

Results are automatically recorded by printout or a data log, which must be viewed after each cycle before sterilised items can be released for use. The printout or data logger shows the temperature and pressure at critical points during the sterilisation cycle as well as the drying time.

Chemical indicator monitoring

There are six classes of chemical indicator (classes 1–6). Higher classes provide more information (including more specific information) than lower classes (Table 10.10. Types of chemical indicators (#10.10)).

A **Class 1** chemical indicator must be used on every pack of every load or in the tray of unwrapped items as evidence that the load has been subject to a heat process. Self-sealing pouches and some sealing tape incorporate Class 1 chemical indicators.

The use of other classes of chemical indicators is optional. For example, chemical indicators may be used to detect a suspected fault.

Chemical indicators must be checked for colour change immediately after unloading the steriliser, because the colour may fade or change over time. Colour viewed after storage does not provide proof of success of a sterilisation process performed days or hours before.

Any monitoring using chemical indicators must be recorded.

Table 10.10. Types of chemical indicators

Class	Description	When used	Cycle type*	Advantages	Disadvantages
1	Process indicator (eg steriliser indicator tape)	On every pack in every load On the tray of every unpacked load	All classes	Can assist in easily distinguishing between processed and unprocessed loads	Designed to reach their endpoint after an exposure to a cycle that may be less than adequate for sterilisation
2	Specific test indicator (eg Bowie–Dick-type tests)	According to practice risk assessment	Class B	Designed to show air removal and the rapid and even penetration of steam	Designed to reach their endpoint after an exposure to a cycle that may be less than adequate for sterilisation
4	Indicator for two parameters (eg time and temperature)	For extra assurance of successful completion of a sterilisation cycle In the absence of printout/data log	All classes	Designed to reach their endpoint after exposure to a sterilisation cycle at the stated values of the chosen parameter (eg 134°C for 3 minutes) Provides more assurance of a successful sterilisation cycle than that provided by either process (Class 1) or single-parameter (Class 3) indicators and can be used in the absence of a printout	Failure may not identify which specific parameter/s have failed
5	Integrating indicators (eg time, temperature and pressure)	For high-level assurance of successful sterilisation cycle In the absence of a printout	All classes	Provides as much information as a biological indicator by mimicking the conditions necessary to destroy microorganisms and can be used in the absence of a printout or validation in some situations	Failure may not identify which specific parameter/s have failed

Class	Description	When used	Cycle type*	Advantages	Disadvantages
6	Emulating indicators (eg 134°C for 3.5 minutes in steam under pressure)	Assurance that all critical conditions of the sterilisation cycle are met, based on the settings of the selected sterilisation cycles	All classes	Provides a very high level of assurance of a successful sterilisation cycle and can be used in the absence of a printout or validation in certain situations	Failure may not identify which specific parameter/s have failed

*Steriliser type or cycle class of steam steriliser

Note Class 3 indicators (indicators for a single parameter) are no longer used.

Microbiological indicator monitoring

Microbiological indicators are the most reliable method for checking the effectiveness of the sterilisation process. They are not designed for routine monitoring or as a substitute for validation.

Types of biological indicators

There are two types of microbiological indicators: biological and enzymatic.

Biological indicators are designed to measure the killing power of the sterilising process and are considered to be the most accurate method. They consist of a predetermined number of microorganism spores.

Rapid-read biological indicators provide results in 20–25 minutes. Older biological indicator systems require 24 or 48 hours' incubation after the sterilisation cycle before the result can be read.

Enzyme tests are similar to biological indicators but do not require an incubator. They contain an enzyme from a microorganism that is inactivated when sterilising conditions are achieved. The test is performed after the cycle by adding a drop of test solution and observing a rapid colour change. These are not commonly used in office-based practices.

Application

The use of a biological indicator by the steriliser technician is required at operation qualification and performance qualification, recommissioning and performance requalification .

The use of biological indicators by the practice as part of routine testing and performance monitoring, and in criteria for release of processed items, is optional.[1]

A biological indicator can also be used as a quality assurance activity, to investigate cycle failures, or when running any load type that exceeds the previously validated worst-case parameters (in this case, the load must not be released for use until the results are available).

Technique

The biological indicator is placed on the tray with unwrapped items or within the sterile barrier systems of the load to be sterilised. After the cycle is complete, the indicator is incubated according to the manufacturer's instructions. This can be done onsite in practices that own or have access to a loaned incubator. Incubators used for this purpose are annually calibrated.

Record the results in the steriliser logbook before releasing the load.[1]

Weekly use of biological indicators was formerly required when using sterilisers that were not calibrated and validated. Unvalidated or uncalibrated sterilisers must not be used.

Record keeping

Record keeping

After each cycle, the designated staff member reviews the printout or download (see Documenting reprocessing including steriliser cycles (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/10-reprocessing-reusable-medical-devices/documenting-reprocessing-including-steriliser-cycl)). The result (success or failure of the cycle) must be recorded in the steriliser log at the end of each cycle. The printout or datalogger result may be kept (eg for a month) for evidence and to assess trending temperatures and pressure. Printouts liable to fading need to be transferred to digital medium. Electronic downloads can be stored digitally.

The steriliser log (logbook/steriliser cycle book record) must be retained with the same requirements as a medical record ❗ . If the printer is faulty/out of paper, or if the data logger is inoperative or the data cannot be viewed, the load cannot released until the data are retrieved.

The log for each cycle contains all of the following data (Table 10.11. Sample steriliser log (#10.11)):

1. Data recorded before the cycle by the loading operator:

   - date
   - cycle number
   - load type/description of each pack
   - cycle program selected
   - identification of loading operator

2. Data recorded at the end of the cycle by the unloading operator:

   - whether the physical parameters have been met
   - whether internal/external chemical indicators received a pass result
   - whether packages meet criteria for conforming: correctly labelled, package and seal intact, and the Class 1 indicator is present with colour change
   - identification of the unloading operator.

Sterilisers without a printer or data logger are obsolete and should not be used.

Table 10.11. Sample steriliser log

Date[1]	Load no.[2]	Person preparing load (name or ID)[3]	Load contents description[4]	Time and temperature printout or Class 4, 5 or 6 chemical indicator[5]	Class 1 chemical indicator change[6]	Packs dry and intact[7]	Person releasing load (name or ID)[8]	Steriliser maintenance and repairs[9]	Comments (including name or ID)[10]
2/11/22								Cleaned, water changed	M Gale, Registered Nurse
2/11/22	1	H Hodder	3 x suture sets 4 x scissors 1 x excision set	Printout passed 3.5 min @ 134°C	Pass	Yes	J Ramirez		
3/11/22	1	K Krane	6 x forceps 2 x scissors	Failed – load rejected					Printer broken (K Krane) Load repacked and repeated with Class 6 chemical indicator (H Hodder, practice nurse)

1. The date of the steriliser batch or maintenance.

2. The load consecutively for each day (eg 2/11/22 load 1, 2, 3; 3/11/22 load 1, 2).

3. Identification of the person preparing the load.

4. Description of each pack in the load.

5. Time and temperature measurement obtained from either a printout of the cycle or a data log. The time and temperature must match the chosen parameters (eg 134°C for 3.5 minutes). If a printout or data log is unavailable or manual recording is not performed, a Class 4, 5 or 6 indicator must be used in each load and the colour change noted (eg 'pass' or 'fail'). If different time and temperature parameters are used, these should be recorded. The printout or data can be kept.

6. A Class 1 indicator indicates exposure to heat, and must be included in each pack or, in the case of unpacked items, on the tray. The results of the colour change are noted (eg 'pass' or 'fail').

7. This is an essential prerequisite to releasing a pack or load for use. If a pack is moist or damaged, or the seal is not intact when it comes out of the steriliser, it is failed, repacked and resterilised. The results of the pack check are recorded (eg 'pass' or 'fail').

8. Identification of the person releasing the load.

9. Maintenance needs to be performed according to the manufacturer's instructions. Refer to the steriliser operating instructions for details.

10. This column is also to record any pertinent information about the steriliser or load, including reason for rejecting the load, and any follow-up action. Both scheduled (eg daily cleaning, weekly water changes, annual calibration and servicing prior to validation) and unscheduled (eg printer repaired, heater element replaced) maintenance is outlined in this column.

Source: [The RACGP Steriliser Record System (2019) (https://www.racgp.org.au/running-a-practice/practice-resources/ordering-publications/record-keeping-in-general-practice)]

Checking steriliser function

Checking steriliser function

In addition to monitoring every cycle, daily checks of steriliser function are required in accordance with the manufacturer's instructions for use.

Leak-rate tests

For a steriliser that uses a vacuum in any part of its operation, a leak-rate test is required on each day of its use (or weekly, if there is an air detector) to check the leak rate does not exceed the maximum specified in the current relevant standard (https://www.standards.org.au/standards-catalogue/sa-snz/health/he-023/as-slash-nzs--4815-2006) .

Refer to the steriliser operating instructions for information on whether an air detector is fitted and how to perform the leak-rate test.

Steam penetration/air removal tests

If the practice uses class B sterilisation cycles and reprocessed narrow-lumen (hollow A) items, a steam penetration/air removal test must be performed daily in accordance with steriliser instructions for use and process challenge device instructions for use.

Process challenge devices

Various commercially manufactured process challenge devices are available. These mimic particular challenges or worst-case scenarios. For example, the helix device for air removal/steam penetration consists of a coil of thin tubing with one open end and the other attached to a thin sealable cylinder containing a strip. The strip changes colour if the right conditions are met during the steriliser cycle (ie that the steriliser has successfully removed all the air from the cylinder via the narrow tubing).

Steriliser maintenance

Steriliser maintenance

Maintenance is essential to ensure sterility of the equipment processed and longevity of the steriliser.

Maintenance must be performed according to the manufacturer's instructions. Refer to the steriliser operating instructions for details.

Changing the water

Demineralised (deionised or distilled) water must be used to minimise scale build-up and corrosion. Most benchtop models require connection to a water source.

Sterilisers that have a reservoir and recycle water must be topped up as required and the water drained and changed weekly.

Cleaning the steriliser

Regular cleaning of the external surface, chamber, trays and racks is required in accordance with the manufacturer's instructions for use:

- The external surface should be wiped daily and the internal surfaces should be cleaned at least weekly with a cleaning agent recommended by the manufacturer. Check the manufacturer's instructions for details.
- Wiping the chamber walls weekly will reduce scale build up. Scale build-up in areas with high concentrations of calcium can be removed using commercially prepared products containing phosphoric acid (check and carefully follow the manufacturer's recommendations). Using inappropriate cleaners may damage water tanks, filters or hoses.
- Tape, label debris and glue may have to be removed using an approved cleaning agent and/or non-abrasive scourer.
- The drain and other outlets must be checked to ensure they are clear of debris.

Servicing the steriliser

Scheduled maintenance, such as checking the seal, changing the filter, and oiling the hinge should be performed as recommended by the manufacturer (either by a staff member or by a service provider, as appropriate).

Full servicing, including calibration, must be performed at least annually. It should be done more frequently if recommended by the manufacturer, and repeated when repairs are needed.

The service technician checks the temperature, pressures and time achieved during a full sterilisation cycle as well as the gauges, recording devices, seals and filters.

Validation is usually scheduled at the time of annual servicing and calibration (see Validating the steriliser process). (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/10-reprocessing-reusable-medical-devices/validating-reprocessing-procedures)

Annual calibration and servicing to the required standard must be performed by a suitably qualified service technician, and carried out in accordance with the manufacturer's instructions. Practices could contact the manufacturer or distributor to find a qualified technician authorised to service the steriliser model.

Documentation

Documentation of all maintenance (apart from routine cleaning) and servicing is part of the monitoring process and is required as evidence of the correct operation of the steriliser.

Documentation of maintenance includes:

- maintenance performed by staff as per the manufacturer's instructions (for example, changing water, daily cleaning and checking door seal)
- annual (or more frequently if required by heavy usage) servicing and calibration by a qualified technician.

Retain service reports.

The practice needs to have a written policy and procedure to cover all maintenance issues regarding the steriliser.

Step-by-step guide: simple first validation

Step-by-step guide: simple first validation

Some steps are performed by staff and some (such as installations, technician assistance, maintenance and repairs) must be done by a trained technician from an organisation authorised by the Therapeutic Goods Administration sponsor of the equipment.

Glossary note: ‘qualification’ means checking.

Responsibility

The staff member with designated responsibility for reprocessing reusable medical devices to perform the following:

1. Review the documented procedures covering all parts of the reprocessing procedure to ensure reproducibility:

- workflow issues: dirty through to clean and environmental cleaning
- precleaning and cleaning of instruments, including drying and visual inspection
- packing of contents in a sterile barrier system, including sealing and labelling
- loading of the steriliser
- mechanical/physical monitoring (chemical indicators and recording of exposure time and temperature) of the sterilisation cycle parameters
- unloading of the steriliser and checking the packs are dry and intact and checking monitoring results and correct chemical indicator change
- storage of sterile items
- maintenance of steriliser as required by the manufacturer (including water changes and cleaning).

2. Perform or supervise the documented procedures.
3. Check that the procedures were performed correctly.
4. Record correct completion of each procedure (Table 10A.1. Validation certificate template (#10A)).

Table 10A.1. Validation certificate template Download the validation certificate template (https://www.racgp.org.au/getmedia/366bbe27-49fb-48e2-96d1-e041338c41ca/RACGP-Template-Validation-certificate.docx.aspx)

Clinic name:		**Steriliser identification:**	
Process	**Process documented in policy and procedure manual**	**Process performance, effectiveness and reliability checked (ie validated)**	**Sign and date**
Cleaning of the reprocessing area			
Workflow (dirty to clean)			
Precleaning and cleaning of instruments			
Drying and visual inspection			
Content, packing and sterile barrier system of challenge pack			
Loading of challenge load			
Monitoring of cycle parameters			
Unloading of the steriliser (steriliser log)			
Storage of sterile items			
Cleaning and maintenance of steriliser (maintenance log)			

Clinic name:		**Steriliser identification:**	
Cleaning and maintenance of ultrasonic cleaner			
Cleaning and maintenance of washer-disinfector			
Cleaning and maintenance of drying cabinet			
Cleaning and maintenance of incubator			
Name of service company:			
Steriliser technician:			
Date:			
Name of staff member with responsibility for practice sterilisation:			
Signature:			
Date:			

Procedure

Review the following steps and record findings.

Workflow issues: dirty through to clean

□ Review documentation in practice policy and procedure manual or other documentation (such as signage in reprocessing area).

□ Observe performance of the tasks from pre-treatment at point of use, through precleaning, cleaning and sterilisation to storage, including environmental cleaning relevant to instrument reprocessing.

□ Check that workflow from dirty to clean is not compromised and that environmental cleaning is adequate.

Precleaning, cleaning and drying of instruments

□ Review documentation in practice policy and procedure manual or other documentation.

□ Perform or supervise precleaning, cleaning and drying.

□ Check that the instruments are clean, under good lighting using magnification (pay special attention to serrations).

Pack contents, packing and sterile barrier system

□ Review documentation in practice policy and procedure manual or other documentation.

□ Perform or supervise pack preparation with correct contents, packing and sterile barrier system.

□ Check packs:

- □ have the correct contents
- □ are packed correctly in the correct sterile barrier system and do not exceed those of the documented challenge packs ❗
- □ have seals that are intact
- □ have a Class 1 chemical indicator on the outside of each pack
- □ have been labelled with the date, steriliser number (if applicable), load (batch) number and staff identification of cleaner and packer (if applicable)
- □ have instruments loosely open, not tightly closed
- □ that contain hollowware (eg kidney dishes, bowls), if packed in laminate pouches, are packed with the opening against the paper, not the laminate plastic side
- □ have not had ballpoint pens used on pack surfaces

Loading the steriliser

□ Review documentation in practice policy and procedure manual.

□ Perform or supervise loading of the steriliser.

□ Check that:

□ the total contents of the steriliser do not exceed those of the documented challenge load Table 10A.2. Penetration and drying time (#10A.3)) (#10A.2)

□ packs containing hollowware (eg kidney dishes, bowls) are on their sides

□ the paper side of any laminated pack is adjacent to the laminate side of another

□ individual instrument packs are separated on racks

□ trays of unwrapped instruments are not overloaded

□ there is a Class 1 chemical indicator in the tray with unwrapped instruments.

Table 10A.2. Example of penetration and drying time

Challenge pack description	Challenge pack/load loading	Penetration time Steriliser 1 (minutes)	Drying time Steriliser 1 (minutes)
1 x 'Removal of lesion' pack, consisting of: 1 x needle holder 1 x scissors 1 x toothed forceps All instruments in laminated pouch.	**Vertical Rack** 2 x Bard-Parker scalpel handles in laminated pouch **Challenge Pack** 2 x scissors in laminated pouch 1 x crocodile forceps in laminated pouch 1 x toothed forceps in laminated pouch **Bottom Tray** 1 x 'Removal of lesion' pack 1 x needle holder	0	5

Mechanical/physical monitoring of sterilisation cycle parameters, biological indicators

□ Review the documentation in the practice policy and procedure manual for each steriliser used, including:

□ manufacturer's instructions

□ heat distribution studies (Figure 10A.1. Example of heat-distribution study (#table10a1))

□ description of the challenge pack and load (Table 10A.2. Example of penetration and drying time (#10A.2))

□ diagram of chamber loading (Figure 10A.2. Diagram of chamber loading (#figure10a1))

□ penetration times (Tables Table 10A.2. Example of penetration and drying time (#10A.2) , Table 10A.3. Example of processing time (#10A.3)).

□ The service technician should:

□ perform a heat-distribution study (if needed) to check for cold spots in the chamber and record (Figure 10A.1. Example of heat-distribution study (#figure10a1)). Note: This study is only required once and may be available either from the manufacturer or a previous validation. If not, it can be determined by the service technician.

□ establish the penetration time for the 'challenge pack' within the 'challenge load' and record (this combination reflects the greatest challenge to the sterilisation process of any load)

□ set the processing time on the steriliser for all loads (ie holding time plus penetration time) and document (Table 10A.3. Example of processing time (#10A.3))

□ check the drying time (establish that the recommended time is adequate and increase if needed; see Table 10A.2. Example of penetration and drying time (#10A.2) , Table 10A.3. Example of processing time (#10A.3))

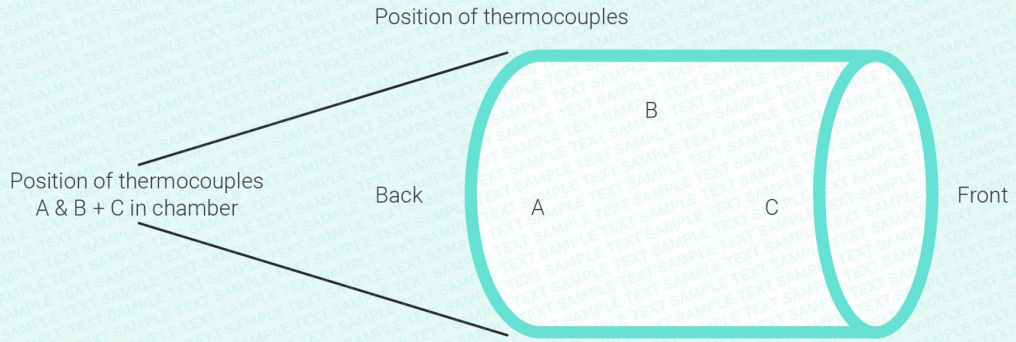
□ perform additional function checks for validation of the sterilisation cycle (ie during the processing and drying time)

□ perform physical qualification (checking) of the temperature within the challenge pack within a challenge load with a thermocouple throughout the total processing time (ie 'time at temperature' testing) at least once. This check should continue to check the drying time. The penetration time can also be checked while this is being performed.

□ The staff member with designated responsibility for sterilisation should perform microbiological qualification (checking) using appropriate indicators in three successive cycles (Table 10A.4. Results of physical and microbiological qualification (#10A.4)).

Location of thermocouples	A	B	C	Steriliser temperature gauge reading
Temperature	134.2°C	134.3°C	134°C	134°C

A heat distribution study was performed on an empty chamber.
This needs to be established for the challenge load and checked by the designated staff member



Notes: 1. Attach thermocouple record from the service technician. 2. This example shows no significant cold spot.

Figure 10A.1.

Example of heat-distribution study

A heat-distribution study is only required once and may be available either from the manufacturer, a previous validation, or can be determined by the service technician.

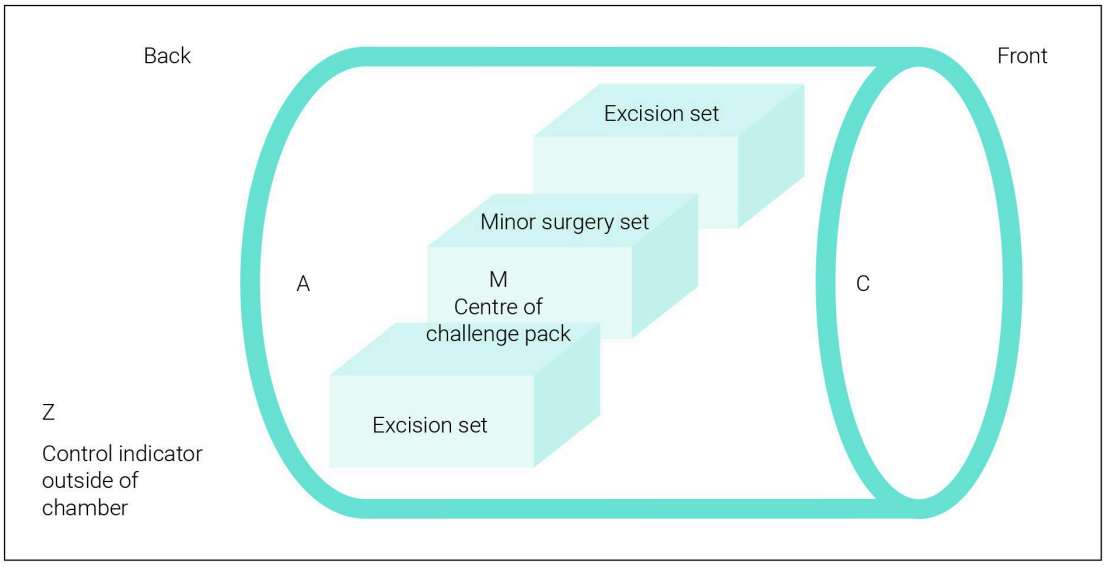


Figure 10A.2.

Diagram of chamber loading

Table 10A.3. Example of processing time

Load description	Sterilising temperature	Pressure in kpa (median)	Penetration time (P) (minutes)	Holding time including safety factor (H) (minutes)	Total processing time (T) (minutes) P + H = T	Drying time (minutes)	Pre-set setting selection (eg 'suture')
2 excision sets and 1 minor surgery set	*Set 134°C*	*203*	*2*	*3*	*5*	*12*	*Suture*

Table 10A.4. Results of physical and microbiological qualification

Challenge load	Check type	Cycle 1	Cycle 2	Cycle 3
2 excision sets and 1 minor surgery set	Microbiological qualification: Indicator M in centre of challenge pack	No growth	No growth	No growth
	Microbiological qualification: Indicator C in cold spot of chamber	No growth	No growth	No growth
	Physical qualification: Time at temperature	Pass*	Not applicable	Not applicable

*Attach temperature records from service technician supporting this qualification

The indicators

□ Biological or enzymatic indicators:

- □ have a spore count equivalent to 10^5
- □ are from the same batch.

□ A minimum of two indicators are required for each load to be validated plus one control indicator.

□ Indicators need to be suitable for the type of steriliser and temperature selected (enzymatic indicators on the Australian market are not suitable for gravity displacement bench top sterilisers operating at 134°C and cannot be used for either additional monitoring or validation).

Labelling indicators

Label indicators before starting according to:

- the cycle number (1 for the first, 2 for the second or 3 for the third)
- the position it is to be placed in the steriliser (eg M for middle of challenge pack or C for cold spot if determined or placed anywhere on tray if none), for example:
    - Cycle 1 label one indicator 1/M (1st cycle in the middle of the challenge pack) and the other 1/C (1st cycle on the tray nearest the cold spot)
    - Cycle 2 label one indicator 2/M (2nd cycle in the middle of the challenge pack) and the other 2/C (2nd cycle on the tray nearest the cold spot)
    - Cycle 3 label one indicator 3/M (3rd cycle in the middle of the challenge pack) and the other 3/C (3rd cycle on the tray nearest the cold spot)
- the control (7th) indicator can be labelled Z; this is left outside the steriliser and never sterilised. This indicator, which is treated with the others, will be used to substantiate that the batch of indicators was active.

Repackaging between cycles

The packs will be reused pack(s) from the previous cycle. The contents of the pack(s) must return to room temperature before repackaging and the next cycle run.

Indicator processing

All indicators are to be incubated according to the manufacturer's instructions and results recorded (Table 10A.4. Example of results of physical and microbiological qualification). (#10A.4)

Interpretation of the results of the indicators

□ If the process has been performed correctly, all the 'M' and 'C' indicators will show colour change, indicating no bacterial growth or equivalent. Colour change indicates a process failure and must be investigated. Some incubators or readers will provide an automated final pass or fail result within a specified amount of time. Record the results.

□ If the process has been performed correctly, the single unsterilised control 'Z' indicator will show growth. If not, the batch of indicators or the incubator is faulty (the service technician needs to check the incubator with the thermocouple as part of annual servicing).

□ A pass result is 100%: all six processed biological indicators (minimum of two in each load over three cycles) should not have changed colour and the control biological indicator should have changed colour after incubation. Any failures must be fully investigated as to cause and corrective action documented and the entire procedure repeated.

Check the steriliser settings and results of steriliser monitoring

□ Ensure:

□ time and temperature were correctly set.

□ routine monitoring of each cycle's time at temperature (either by printout, download of data logger, manual recording of time at temperature, or by the use of a Class 4, 5 or 6 chemical indicator) occurred at the correct frequency, was reviewed for adequacy, was signed off and is recorded in a log

□ the physical qualification of temperature ('time at temperature' testing) inside the challenge pack/load showed that the centre of the pack reached the correct sterilising temperature and that was maintained for the required time.

□ the microbiological qualification with appropriate indicators placed inside the challenge pack/load showed that the centre of the pack and outside the pack inside the chamber was effective in sterilising these indicators in each of the three cycles.

Unloading of the steriliser

□ Review documentation in the practice policy and procedure manual, or other documentation.

□ Perform or supervise unloading.

□ Check that cooled are dry, undamaged, seals are intact and the Class 1 chemical indicator on the outside of each pack or in the tray with unwrapped items has changed colour.

Storage of sterile items

Review documentation.

□ Perform the task of storage.

□ Check that stored items are kept dry, dust free and undisturbed, and packs have been processed, marked with the date and load number and stored in a manner to allow stock rotation. Check cleaning of the storage area does not compromise sterility.

Cleaning and maintenance of the reprocessing equipment

□ For each piece of equipment used in the practice (ultrasonic cleaner, washer-disinfector, drying cabinet, steriliser, incubator), review documentation in the practice policy and procedure manual, manufacturer's instructions and maintenance log.

□ Perform or supervise routine maintenance procedures as documented.

□ Check that maintenance tasks have been performed and are in accordance with the manufacturer's requirements.

□ Visually inspect cleanliness and check that the documented cleaning schedule has been completed.

Step-by-step guide: complex validation

Step-by-step guide: complex validation

Complex validation is performed when simple first validation has previously been performed. Some steps are performed by staff and some (such as installations, technician assistance, maintenance and repairs) must be done by a trained technician from an organisation authorised by the Therapeutic Goods Administration sponsor of the equipment.

Responsibility

The staff member with designated responsibility for reprocessing reusable medical devices to perform the following:

1. Review the documented procedures covering all parts of the reprocessing procedure to ensure reproducibility:

- workflow issues: dirty through to clean and environmental cleaning
- precleaning and cleaning of instruments, including drying and visual inspection
- packing of contents in a sterile barrier system, including sealing and labelling
- loading of the steriliser
- mechanical/physical monitoring (chemical indicators and recording of exposure time and temperature) of the sterilisation cycle parameters
- unloading of the steriliser and checking the packs are dry and intact and checking monitoring results and correct chemical indicator change
- storage of sterile items
- maintenance of steriliser as required by the manufacturer (including water changes and cleaning).

2. Perform or supervise the documented procedures.
3. Check that the procedures were performed correctly.
4. Record correct completion of each procedure (Table 10B.1. Sample complex validation certificate (#10b.1)).

Table 10B.1. Sample validation certificate Download the sample validation certificate (https://www.racgp.org.au/getmedia/78d5d80f-c36c-4e57-8d8a-b518677c2922/RACGP-Template-Validation-certificate_1.docx.aspx)

Clinic name:		**Steriliser identification:**	
Process	**Process documented in policy and procedure manual**	**Process performance, effectiveness and reliability checked (ie validated)**	**Sign and date**
Cleaning of the reprocessing area			
Workflow (dirty to clean)			
Precleaning and cleaning of instruments			
Drying and visual inspection			
Content, packing and sterile barrier system of challenge pack			
Loading of challenge load			
Monitoring of cycle parameters			
Unloading of the steriliser (steriliser log)			
Storage of sterile items			
Cleaning and maintenance of steriliser (maintenance log)			

Clinic name:		**Steriliser identification:**	
Cleaning and maintenance of ultrasonic cleaner			
Cleaning and maintenance of washer-disinfector			
Cleaning and maintenance of drying cabinet			
Cleaning and maintenance of incubator			
Name of service company:			
Steriliser technician:			
Date:			
Name of staff member with responsibility for practice sterilisation:			
Signature:			
Date:			

Procedure

Review the following steps and record findings.

Workflow issues: dirty through to clean

□ Review documentation in practice policy and procedure manual or other documentation (such as signage in reprocessing area).

□ Observe performance of the tasks from pre-treatment at point of use, through precleaning, cleaning and sterilisation to storage, including environmental cleaning relevant to instrument reprocessing.

□ Check that workflow from dirty to clean is not compromised and that environmental cleaning is adequate.

Precleaning, cleaning and drying of instruments

□ Review documentation in practice policy and procedure manual or other documentation.

□ Perform or supervise precleaning, cleaning and drying.

□ Check that the instruments are clean, under good lighting using magnification (pay special attention to serrations).

Pack contents, packing and sterile barrier system

□ Review documentation in practice policy and procedure manual or other documentation.

□ Perform or supervise pack preparation with correct contents, packing and sterile barrier system.

□ Check packs:

- □ have the correct contents
- □ are packed correctly in the correct sterile barrier system and do not exceed those of the documented challenge packs ❗
- □ have seals that are intact
- □ have a Class 1 chemical indicator on the outside of each pack
- □ have been labelled with the date, steriliser number (if applicable), load (batch) number and staff identification of cleaner and packer (if applicable)
- □ have instruments loosely open, not tightly closed
- □ that contain hollowware (eg kidney dishes, bowls), if packed in laminate pouches, are packed with the opening against the paper, not the laminate plastic side
- □ have not had ballpoint pens used on pack surfaces.

Loading of the steriliser

□ Review documentation in practice policy and procedure manual.

□ Perform or supervise loading of the steriliser.

□ Check that:

□ the total contents of the steriliser do not exceed those of the documented 'challenge load' (Table 10B.2. Examples of challenge loads: contents and loading c (#10b.3) onfiguration (#10 B.2) , Table 10B.3. Example of penetration and drying time (#10b.4))

□ packs loaded with hollow items are on their sides

□ the paper side of any laminated pack is adjacent to the laminate side of another

□ individual instrument packs are separated on racks

□ trays of unwrapped instruments are not overloaded

□ there is a Class 1 chemical indicator in the tray with unwrapped instruments.

Table 10B.2. Example of challenge load: contents and loading details

Challenge load	Loading details
2 excision sets and 1 minor surgery set	3 packs in the chamber Minor surgery set in middle

Sample only; actual challenge loads and loading configuration will depend on the practice's reprocessing requirements.

Table 10B.3. Example of penetration and drying time

Challenge pack description	Challenge pack/load loading	Penetration time Steriliser 1 (minutes)	Penetration time Steriliser 2 (minutes)	Drying time Steriliser 1 (minutes)	Drying time Steriliser 2 (minutes)
2 excision sets and 1 minor surgery set	3 packs in the chamber Minor surgery set in the middle	2	0	12	12

Mechanical/physical monitoring of sterilisation cycle parameters

□ Review the documentation in the practice policy and procedure manual for each steriliser used, including:

□ manufacturer's instructions

□ heat distribution studies

□ description of the challenge pack and load (Table 10B.2. Examples of challenge loads: contents and loading details (#10b.2) , Table 10B.3. Example of penetration and drying time (#10b.3))

□ diagram of chamber loading (Figure 10B.1. Diagram of chamber loading (#figure10b1))

□ penetration times (Table 10B.3. Example of penetration and drying time (#10b.3)).

□ The service technician should:

□ perform a heat-distribution study (if needed) to check for cold spots in the chamber and record. Note: This study is only required once and may be available either from the manufacturer or a previous validation. If not, it can be determined by the service technician.

□ establish the penetration time for the 'challenge pack' within the 'challenge load' and record (this combination reflects the greatest challenge to the sterilisation process of any load)

□ set the processing time on the steriliser for all loads (ie holding time plus penetration time) and document it (Table 10B.3. Example of penetration and drying time (#10b.3))

□ check the drying time (establish that the recommended time is adequate and increase if needed; see (Table 10B.3. Example of penetration and drying time (#10b.3))

□ perform additional function checks for validation of the sterilisation cycle (ie during the processing and drying time)

□ perform physical qualification (checking) of the temperature within the challenge pack within a challenge load throughout the total processing time (ie 'time at temperature' testing) at least once (eg by placing temperature sensors and a biological indicator within the most challenging pack and at other sites within the steriliser, including the coldest area to find the chamber reference temperature). Steam penetration can be measured during the sterilisation cycle by calculating the difference between the pack and other temperature sensors, and the chamber reference temperature. The physical qualification should continue to check the drying time. Temperature and pressure qualifications are performed on a minimum of three consecutive cycles.

□ check the temperature of the incubator (if onsite) and calibrate if necessary.

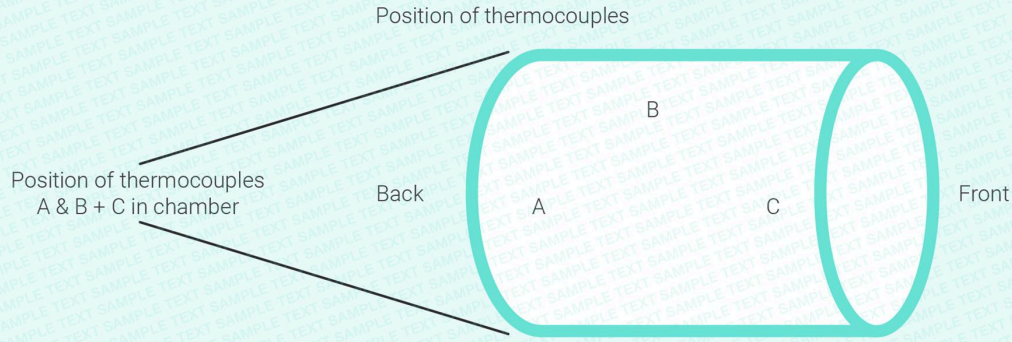
□ The staff member with designated responsibility for sterilisation should:

– perform microbiological qualification (checking) using appropriate indicators in three successive cycles (Table 10B.5. Sample results of physical and microbiological checking (#10b.5)).

Location of thermocouples	A	B	C	Steriliser temperature gauge reading
Steriliser 1 temperature	134.2°C	134.3°C	134.1°C	134°C
Steriliser 2 temperature	134.4°C	134.5°C	134.2°C	134°C

A heat distribution study performed on an empty chamber has been previously obtained (this can be from the manufacturer or performed by the steriliser technician) and is recorded in the table above.

The reading on the steriliser temperature gauge should reflect the temperature at the coldest location in the steriliser drain at the rear of the steriliser chamber (A) (service technician to adjust if practicable when checking calibration).



Notes: 1. Attach thermocouple record from the service technician, 2. This example shows no significant cold spot

Figure 10B.1.

Diagram of chamber loading

A heat-distribution study is only required once and may be available either from the manufacturer, a previous validation, or can be determined by the service technician.

The indicators

□ Biological or enzymatic indicators:

- have a spore count equivalent to 10^5
- are from the same batch.

□ A minimum of two indicators are required for each load to be validated plus one control indicator.

□ Indicators need to be suitable for the type of steriliser and temperature selected (enzymatic indicators on the Australian market are not suitable for gravity displacement bench top sterilisers operating at 134°C and cannot be used for either additional monitoring or validation).

Labelling indicators

□ Label indicators (Table 10B.4. Examples of indicator labelling (#10b.4)) before starting according to the:

- steriliser (if more than one steriliser)
- cycle number (eg 1 for the first, 2 for the second or 3 for the third)
- challenge load (eg E for excision set) and the position it is to be placed in the steriliser (eg M

for middle of challenge pack or C for cold spot if determined or placed anywhere on tray if none).

□ The control indicator can be labelled Z; this is left outside the steriliser and never sterilised. This indicator, which is treated with the others, will be used to substantiate that the batch of indicators was active.

□ The procedure is then repeated for the excision set for both sterilisers, the V being replaced by an ‘E’.

Table 10B.4. Examples of indicator labelling

Steriliser 1

Cycle 1 label 1 indicator 1/1/E/M (steriliser 1,1st cycle, excision set in the middle of the challenge pack) and the other 1/1/E/C (steriliser 1, 1st cycle, excision set, on the tray nearest the cold spot)

Cycle 2 label 1 indicator 1/2/E/M (steriliser 1, 2nd cycle, excision set in the middle of the challenge pack) and the other 1/2/E/C (steriliser 1, 2nd cycle, excision set, on the tray nearest the cold spot)

Cycle 3 label 1 indicator 1/3/E/M (steriliser 1, 3rd cycle, excision set in the middle of the challenge pack) and the other 1/3/E/C (steriliser 1, 3rd cycle, excision set, on the tray nearest the cold spot)

Steriliser 2

Cycle 1 label one indicator 2/1/E/M (steriliser 2,1st cycle, excision set in the middle of the challenge pack) and the other 2/1/E/C (steriliser 2, 1st cycle, excision set, on the tray nearest the cold spot)

Cycle 2 label 1 indicator 2/2/E/M (steriliser 2, 2nd cycle, excision set in the middle of the challenge pack) and the other 2/2/E/C (steriliser 2, 2nd cycle, excision set, on the tray nearest the cold spot)

Cycle label 1 indicator 2/3/E/M (steriliser 2, 3rd cycle, excision set in the middle of the challenge pack) and the other 2/3/E/C (steriliser 2, 3rd cycle, excision set, on the tray nearest the cold spot).

Repackaging between cycles

The packs will be reused pack(s) from the previous cycle; the contents of the pack(s) must return to room temperature before repackaging and the next cycle run. To save time, the instruments from the pack(s) will be cooled quickly after unpacking and removing the indicator by placing the instruments in cool water. The instruments will be then dried and repacked with the next indicator and the next cycle run.

Interpretation of the results of the indicators

□ If the process has been performed correctly, all the ‘M’ and ‘C’ indicators should show no growth or its equivalent; otherwise, it indicates a process failure and must be investigated. Record results.

□ If the process has been performed correctly, the single unsterilised control ‘Z’ indicator should show growth. If not, the batch of indicators or the incubator is faulty (the service technician needs to check it with the thermocouple as part of annual servicing).

□ A pass result is 100%: all six processed biological indicators (minimum of two in each load over three cycles) should not have changed colour and the control biological indicator should have changed colour after incubation. Any failures must be fully investigated as to cause and corrective action documented and the entire procedure repeated.

Check the steriliser settings and results of steriliser monitoring

□ Ensure:

- □ time and temperature were correctly set.
- □ routine monitoring of each cycle’s time at temperature (either by printout, download of data logger, manual recording of time at temperature, or by the use of a Class 4, 5 or 6 chemical indicator) occurred at the correct frequency, was reviewed for adequacy, was signed off and is recorded in a log
- □ the physical qualification of temperature (‘time at temperature’ testing) inside the challenge pack/load showed that the centre of the pack reached the correct sterilising temperature and that was maintained for the required time. Similarly, that the temperature during drying was also maintained for the correct time.
- □ the microbiological qualification with appropriate indicators inside the challenge pack/load showed that the centre of the pack and outside the pack inside the chamber was effective in sterilising these indicators on each of the three cycles (this will take 2 days to verify, as the indicators used require incubation).
- □ all points are checked for each total processing time used for different pack/load types (the sterilisation temperature is not changed for different pack/load types). The use of multiple processing times and multiple sterilisers increases complexity and care must be taken to avoid errors when different cycles are selected.

Unloading the steriliser

□ Review documentation in the practice policy and procedure manual or other documentation.

□ Perform or supervise unloading.

□ Check that cooled are dry, undamaged, seals are intact, and the Class 1 chemical indicator on the outside of each pack or in the tray with unwrapped items has changed colour.

Storage of sterile items

□ Review documentation.

□ Perform the task of storage.

□ Check that stored items are kept dry, dust free and undisturbed, and packs have been processed, marked with the date and load number and stored in a manner to allow stock rotation. Check cleaning of the storage area does not compromise sterility.

Cleaning and maintenance of reprocessing equipment

□ For each piece of equipment used in the practice (ultrasonic cleaner, washer-disinfector, drying cabinet, steriliser, incubator), review documentation in the practice policy and procedure manual, manufacturer's instructions and maintenance log.

□ Perform or supervise routine maintenance procedures as documented.

□ Check that maintenance tasks have been performed and are in accordance with the manufacturer's requirements.

□ Visually inspect cleanliness and check that the documented cleaning schedule has been completed.

Validating reprocessing procedures

Validating reprocessing procedures

Validation is a documented procedure for obtaining, recording and interpreting results, to establish that the practice's reprocessing procedures, including sterilisation, will consistently yield sterile reusable medical devices and equipment.

Process validation includes:

- validation of the equipment (steriliser and washer-disinfector) performed by an accredited technician at installation and annually
- operational qualification (checking the steps are being performed correctly), performed by practice staff or by a technician
- performance qualification (checking the sterilisation process is effective in killing/inactivating microorganisms), performed by staff or by a technician.

Validation must be performed for each steriliser and for each set of parameters used in cycles. For most practices, validation of the sterilisation cycle will involve only a single steriliser, cycle time, temperature and challenge pack/load. Validation will be more complex for practices that use more than one steriliser or use more than one type of cycle.

Frequency of process validation

Validation of the entire process (all aspects of reprocessing, not just the sterilisation cycle) must be performed at installation (also called commissioning) and then annually.

In addition to technical validation of the steriliser cycle, annual validation should also include reviewing all protocols and procedures for reprocessing of reusable medical devices, from pre-cleaning to storage, and checking staff competency.

Validation of other equipment such as automatic washer/dryers is also required annually.

Validation must be performed again if, between annual validations, any part of the sterilisation process is altered in a way that could affect the sterilisation outcome, for example:

- The practice installs an ultrasonic cleaner.
- The steriliser has been returned after offsite repairs.
- Major repairs to the steriliser have been performed onsite.
- The practice has started using a different sterile barrier system.
- The practice has significantly changed the chamber contents and/or loading protocol.

Responsibility for steriliser validation

Validation is managed by the designated staff member with overall responsibility for the practice's sterilisation process (who may or may not be the infection prevention and control coordinator).

Site of steriliser validation

All aspects of validation should be performed onsite because validation of the sterilisation process outside the practice may not match practice conditions.

Revalidation is required after transporting a steriliser back to the practice after repairs.

When onsite technical servicing is not accessible

Occasionally, in some regional and remote areas, general practices and other office-and community-based practices cannot access onsite technical support.

In cases where annual servicing and calibration occurs offsite, the practice should send a complete 'challenge pack/load' with the steriliser to allow checking of penetration time and appropriate selection of sterilisation times and physical checking of 'time at temperature' of the steriliser.

Provided that the steriliser has been returned to the practice using appropriate transport and has not been grossly mishandled, the validation process can be completed onsite.

Microbiological qualification using appropriate biological or enzymatic indicators must be performed onsite by the practice. The service technician should send a copy of the printout results of a sterilisation cycle of the challenge pack/load to the practice, so that the practice can confirm the parameters that were tested and achieved, and can compare results obtained from onsite microbiological qualification. The onsite test will help check that no adverse changes occurred during transport.

If neither full onsite validation, nor partial onsite validation (microbiological qualification at both the service centre and practice) is possible, special checking of every cycle must temporarily be performed as an alternative to validation (for example, including use of Class 6 indicators). In such situations, the practice should request advice from the technician on how to perform these checks correctly until the steriliser can be properly validated.

More information: components of steriliser validation

For each type of sterilisation cycle (ie set of parameters) used in the practice, the temperature, time pressure is measured using calibrated equipment with a challenge load in the steriliser, to determine if sterilising parameters are reached. Drying is also checked.

Steriliser validation must include:

- heat distribution studies conducted on an empty chamber – available from the manufacturer, a previous validation or determined by the service technician
- a description of the challenge pack and load, and the chamber loading configuration, including a diagram or picture
- penetration time of the challenge pack ❗ of the load to be validated, as determined by the service technician at the current validation
- physical qualification of the sterilisation cycle, including testing time at temperature
- microbiological qualification

This involves processing of three identical consecutive cycles, using two biological indicators for each cycle (for each different cycle selected).

Tracking reusable medical devices for patient tracing

Tracking reusable medical devices for patient tracing

If there is sterilisation process failure or medicolegal issue relating to sterilisation in the practice, it will be important to identify which patients may be affected.

The practice must therefore set up a system to track which loads of medical devices (eg instruments) were used in procedures with which patients, in order to trace all the patients affected by a non-conforming (and therefore potentially contaminated) load. In some circumstances, traceability of a specific reusable medical device (eg instrument) may be required.

This system must link steriliser cycle batch information to patient identification, including the following information:

- date of sterilisation and sterilising process cycle number
- identification of the steriliser
- identification of the reusable medical device (name of device or name of set of devices) and the number of those items within the load
- identification of the person responsible for loading the steriliser
- other records such as results of performance tests (leak rate test, Bowie-Dick type test), results of chemical and biological monitoring undertaken for individual cycles or periodically, electronic or hard-copy evidence of physical parameters reached during the cycle
- identification of the person responsible for release of the sterilisation load.

The practice's system could be based on either of the following:

- recording patient identification numbers in the steriliser log against the pack/pouch date and load number
- entering data from the steriliser log (eg batch, pack/pouch number) into patient medical records.

Some reusable instruments have a unique identification number, which can be electronically or manually recorded.

If a sterilisation process failure or other reprocessing failure is identified after the release of items for use, the practice must identify, recall and quarantine items in the failed load that may still be in storage or have been used. The practice must follow the recall procedure according to the current standard (https://www.standards.org.au/standards-catalogue/sa-snz/health/he-023/as-slash-nzs--4815-2006) , which includes notifying state/territory public health authorities. Next actions will depend on assessed risk, and may involve contacting all affected patients for testing and counselling, in consultation with health authorities. See also Criterion GP2.2 – Follow-up systems (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/general-practice-standards/gp-standard-2/criterion-gp2-2-follow-up-systems) of the RACGP Standards.

In the case of a medicolegal issue, the ability to access documented validated and process details of the cleaning and sterilisation process used in any individual case would support the case that reusable medical devices were sterile at the time of use.

Requirements depend on the device use (Table 10.2. Spaulding classification – application to reusable medical devices (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/10-reprocessing-reusable-medical-devices/risk-assessment#10.2)). Under current standards applicable to office-based health care facilities not involved in complex patient procedures and processes, instruments used in semi-critical procedures/sites are not required to be sterile at the point of use. Batch control identification (identification and traceability) is not required.

Offsite sterilisation services

Offsite sterilisation services

Given the expense of purchasing and running a steriliser, practices may consider offsite sterilisation (a commercial sterilisation service or another accredited practice, hospital or healthcare provider) or using disposable single-use equipment.

When using an off-site sterilisation service, the practice must have evidence that it complies with the current relevant standard(s) (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/10-reprocessing-reusable-medical-devices/resources-and-references) .

It is strongly recommended that there is a clear and precise documented contract outlining:

- the scope of the service
- who is responsible for pre-treatment, cleaning, packing and sterilisation of reusable medical devices
- processes for safe transportation of reusable medical devices between facilities
- the traceability/tracking system.

Note: As the turnaround time for the reprocessing of equipment may be slower when performed offsite, more sets of reusable medical devices may be required. The actual number of sets required depends on usage patterns and turnaround time.

Reusable medical devices on loan

Reusable medical devices on loan

If the practice borrows reusable medical devices (eg surgical instruments) from another practice, they must be completely reprocessed before use, even if the sterilised pack has not been opened since it was reprocessed by the lender.

Reprocessing of reusable medical devices used off-site

Reprocessing of reusable medical devices used off-site

Practices that perform procedures outside the practice (for example, during house calls or visits to residential aged care facilities) need to have appropriate risk-based policies and procedures that ensure that the sterility of reusable medical devices is maintained during transport to the site.

Sterile and nonsterile reusable medical devices must be separated into appropriately labelled and cleanable containers.

After use, reusable medical devices must undergo initial pre-treatment/cleaning at the offsite location: damp or drying wiping to remove gross visible soil, rinsing, and use of instrument pre-treatment product for transporting.

Reusable medical devices used off-site must also be logged to enable tracing/tracking.

Offsite infection prevention and control protocols must ensure safe management and disposal of sharps and used single-use medical devices, and the use of standard precautions to prevent exposure to blood and body substances.

Reprocessing of specific categories of medical devices

Reprocessing of specific categories of medical devices

Devices for which sterilisation is not required

Frequently used devices that only contact intact skin, such as glucometers, pulse oximeters, stethoscopes, blood pressure cuffs and non-invasive ultrasound probes, must be cleaned after each use at the point of use.

Each practice should undertake a risk assessment to determine the probability of contamination with pathogens, the vulnerability of the patient population to infection, and potential for exposure. Cleaning method, process, frequency and cleaning agents used should be based on this assessment as well as on the manufacturer's instructions for use.

For example, they may be cleaned with an instrument-grade detergent and, if required, disinfected with a low- or intermediate-level TGA-registered/listed disinfectant (see Table 9.4. Classification of disinfectant activity (#9.4)), or cleaned and disinfected with a combined 'two in one' detergent/disinfect product (solution or wipe).

During an epidemic or pandemic, special protocols may be advised by health authorities.

Invasive devices

Most indwelling invasive medical devices, such as hormonal implants, intrauterine devices and suprapubic urinary catheters, are introduced using disposable single-use devices.

For any commercially prepared implantable materials, the manufacturer's batch lot/number must be recorded.

Practices must develop, implement and review processes to address infection prevention and control issues relating to the insertion, use and maintenance, and removal of invasive medical devices. Devices should be removed when no longer needed.

Respiratory equipment

See also: Aerosol-generating procedures (#erosol-generating_procedures)

Spacers for administering inhaled medicines

Spacers used with pressurised metered-dose inhalers (eg for patients with asthma or chronic obstructive pulmonary disease) are not required to be sterile. They can be stored in a clean, dry environment.

Spacers must not be shared or used by multiple patients unless sterilised.

Metal spacers (rarely used in Australia) and some plastic spacers can be sterilised.

Most spacers (standard plastic, antistatic polymer or polycarbonate polyurethane) are intended for use by a single patient and cannot be sterilised. They must be discarded after use or given to the patient to re-use.

Spacers can be washed for reuse by one patient (not shared), following the manufacturer's instructions. Practices should advise patients on spacer hygiene.[2]

Practices can keep cardboard disposable spacers for use in emergencies or when a patient does not have their own spacer.

Masks for administering inhaled medicines

Masks used with spacers and inhalers (eg for administering bronchodilators to infants) or masks used with nebulisers are intended for use by a single patient and cannot be sterilised. They must be discarded after use or given to the patient to re-use, following the manufacturer's instructions.

Before use, they are not required to be sterile and can be stored in a clean, dry environment.

Nebulisers

Nebulisers are no longer recommended for administering inhaled medicines, unless unavoidable (eg a patient with severe acute asthma unable to inhale salbutamol through a pressurised metered-dose inhaler plus spacer).[3] The use of nebulisers carries a high risk of transmitting viral infections because they generate droplets and aerosols that can spread infectious particles for several metres and can remain airborne after the patient leaves.[3]

Nebulisers are not required to be sterile at the time of use. They can be stored in a clean and dry environment.

Tubing is for single patient use only, and cannot be reprocessed. (For nebulisers used at home by a single patient, tubing must be replaced every few months according to the manufacturer's instructions.)

Peak expiratory flow meters

Mouthpieces cannot be shared or reused by another patient. Instruct patients to bring their own peak flow meter, if required during a consultation.

Resources and references

Resources and references

Resources

Reprocessing of reusable medical devices (https://app.magicapp.org/#/guideline/Jn37kn/section/jNDMVn) . In: NHMRC. Australian guidelines for the prevention and control of infection in healthcare (https://app.magicapp.org/#/guideline/Jn37kn) (2019)

RACGP Steriliser Record System - logbook and templates (https://www.racgp.org.au/running-a-practice/practice-resources/ordering-publications/record-keeping-in-general-practice)

New South Wales Clinical Excellence Commission Reprocessing of Reusable Medical Devices (https://www.cec.health.nsw.gov.au/keep-patients-safe/infection-prevention-and-control/Reprocessing-of-Reusable-Medical-Devices) resources

Relevant Australian standards

Royal Australian College of General Practitioners. GP Standard 4. Criterion GP4.1 – Infection prevention and control, including sterilisation (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/core-standards/core-standard-4/criterion-c4-1-health-promotion-and-preventive-car) . In: Standards for general practices (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/table-of-contents) . 5th Edition. East Melbourne, Vic: RACGP, 2020.

AS/NZS 4815 – Office-based health care facilities not involved in complex patient procedures and processes—Cleaning, disinfecting and sterilizing reusable medical and surgical instruments and equipment, and maintenance of the associated environment

AS/NZS 4187 – Reprocessing of reusable medical devices in health service organisations

> **Note:** AS/NZS4187 and AS/NZS4815 will soon be replaced by AS5369 – Reprocessing of reusable medical devices and other devices in health and non-health related facilities.

Other relevant standards

ISO 17665-1:2006 – Sterilization of health care products

References

1. Spaulding E. Chemical disinfection and antisepsis in the hospital. J Hosp Res 1957; 9: 5-31.
2. National Asthma Council Australia. Use and care of spacers. Australian asthma handbook V22. South Melbourne: National Asthma Council Australia; 2022.
3. National Asthma Council Australia. Australian asthma handbook. Version 2.2. Melbourne: National Asthma Council Australia; 2022.

11. Disease surveillance and outbreak response

Overview – Disease surveillance and outbreak response

Overview – Disease surveillance and outbreak response

Staff should be familiar with their statutory responsibilities for monitoring and reporting disease outbreaks or other infection prevention and control incidents to the relevant state/territory authorities.

The practice must develop procedures to ensure that notifiable disease are promptly reported.

Staff must know when and how to implement appropriate transmission-based precautions.

An infection prevention and control kit, containing items for implementation of standard and transmission-based precautions including personal protective equipment, could be available at reception to be used when a patient presents with a suspected or confirmed infectious disease. Reception staff must receive education and training on when and how to use the kit correctly.

Response procedure

Response procedure

Practices must set up procedures to respond to disease outbreaks, including protocols for receiving notification of emerging pathogens of concern promptly, for notifying the state or territory health department of notifiable diseases, and for minimising the risk of infection transmission. Systems must also be in place to enable authorities to identify people with whom an infected patient has been in contact (contact tracing).

Staff education

Staff education

All staff members must receive education to minimise the risk of infection transmission when patients present with suspected or confirmed infectious diseases, including how to apply transmission-based precautions.

Reception staff must be able to identify patients with potentially transmissible clinically significant infections so they can implement appropriate infection prevention and control measures. To perform this role effectively, reception staff need to know which infections patients are more likely to present with and/or pose a greater risk, based on current epidemiology.

Protocols for managing potential transmission risk include telephone triage and risk assessment when making appointments and arranging videoconference consultations as appropriate (see Transmission-based precautions (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/5-levels-of-precaution/transmission-based-precautions)).

When reception staff identify a patient who has arrived at the practice with a potential transmissible infection, appropriate infection prevention and control measures depend on the route of transmission but might include isolating the patient, asking the patient to wear a mask, and explaining to the patient why infection prevention and control measures are being implemented (see Transmission-based precautions (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/5-levels-of-precaution/transmission-based-precautions)).

Staff could also be trained in how to use the infection prevention and control kit (see Infection prevention and control kit (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/11-disease-surveillance-and-outbreak-response/receptionists-infection-prevention-and-control-kit)) to initiate appropriate measures promptly when a patient presents with a suspected or confirmed infectious disease.

All staff (including administrative staff and cleaners) must be trained to identify risks of potential cross-infection within the practice and manage them appropriately, including through:

- hand hygiene (see Hand hygiene (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/2-hand-hygiene/overview))
- the use of personal protective equipment (see Personal protective equipment (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/2-hand-hygiene))
- triage of patients with potential transmissible disease (see Transmission-based precautions (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/5-levels-of-precaution/transmission-based-precautions))
- safe storage and disposal of clinical waste including sharps (see Sharps (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/7-sharps/overview))

- managing blood and body substance spills (see Exposure to blood and other body substances (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/8-exposure-to-blood-and-other-body-substances/overview))
- maintaining appropriate immunisation (see Staff screening, immunisation, and infection management (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/6-staff-screening-immunisation-and-infection-manag/overview))
- reporting to the practice's infection control coordinator when they or their household contacts have symptoms suggestive of a significant transmissible infection (see Staff disease surveillance (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/6-staff-screening-immunisation-and-infection-manag/staff-disease-surveillance)).

The staff member with delegated responsibility for staff education on infection prevention and control must ensure that the induction program for new staff covers the practice's infection prevention and control policy, as relevant to their role. They must also ensure that requirements are met for providing ongoing staff education and assessing staff competency.

Monitoring for threats

Monitoring for threats

General practices and other office- and community-based practices must have systems in place that allow for monitoring threats of outbreaks (eg varicella, measles, lyssavirus, Hendra virus), bioterrorism (eg anthrax) and emerging diseases such as COVID-19, avian influenza, and multidrug-resistant organisms.

To ensure the practice remains up to date with information, it is useful to nominate a staff member (eg a primary care nurse or other clinical staff member with the role of infection prevention and control coordinator) to take responsibility for receiving and acting on notifications from federal and state/territory health departments about emerging infectious diseases, as well as regularly checking the websites of relevant public health authorities (see Resources (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/11-disease-surveillance-and-outbreak-response/resources)) for guidelines, and disseminating any updated information to other staff.

The person responsible for maintaining up-to-date information on infection prevention and control should be a full-time staff member and should hand over this role during absences. They must also maintain their knowledge and skills through continual professional development courses offered by the state or territory health department or other organisations.

Notifying relevant authorities

Notifying relevant authorities

General practices and other office- and community-based practices need to have systems in place to ensure prompt reporting of notifiable diseases to the relevant state/territory health department. Some notifiable diseases require notification by telephone.

Each health professional has a responsibility to ensure that suspected or confirmed notifiable diseases are reported promptly as required by health authorities.

The Australian Government Department of Health and Aged Care maintains a list of nationally notifiable diseases (https://www.health.gov.au/health-topics/communicable-diseases/nationally-notifiable-diseases) .

Australian states and territories each have their own notifiable communicable disease lists. Many diseases are included across jurisdictions; however, some are only notifiable in one or two jurisdictions.

State or territory lists are available at the links below:

- Australian Capital Territory (https://www.health.act.gov.au/about-our-health-system/population-health/disease-surveillance)
- New South Wales (https://www.health.nsw.gov.au/Infectious/Pages/notification.aspx)
- Northern Territory (https://health.nt.gov.au/professionals/centre-for-disease-control/cdc-programs-and-units/notifiable-diseases)
- Queensland (https://www.health.qld.gov.au/clinical-practice/guidelines-procedures/diseases-infection/notifiable-conditions/list)
- South Australia (https://www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/conditions/legal+matters/notifiable+conditions+-+what+to+know+when+you+have+one)
- Tasmania (https://www.dhhs.tas.gov.au/publichealth/communicable_diseases_prevention_unit/infectious_diseases)
- Victoria (https://www2.health.vic.gov.au/public-health/infectious-diseases/notify-condition-now)
- Western Australia (https://ww2.health.wa.gov.au/Articles/N_R/Notification-of-infectious-diseases-and-related-conditions) .

Contact tracing

Contact tracing

Occasionally a patient who visits the practice will later be found to have a significant transmissible disease (eg tuberculosis). State/territory health authorities must be notified, to enable tracing of contacts of the infected patient.

To facilitate appropriate counselling, quarantine and post-exposure prophylaxis, practices may be required to identify non-immune staff on duty and other patients present at the time, who may have been exposed to the infectious patient. This may entail checking staff rosters, staff immunisation records and patient appointment records.

Practice response to threats

Practice response to threats

When someone with a clinically significant transmissible microbial infection (eg a relevant respiratory, skin or gastrointestinal infection) has visited the practice, appropriate infection prevention and control measures (standard and transmission-based precautions) must be implemented to prevent the spread of disease (see 5. Levels of precautions (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/5-levels-of-precaution/overview)).

Reception and triage

Practice staff must receive training to recognise symptoms and signs of potentially infectious disease and to respond appropriately. The practice's infection prevention and control program coordinator is responsible for providing or arranging education and training for each staff member, as appropriate to their role.

It is critical to involve reception staff in identifying risks of microbial transmission and train them to alert the designated person on duty (eg a primary care nurse or GP) immediately.

Triage in general practices and other office- and community-based practices includes:

- routine triage
- questions asked when the patient indicates signs or symptoms consistent with an infectious disease
- questions asked of patients when the practice suspects a localised outbreak of an infectious disease (eg measles) or when the practice is part of a response to a pandemic (eg providing a GP respiratory clinic).

Staff must know how and when to use standard and transmission-based precautions (see 5. Levels of precaution (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/5-levels-of-precaution/overview)) to protect themselves and other patients, especially in the event of a disease outbreak. Staff must also receive training in how best to explain to patients why precautions are being taken and to reassure patients that precautions are for everyone's benefit.

Patient privacy must be considered and respected when asking questions while booking an appointment. However, a few non-intrusive questions can elicit information that is very useful in planning for the patient's arrival and care within the practice.

Routine triage

When booking patient appointments, reception staff can ask a general question about the reason for the consultation. If a patient indicates that they have a fever, a rash, a cough, diarrhoea or an infectious disease, it is appropriate to ask more questions. The receptionist could explain that the reason for asking is to help the doctors provide the right care.

If the patient does not offer information about possible infection, the receptionist should ask a series of routine questions, after explaining the reason. Practices may wish to develop a script or question sheet for the clerical staff to use for this purpose. For example:

Would you mind if I asked a few more questions to help our doctors?

- *Do you have a fever?*
- *Do you have a cough?*
- *Do you have a rash?*
- *Do you have diarrhoea or vomiting?*
- *Have you been overseas recently? (if so, where?)*
- *Have you recently had contact with someone who has an infectious disease?*

The answers could be recorded and passed on to the doctor (without delay, if necessary based on risk).

Prioritisation of patients: a guide to urgency for non-clinical staff (POPGUNS) is a widely used triage process in general practices. POPGUNS has been adapted by Primary Health Networks into clear fact sheets for staff use and can be located on PHN websites (for example, Adelaide PHN's [POPGUNS Triage Process (https://adelaidephn.com.au/assets/Adelaide_PHN_POPGUNS_Triage_Process_-_Final.pdf)](https://adelaidephn.com.au/assets/Adelaide_PHN_POPGUNS_Triage_Process_-_Final.pdf)).

> ⚠ Reception staff training should ensure that care is not delayed for patients with potentially life-threatening conditions such as meningococcal disease or acute asthma exacerbations.

Triage during an infectious disease outbreak

The practice must plan for and establish policies to be implemented in the event that a localised outbreak of an infectious disease occurs, or when the practice is part of a response to a suspected or known epidemic/pandemic (eg avian influenza). In a pandemic, such as COVID-19, policy will be guided by continually updated local and national guidelines provided by health authorities and supported by advice from RACGP.

All staff must be trained in and familiar with these policies, and continue to receive updates as the policies change over time.

During an infectious disease outbreak, triage at reception will include specific questions, for example:

Our doctors have asked us to ask all patients a few questions.

Have you been exposed to anyone with chicken pox or shingles in the past 3 weeks?

Have you recently returned from overseas?

If infection risk is identified, staff must take appropriate precautions by following established protocols according to the type and degree of risk (eg arranging a telehealth consultation or pre-consultation phone call from a doctor, or by implementing transmission-based precautions when the patient attends (see Transmission-based precautions (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/5-levels-of-precaution/transmission-based-precautions)).

When booking an appointment for a patient with a potentially infectious disease, consider offering a telehealth consultation, or a time when there are fewer patients present (eg at the end of a session). During a disease outbreak (including pandemics), consider booking such patients to a designated doctor in a designated separate room – preferably with separate entrance/exit to the main surgery.

During respiratory outbreaks, respiratory clinics are set up in each state and territory. These clinics are specifically staffed, equipped and designed to provide care for patients with significant communicable respiratory infections. Ensure staff have details of the locations of these clinics and encourage patients to attend them in preference to attending the practice.

Consider having a properly protected staff member triaging patients as they arrive at the practice and before they enter. This staff member's role is to explain to patients the precautions being taken and only permit entry those who meet entry criteria (eg those will wear a mask and agree to segregation, preferably in a designated room with a separate entrance/exit), and when the healthcare worker is ready to see them. Risk may be reduced by consulting outdoors.

During an outbreak, practices may set up extra protocols to prevent contact between patients, such as asking patients to wait in their car or outside before being called into their consultation, to avoid mingling in the waiting area and further protect patients and reception staff. Practices may be supported to provide enhanced telehealth options, and health authorities may set up special services (eg COVID-19 virtual hospitals), to avoid the need for patients to visit general practices.

Communication of infection prevention and control information to patients

Practices could consider:

- posting a sign at the entrance to the practice and another at reception, informing patients of any significant infections that are currently circulating and asking them to tell the receptionist if they have symptoms of a possible infection
- recording a telephone message for patients on hold, asking them to let the receptionist know if they think they may have an infectious disease, and advising that they may be asked questions about their symptoms
- displaying information about infection prevention (eg current local infection outbreaks) on the front door, practice notice board, the practice website, or information sheets
- displaying posters on prevention of infectious disease transmission in waiting areas.

These strategies can be adjusted according to current risk.

Practices must consider how to communicate infection prevention and control information to patients from culturally and linguistic diverse backgrounds, or those with a communication impairment. This could include the use of interpreters or translated information.

Patient-specific precautions

Patient-specific precautions

It is important that staff respond rapidly and with the appropriate precautions when confronted by a patient with a suspected or confirmed infectious disease that could be transmitted (eg by air or contact) during the healthcare visit. These precautions include providing a mask to those with respiratory symptoms and requiring them to wear it, isolation in a designated separate room, physical distancing in waiting areas, minimising the time that patients remain in the same room (for example, by asking them to remain outside or in their car until called), respiratory hygiene and cough/sneeze etiquette, disposal of used tissues, hand hygiene with alcohol-based handrub, and informing other patients as necessary (see Transmission-based precautions (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/5-levels-of-precaution/transmission-based-precautions)).

All patients who enter the practice should be required to practise respiratory hygiene and cough/sneeze etiquette: covering the mouth with a tissue when coughing or sneezing, using tissues to blow the nose, disposing of tissues immediately after use into a lined waste bin provided, and cleaning hands using an alcohol-based handrub on arrival and after touching their nose. Posters promoting respiratory hygiene and cough/sneeze etiquette, prominently displayed in patient and staff areas, might help remind patients and staff.

Receptionists’ infection prevention and control kit

Receptionists’ infection prevention and control kit

An infection prevention and control kit could be available at reception, to be used when a patient presents with a suspected or confirmed infectious disease. A prevention and control kit contains items for implementation of standard and transmission-based precautions, including personal protective equipment.

The infection prevention and control kit should be used when a patient presents with a potentially infectious disease, and must be frequently checked and restocked as necessary.

Practices can involve staff in risk management procedures to identify any additional measures that may be required.

Table 11.1. Sample contents of Receptionists’ infection prevention and control kit

Nonsterile disposable gloves
Eye protection (eg goggles)
Masks – regular surgical masks for patients and P2/N95 masks for staff, for protection against microbial infections transmitted by air
Tissues – for general use in promoting respiratory hygiene and cough/sneeze etiquette
Emesis bags
Waste bin, lined with a plastic bag, for disposing of used tissues
Alcohol-based handrub or antimicrobial wipes for hand hygiene
TGA approved detergent/disinfectant solution or wipes for cleaning surfaces after contact with an infectious patient
Yellow biohazard bags for disposal of contaminated items and to line the waiting area bin.

Critical infection prevention and control incidents

Critical infection prevention and control incidents

In the event of a critical incident (eg a failure of sterilisation or disinfection, or an exposure to blood or body substances), the local public health unit must be advised immediately.

If there has been a breakdown in an infection prevention and control procedure or protocol in the practice, a ‘lookback’ investigation may be necessary to identify, trace, recall, counsel and test patients or healthcare workers who may have been exposed to an infection (usually a blood-borne virus).

Monitoring of critical incidents and other sentinel events is an important part of surveillance. A structured process should be undertaken to identify the problem and contributing factors (eg a root cause analysis), explore and identify risk reduction strategies, and implement solutions.

Ethical and legal considerations apply to the conduct of lookback investigations.

Resources

Resources

Disease surveillance in office-based practice (https://app.magicapp.org/#/guideline/Jn37kn/section/j17KVn) . In: NHMRC. Australian guidelines for the prevention and control of infection in healthcare (https://app.magicapp.org/#/guideline/Jn37kn) (2019)

Notifiable diseases (https://app.magicapp.org/#/guideline/Jn37kn/section/EglZwj) . In: NHMRC. Australian guidelines for the prevention and control of infection in healthcare (https://app.magicapp.org/#/guideline/Jn37kn) (2019)

Type and duration of precautions for specific infections and conditions (https://app.magicapp.org/#/guideline/Jn37kn/section/EZwl8j) . In: NHMRC. Australian guidelines for the prevention and control of infection in healthcare (https://app.magicapp.org/#/guideline/Jn37kn) (2019)

Risk-management: Case study for glove use, hand hygiene and seasonal influenza vaccination in an office-based practice (https://app.magicapp.org/#/guideline/Jn37kn/section/EgmeaL) . In: NHMRC. Australian guidelines for the prevention and control of infection in healthcare (https://app.magicapp.org/#/guideline/Jn37kn) (2019)

Management of multi-resistant organisms and outbreak situations (https://app.magicapp.org/#/guideline/Jn37kn/section/LwNV6j) . In: NHMRC. Australian guidelines for the prevention and control of infection in healthcare (https://app.magicapp.org/#/guideline/Jn37kn) (2019)

Australian Government Department of Health and Aged Care list of nationally notifiable diseases (https://www.health.gov.au/health-topics/communicable-diseases/nationally-notifiable-diseases)

Communicable Diseases Network Australia (CDNA) surveillance case definitions (https://www.health.gov.au/resources/collections/cdna-surveillance-case-definitions)

Australian Government Department of Health and Aged Care information on GP respiratory clinics (https://www.health.gov.au/initiatives-and-programs/coronavirus-covid-19-gp-respiratory-clinics)

RACGP Managing pandemic influenza in general practice and related resources (https://www.racgp.org.au/running-a-practice/practice-management/managing-emergencies-and-pandemics/managing-pandemics/managing-pandemic-influenza-in-general-practice) ('pandemic flu kit')

Relevant Australian standards

Royal Australian College of General Practitioners. GP Standard 4. Criterion GP4.1 – Infection prevention and control, including sterilisation (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/core-standards/core-standard-4/criterion-c4-1-health-promotion-and-preventive-car) . In: Standards for general practices (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/table-of-contents) . 5th Edition. East Melbourne, Vic: RACGP, 2020.

Royal Australian College of General Practitioners. Core Standard 1. Criterion C1.2 – Communications (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/core-standards/core-standard-1/criterion-c1-2-communications) . In: Standards for general practices (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/table-of-contents) . 5th Edition. East Melbourne, Vic: RACGP, 2020.

12. Planning a practice: design, fit-out, equipment and consumables

Overview – Planning a practice: design, fit-out, equipment and consumables

Overview – Planning a practice: design, fit-out, equipment and consumables

It is crucial to consider infection prevention and control when planning and designing a new practice or renovating a practice building, and when planning ongoing maintenance of the site and equipment.

Aspects of building design and organisation that affect infection prevention and control include choice of surface materials for walls, floors, desks and examination/treatment tables (easy to clean), material and design of fixtures and fittings, provision of areas that can be used for isolation is needed, adequate ventilation, design of reprocessing area and storage (if practice uses reusable medical devices that require special processes), waste storage areas, placement and design of hand hygiene equipment.

Aspects of equipment set-up that affect infection prevention and control include choice of disposable versus reusable medical devices and choice of information technology hardware and telephones (ease of cleaning keyboards, handsets and other devices).

Ongoing maintenance of the building and equipment should be carried out as necessary to minimise infection risks.

The infection prevention and control coordinator should be involved in purchasing decisions about consumables, equipment, personal protective equipment, hand hygiene agents, manual or automated cleaning, disinfecting and sterilising systems, furnishings, reusable medical devices, single-use and single-patient use devices including sharps, chemicals used for environmental cleaning and disinfection, waste management systems and other relevant clinical purchases.

Building design and fit-out

Building design and fit-out

Practice design should consider how the building design can facilitate:

- monitoring of entries
- isolation of patients with potentially transmissible infections
- effective cleaning surfaces and fixtures
- adequate ventilation
- appropriate traffic flow of personnel through rooms and corridors, reducing unnecessary contact or proximity between staff, patients and visitors (see Table 5.1. Managing practice access and patient flow (#5.1))
- safe and effective workflow in the reprocessing area.

Materials and fixtures

Surfaces and fixtures should be:

- easily cleanable and nonporous, with no grooves or crevices (such as tiles with grouting)
- able to withstand repeated cleaning
- easy to maintain and repair to avoid cracks or degradation
- resistant to microbial growth.

Hard (non-carpeted), easily cleaned flooring is required in treatment rooms and other rooms that require frequent cleaning and sometimes disinfection, such as waiting areas).

Sharps containers should be placed at the correct height (see 7. Sharps (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/7-sharps/overview)).

Ventilation

Adequate ventilation, whether achieved by natural airflow or air conditioning, is necessary to reduce the risk of airborne transmission of microbial infections in enclosed indoor environments. Practices could consult a ventilation engineer or an occupational hygienist for advice on optimal ventilation when designing the space, refitting the space or during an airborne-transmitted outbreak.

Ventilation must be designed to achieve 6–8 air changes per hour (ie the number of times per hour that the whole volume of air in each room is replaced by fresh air) in general areas. Fresh air is preferable to recirculated air. Flows less than 6 air changes per hour are inadequate to help prevent airborne microbial transmission. In rooms where aerosol-generating procedures (eg spirometry) occur, a ventilation rate of 12 air changes per hour is recommended.[1]

The direction of airflow must be from ‘clean’ to less clean areas, to avoid dispersing contaminated air.

Standard heating, ventilation, and air conditioning systems are not specifically designed to prevent transmission of airborne infections, but can be used to optimise ventilation to assist in reduction of risk of transmission. Some contain high efficiency particulate air (HEPA) filters, which require regular cleaning or replacement. Heating, ventilation, and air conditioning systems must be well maintained and regularly serviced. Unless the practice has adequate natural ventilation that consistently achieves adequate cross-flow of air (possibly assisted by a ceiling fan), air conditioning must be run to ventilate the area to achieve 6–8 air changes per hour, even when heating or cooling are not needed.

Windows and doors can be opened for additional ventilation when there is a high risk of airborne transmission, although this does not guarantee adequate airflow. Fans can be used to improve air flow. Practices could obtain advice on whether the air conditioning system can be used at the same time.

Air purifiers/cleaners do not provide ventilation. However, if necessary, portable air-cleaning devices with HEPA filtration can be used in addition to other ventilation in areas with inadequate fresh air and circulation. The clean air delivery rate must be sufficient for the room volume. Before buying an air purifier, practices could obtain advice from an expert (eg industrial or occupational hygienist, or heating, ventilation and air conditioning professional) on whether it is likely to improve ventilation significantly, and to determine the most effective placement (generally at the site where there is least air movement).

Toilets must be fitted with exhaust fans. When there is risk of airborne transmission of relevant infections (eg during a respiratory infection outbreak), the practice could ensure that exhaust fans toilets are functional, operating continuously and at full capacity when the building is occupied. Toilet fans should exhaust directly outdoors and away from windows and air intake systems. Toilets can be fitted with a second passive fan on the external wall, which moves fresh air into the toilet area, while the active fan removes used air. These are located sufficiently apart so that fresh air is not immediately exhausted.

Design of reprocessing area

During reprocessing of reusable medical devices such as instruments, ‘clean’ and ‘dirty’ activities need to be segregated (for example, in different sections of the bench as far away from each other as the space allows; Figure 12.1. Sample design and workflow of reprocessing area (#figure121)). The objective is to minimise the risk of cross-contamination of a cleaned, disinfected and sterilised reusable medical device (see 10. Reprocessing reusable medical devices (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/10-reprocessing-reusable-medical-devices/overview)).

Design of the area designated for reprocessing reusable medical devices should include the following considerations (Figure 12.1. Sample design and workflow of reprocessing area based on best practice (#figure121) ; see also 10. Reprocessing reusable medical devices (#_10._Reprocessing_reusable)):

- Surfaces (benches, sinks, splashbacks, walls) must be smooth, with no rough or textured areas where soiling can accumulate (such as tiles with grouting or silicon sealant), and made of material that does not shed fibres or particles. Ideally there should be no crevices between the walls and floor, or around any fixtures, where dirt can collect. The floor must be washable non-slip material.
- If the practice does not use an automatic washer-disinfector for cleaning reusable medical

devices, it should contain two sinks: one designated ‘dirty’ (for pre-cleaning and cleaning) and one designated ‘clean’ (that is, less contaminated). Sinks must be deep enough to immerse reusable devices during cleaning, and should not have shower-heads. These considerations also apply when using a bowl. Reprocessing sinks must not be used for handwashing.

- Ideally, a reprocessing area is fitted with a type B handbasin.
- One or more (as required) alcohol-based handrub dispensers could be installed on the wall adjacent to the bench areas where reprocessing is done, but not directly over the work area. They must be placed where they will not be splashed.
- The area should be well lit to make it easy for staff to inspect devices for soiling.
- All supplies should be stored in closed cupboards or drawer; no materials, supplies or equipment may be left out or stored on benches or floors. Even clean boxes shed fibres that could compromise device asepsis/sterility.
- The area cannot be shared with linen or waste and should be a low-traffic area.
- The area must include facilities for hand hygiene, either alcohol-based handrub in a hands-free dispenser, or a dedicated sink for handwashing. Handrub must not be placed at a sink.
- Clean, dry gloves and aprons, masks and full-face shields should be easily accessible in the reprocessing area. They must be stored in a closed dry cupboard, well away from possible splashing or contamination.

Storage areas for packs of reusable medical devices (eg instruments) that have been through the steriliser must be well sealed to prevent dust contamination.

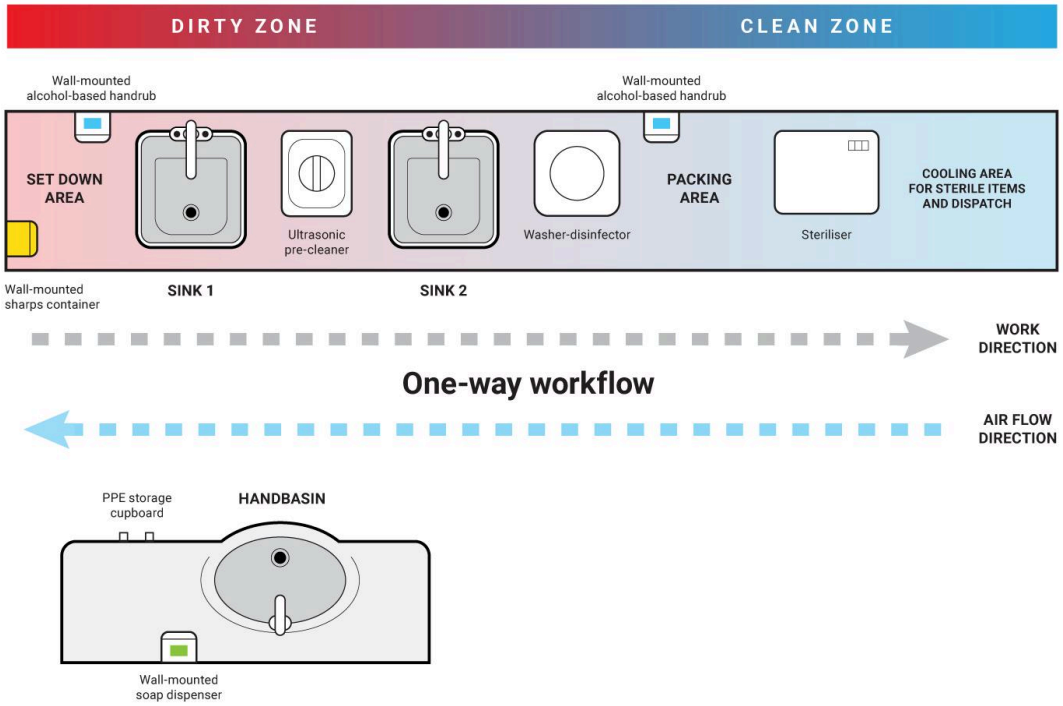


Figure 12.1.

Building design and fit-out

PPE: personal protective equipment

The workflow is strictly in one direction: the staff member enters the zone with clean hands, dons required PPE, and proceeds to work from the ‘dirty’ to ‘clean’ (less contaminated) zones (left to right), washing hands with soap and water if they become visibly contaminated, and reusing alcohol-based handrub after each stage of the process while hands remain visibly clean.

The direction of airflow is from the ‘clean’ zone to the ‘dirty’ zone. The ultrasonic pre-cleaner is ideally placed between the two sinks, contingent on plumbing, power and safety considerations.

The diagram is intended as a sample. Alternatives are possible:

- The location of the ultrasonic pre-cleaner (either before Sink 1 or between Sinks 1 and 2) is decided based on a practice's pre-cleaning process.
- If the practice does not have a washer/disinfector, the drying area would take the position of the washer/disinfector in this diagram, to the immediate left of the packing area.
- A washer/disinfector may be on or under the bench.

Wastewater

A sluice or laundry sink can be considered for disposing of wastewater from cleaning, rinsing bloody linen, and cleaning buckets and mops. The sluice or laundry sink is best located in the practice laundry or utility room.

Wastewater must not be poured down the laundry sink.

Equipment

Equipment

When choosing equipment for the practice, consider their potential effect on the risk of infection transmission when new and after long-term use.

Reusable medical devices (eg surgical instruments)

When purchasing reusable medical devices such as instruments, ensure that they can be correctly reprocessed. Check the manufacturer’s advice on cleaning and sterilisation before buying.

Avoid devices that require chemical disinfection.

Choosing equipment for reprocessing reusable medical devices

All reprocessing equipment (including ultrasonic cleaner, washer-disinfectors, heat sealers, small sterilisers, drying cabinets, biological indicator incubators, and packaging systems) must conform to relevant equipment and/or safety standards.

If the practice opts to reprocess reusable medical devices onsite, this equipment should be selected to meet the following criteria:

- The model is listed on the Australian Register of Therapeutic Goods as a medical device
- The model complies with an applicable Australian or international standard for performance and safety
- The model is fit for purpose based on assessment of the practice’s needs according to the volume and type of reusable medical devices requiring reprocessing
- There is an operator's manual containing documented and validated reprocessing instructions in accordance with ISO 17664-1
- There is a documented schedule for periodic maintenance
- A validation, calibration and maintenance contract can be initiated with the supplier or the practice's preferred provider.

Choosing consumables and reusable equipment

Choosing consumables and reusable equipment

When choosing which consumables and reusable medical devices to stock, practices need to consider in addition to cost (Table 12.1. Considerations for purchasing consumables and reusable equipment (#12.1)).

Table 12.1. Considerations for purchasing consumables and reusable devices

Parameter	Considerations
Quality	The extent to which the product performs its defined function without contributing to transmission of infection
TGA approval	Whether the item is listed in the Australian Register of Therapeutic Goods
Safety	Whether the item can be appropriately cleaned, disinfected or sterilised. Check manufacturer safety data and instructions. Whether the item will have infection prevention and control implications for other consumables, equipment or plans. Whether any difficulties in cleaning and reprocessing the product may impact on the product's functionality and safety Whether any alternative products that are available may present a lower risk of infection
Cost-benefit analysis	Unit cost, maintenance costs including hidden expenses such as staff time and other resources (eg cleaning and/or disinfection requirements)
Waste minimisation	Disposal requirements in accordance with legislative compliance

Parameter	Considerations
Serviceability and availability	Availability, reliability of supply chain Maintenance requirements Service agreement and warranty

Single-use items

Single-use devices must not be reprocessed for reuse.

A manufacturer may classify its product as single use for several reasons including:

- cleaning difficulties posed by sharp or narrow lumen reusable medical devices
- materials used in the manufacture of the item may not withstand the cleaning and sterilisation process (eg some plastics in nebuliser sets, tubing, spacers and syringes may distort or melt, low-grade stainless steels in disposable sets may rust)
- significant work health and safety risks posed in reprocessing (eg needles for injections, neurological testing, acupuncture and suturing, scalpel blades, lancets and stitch cutters).

Even practices that reprocess their own equipment will still use many single-use items. Practices need to have stock control policies to ensure a ready supply of single-use stock is available as required. For example, practices could have essential disposable instruments available in the event of a reprocessing equipment (eg steriliser) breakdown.

The advantages of single-use items are that they minimise the risk of cross-infection, reduce the work health and safety risks of reprocessing and sterilising, and reduce the staff time and cost of onsite sterilisation. Some practices, especially those that rarely perform procedures requiring sterile reusable medical devices, will find it more economical to maintain a range of pre-packaged, single-use sterile items to manage their anticipated needs.

The disadvantages of single-use items are that their unit cost may be higher, may have a greater environmental impact, require storage space, and require a reliable supply chain (practices may need to keep larger amounts of disposable stock as a buffer). Quality varies between brands.

Lancets for blood testing

Lancets should be of the spring-loaded, retractable, single-use variety for most applications. The main exception is disposable nonretractable single-patient lancets used multiple times for allergy testing on a single patient and then discarded.

Plates or bases of reusable spring-loaded devices are a potential source of cross-infection and pose an unacceptable risk to patients in general practice and other office- and community-based practices. However, their use is appropriate for single-patient home use where instructions on thorough cleaning are provided.

Changing the plates or bases and reloading with new but unprotected lancets poses a work health and safety risk.

Auroscope tips

Practices should use disposable auroscope tips.

Reusable auroscope tips are not appropriate for office-based practices because cleaning is difficult. Although inexpensive, they require significant staff time to carefully clean small lumens with fine brushes to remove wax contamination. Imperfect cleaning is a hazard.

Spirometer and peak flow meter mouthpieces

Single-use mouthpieces must be used in practices. Spirometers must use inline viral/bacterial filters.

Peak flow meters are for single-patient use only.

Spacers for use with pressurised metered-dose inhalers

Practices can keep cardboard disposable spacers for use when a patient does not have their own spacer (see Respiratory equipment (https://www.racgp.org.au/running-a-practice/practice-standards/racgp-infection-prevention-and-control-guidelines/10-reprocessing-reusable-medical-devices/reprocessing-of-specific-categories-of-medical-dev#resp)).

Metal spacers (rarely used) and some plastic spacers can be sterilised, but most plastic spacers are for single-patient use and cannot be sterilised.

Resources and references

Resources and references

Resources

Royal Australian College of General Practitioners. General practice tool kit, Module 2 – Your practice premises (https://www.racgp.org.au/running-a-practice/practice-resources/practice-tools/general-practice-business-toolkit/general-practice-tool-kit/module-2/deciding-on-a-location) .

Australasian Health Facility Guidelines (https://healthfacilityguidelines.com.au/) (Part D Infection prevention and control (https://healthfacilityguidelines.com.au/part/part-d-infection-prevention-and-control-0))

Australian Health Protection Principal Committee (AHPPC) statement on the role of ventilation in reducing the risk of transmission of COVID-19 (https://www.health.gov.au/news/australian-health-protection-principal-committee-ahppc-statement-on-the-role-of-ventilation-in-reducing-the-risk-of-transmission-of-covid-19)

United States Environmental Protection Agency. Air Cleaners, HVAC Filters, and Coronavirus (COVID-19) (https://www.epa.gov/coronavirus/air-cleaners-hvac-filters-and-coronavirus-covid-19)

World Health Organization. Roadmap to improve and ensure good indoor ventilation in the context of COVID-19 (https://www.who.int/publications/i/item/9789240021280)

Relevant Australian standards

Royal Australian College of General Practitioners. GP Standard 4. Criterion GP4.1 – Infection prevention and control, including sterilisation (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/core-standards/core-standard-4/criterion-c4-1-health-promotion-and-preventive-car) . In: Standards for general practices (https://www.racgp.org.au/running-a-practice/practice-standards/standards-5th-edition/standards-for-general-practices-5th-ed/table-of-contents) . 5th Edition. East Melbourne, Vic: RACGP, 2020.

AS 1668.1 – The use of ventilation and air conditioning in buildings

AS 1668.2 – Mechanical ventilation in buildings

AS 1071 – Placement and presentation of hand hygiene materials in relation to the basin in healthcare settings

Other relevant standards

ISO 17664-1 – Processing of health care products

References

1. World Health Organization. Roadmap to improve and ensure good indoor ventilation in the context of COVID-19 (https://www.who.int/publications/i/item/9789240021280) . [Accessed 3 October 2022].

Glossary

Glossary

A

Antimicrobialagents: Substances or processes that inhibit the growth or tend to destroy or inhibit the pathogenic action of microorganisms including bacteria, viruses and fungi

Autoclave: Common term for small steam steriliser

B

Biofilm: A layer of material on the surface of an instrument or device which contains biological material and in which microorganisms may be embedded

Biological indicator: A carrier on which a defined number of test microorganisms have been deposited, contained within its primary pack and ready for use, that provides a defined resistance to the specified sterilisation process (colloquially known as a 'spore test')

Body substance: Replaces former term 'body fluids'

C

Chemical indicator: A system that reveals a change in one or more predefined process variables based on a chemical or physical change resulting from exposure to a process

Cleaning: The process of removing all visible dust, soils and other material from a surface. Manual cleaning is usually performed by using detergents and a physical action such as rubbing or brushing. Meticulous cleaning of instruments and other reusable equipment is required before disinfection or sterilisation

Contamination: The introduction of microorganisms or foreign matter (or both) to sterile or nonsterile materials or living tissue

D

Decontamination: The removal of microorganisms and foreign matter from materials or living tissue

Disinfectants, levels of: Disinfectants are classed as low, intermediate or high level:[1]

Low-level disinfectants are defined as those that rapidly kills most vegetative bacteria as well as medium-sized lipid-containing viruses when used according to the manufacturer's instructions. It cannot be relied upon to kill bacterial endospores, mycobacteria, fungi or all small nonlipid viruses.

Intermediate-level disinfectants kill all microbial pathogens except bacterial endospores, when used as recommended by the manufacturer. They kill bacteria (including *Mycobacterium tuberculosis*), fungi (not necessarily effective against some spores) and viruses, when used according to the manufacturer's instructions.

High-level disinfectants are defined as those that kills all microbial pathogens except large numbers of bacterial endospores, when used according to the manufacturer's instructions. These are not used for general cleaning. General practices and other office-based healthcare practices generally do not use high-level disinfectants.

Disinfection: Any process that kills, inhibits or reduces disease-causing organisms such as viruses, bacteria or protozoa. It may not destroy spores. Disinfection is not the same as sterilisation.

E

Enzymatic indicators: Tablet or strip containing enzymes from microorganisms to imitate biological indicators

Equilibration time: See Penetration time

Exposure-prone procedures: see Procedures

F

Filtering mask: (also called filtering face-piece respirator or N95/P2 masks) – see N95/P2 mask

Full-body gown: A gown (see Gown) that is fluid-impervious and has long sleeves to protect clothing and arms

G

Gown: A fluid-impervious garment worn over clothes, with long or short sleeves

H

Hand hygiene: The practice of minimising pathogenic microorganisms on hands by thoroughly cleaning hands whenever necessary, using either alcohol-based handrub or appropriate liquid soap and water. In this guideline, both 'perform hand hygiene' and 'cleanse hands' means to follow one of the standardised methods.

Health professional: Someone who provides clinical care

Herd immunity: Immunity of a group or community. The resistance of a group to invasion and spread of an infectious agent based on the resistance to infection of a high proportion of individual members of the group

High-efficiency filtration: Filtration with a particle removal efficiency of 90–95%

Holding time: Minimum time at a given temperature that has been established to destroy all microorganisms

Hollow items: If a device is open at one end, it is hollow if the ratio of cavity length to diameter is greater than 1. If a device is open at both ends, it is hollow if the ratio of cavity length to diameter is greater than 2.

Narrow lumen items: Hollow device beyond the range for a simple hollow item, and neither solid nor porous

Simple hollow items: single-ended open-space items where the ratio of length to diameter of the cavity is ≥1 and ≤5 and where the diameter is ≥ 5 mm **or** double-ended open-space items where the ratio of the length to diameter of the cavity is ≥ 2 and ≤10 and where the diameter is ≥ 5 mm.

I

Iatrogenic: Resulting from the professional activities of health professionals. In the infection prevention and control context, this refers to infections acquired by the patient during the course of treatment

Immunity: The state of being protected from infection

Immunocompromised: A person whose immune system is not functioning well (eg those undergoing chemotherapy, or on antirejection medication or high doses of steroids)

Instrument detergent: A detergent developed for cleaning instruments and equipment

L

Low-level disinfectant: see Disinfectant

N

N95/P2 mask: A high-efficiency filtration mask capable of filtering extremely small particles. Used with airborne precautions

P

P2/N95 mask: A high-efficiency filtration mask capable of filtering extremely small particles. Used with airborne precautions

Particulate filter respirator: (also called filtering face-piece respirator or N95/P2 mask) – see N95/P2 mask

Particles: solid or liquid substances in the form of aggregated molecules or particles. Airborne particulate matter is typically in the size range of 0.01–100 μm diameter

Pathogen: Any disease-causing microorganism

Pathogenic: Having the capability to cause disease

Penetration time (equilibration time): The time taken to heat the centre of a pack to the sterilising temperature from when the steriliser chamber has reached the sterilising temperature

Personal protective equipment: Equipment used as an infection prevention and control measure. Includes the use of gloves, waterproof gown, goggles/face shield, mask and appropriate footwear

Physical distancing: Maintaining distance between people to reduce the risk of contact, droplet and airborne spread of disease.

Procedures, non-exposure-prone: (with respect to blood-borne viruses) procedures in which the healthcare worker's hands and fingers are visible and outside of the body at all times, and which do not involve possible hand injury by sharp instruments or exposure to tissues if the healthcare worker follows routine infection prevention and control procedures (eg routine oral examination with appropriate personal protective equipment, insertion and maintenance of intravenous lines).

Procedures, exposure-prone: (with respect to blood-borne viruses) procedures in which there is an increased risk of transmitting blood-borne viruses between healthcare workers and patients. These include invasive procedures in which there is potential for direct contact between the healthcare worker's skin (typically hands) and sharp objects or surgical instruments (eg needles, fractured bones, teeth).

Process challenge device: A device containing a chemical indicator used as a test of steriliser function

Prion: A microorganism resistant to most cleaning, disinfection and sterilisation techniques. Prions are responsible for Creutzfeldt-Jakob disease.

Q

Qualification: process of checking whether reprocessing is being performed correctly (eg includes physical qualification, microbiological qualification and process qualification)

R

Respiratory etiquette: (also called respiratory hygiene and cough/sneeze etiquette) Public health measures used to reduce the spread of respiratory infections by covering the mouth when coughing or sneezing, using tissues to blow the nose, disposing of tissues into waste, and washing hands after touching the nose

S

Safety data sheets: A document prepared by the manufacturer of a hazardous substance which describes its properties, uses, health hazard information, and precautions for use, safe handling information and first aid information. A safety data sheet can be obtained by contacting the distributor/ manufacturer

Safety factor: Extra time included in the holding time to ensure sterilisation is achieved. It is a precautionary measure and forms 25% of the holding time

Skin disinfection (antisepsis)**:** a process that involves the application of a disinfectant to reduce levels of microorganisms on the skin/mucosa

Skin asepsis: The removal, or elimination, of transient microorganisms from the skin and a reduction in the resident flora

Soil: Any matter that contaminates objects and may protect microorganisms from disinfection or sterilisation (eg blood and other body substances)

Staff: All people who work in or provide care within the practice, including employees and contractors (eg doctors, nurses, receptionists, practice managers, allied health professionals, administrative staff, cleaners including contract cleaners). 'Clinical staff' refers to health professionals (including doctors, nurses, Aboriginal health workers, and allied health care professionals).

Standard precautions: The range of methods and practices used by health professionals to prevent infection transmission, based on the assumption that all blood and body substances are potentially infectious

Standards, The: The Royal Australian College of General Practitioners. Standards for general practices. 5th edition. East Melbourne, Vic: RACGP, 2020

Sterile: The absence of protozoa, spores, mycobacteria, fungi, Gram-positive and Gram-negative bacteria, chlamydia, Rickettsia, mycoplasma and viruses

Sterilisation: A validated process used to render a product free from all forms of viable microorganisms. The nature of microbial death is described by an exponential function, and although the probability can be reduced to a very low number, it can never be reduced to zero

Sterilisation time: The total time of the sterilisation stage after the sterilising chamber has reached the sterilising temperature (penetration time plus holding time)

T

The Standards: The Royal Australian College of General Practitioners. Standards for general practices. 5th edition. East Melbourne, Vic: RACGP, 2020

Time at temperature testing: Testing performed to check that the correct temperature is maintained within the challenge pack for the entire sterilisation cycle. It is performed during validation and can be extended to check penetration and drying times

Transmission-based precautions: Precautions taken by health professionals, in addition to standard precautions, against a particular mode of transmission. They include droplet precautions, airborne precautions and contact precautions and involve the use of personal protective equipment, isolation and other measures

V

Validation: A documented procedure for obtaining, recording and interpreting the results of testing of sterilisers required to establish that a process consistently yields sterile products

References

1. National Health and Medical Research Council. Australian guidelines for the prevention and control of infection in healthcare (https://www.nhmrc.gov.au/about-us/publications/australian-guidelines-prevention-and-control-infection-healthcare-2019) (2019). Version 11.12 Updated March 2022. Canberra: National Health and Medical Research Council; 2019 [Accessed 29 September 2022].

Links

Links

National

Communicable Diseases Network Australia (https://www.health.gov.au/committees-and-groups/cdna?utm_source=health.gov.au&utm_medium=callout-auto-custom&utm_campaign=digital_transformation)

Australian Government Department of Health and Aged Care communicable diseases topic links (https://www.health.gov.au/health-topics/communicable-diseases)

Australian Commission on Safety and Quality in Health Care (http://www.safetyandquality.gov.au)

Australian Government Department of Health and Aged Care: Health Emergency Preparedness and Response (https://www1.health.gov.au/internet/main/publishing.nsf/Content/health-pubhlth-strateg-bio-index.htm)

Australian Government Department of Health and Aged Care: Australian Health Management Plan for Pandemic Influenza (https://www.health.gov.au/resources/publications/australian-health-management-plan-for-pandemic-influenza-ahmppi)

RACGP Managing pandemic influenza in general practice and related resources (https://www.racgp.org.au/running-a-practice/practice-management/managing-emergencies-and-pandemics/managing-pandemics/managing-pandemic-influenza-in-general-practice) ('pandemic flu kit')

RACGP Emergencies and pandemics (https://www.racgp.org.au/running-a-practice/practice-management/managing-emergencies-and-pandemics)

Australian Government Department of Health and Aged Care: COVID-19 management guidelines for primary care providers (https://www.health.gov.au/initiatives-and-programs/living-with-covid-primary-care-package/covid-19-management-guidelines-for-primary-care-providers)

States and territories

Australian Capital Territory

Disease Surveillance Unit (https://health.act.gov.au/about-our-health-system/population-health/disease-surveillance)

Northern Territory

Public Health Unit disease control information (https://health.nt.gov.au/professionals/centre-for-disease-control/cdc-programs-and-units/notifiable-diseases)

Public Health Unit disease control contacts (https://health.nt.gov.au/professionals/centre-for-disease-control/cdc-contacts)

New South Wales

Infectious diseases information for GPs (https://www.health.nsw.gov.au/Infectious/Pages/default.aspx)

Contact details for Public Health Units (https://www.health.nsw.gov.au/Infectious/Pages/phus.aspx)

Phone number for redirection to local public health unit: 1300 066 055

Blood and body fluid exposure hotline 1800 804 823

HIV Post Exposure Prophylaxis Hotline (http://thealbioncentre.org.au/education-and-information/phone-lines/nsw-pep-hotline/)

Queensland

Contact information for public health units (https://www.health.qld.gov.au/system-governance/contact-us/contact/public-health-units)

South Australia

Notifiable disease reporting (https://www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/clinical+resources/health+notifications/notifiable+disease+reporting/notifiable+disease+reporting)

Communicable Disease Control Branch: 1300 232 272

Tasmania

Diseases notifiable by medical practitioners (https://www.health.tas.gov.au/publications/diseases-notifiable-medical-practitioners)

Communicable Diseases Prevention Unit: 1800 671 738

Victoria

Information on healthcare-associated infection prevention (https://www.health.vic.gov.au/quality-safety-service/healthcare-associated-infection-prevention)

Information on infectious diseases (https://www.health.vic.gov.au/public-health/infectious-diseases)

Communicable diseases Section: 1300 651 160

Western Australia

Links for information for health professionals on communicable diseases (https://ww2.health.wa.gov.au/Health-for/Health-professionals/Communicable-Diseases)

International

World Health Organisation (http://www.who.int)

Relevant standards

Relevant standards

Current Australian and New Zealand standards

AS ISO 31000 Risk management – Guidelines

AS/NZS IEC 31010:2020: Risk management – Risk assessment techniques

AS 1071 – Placement and presentation of hand hygiene materials in relation to the basin in healthcare settings

AS/NZS1715:2009 – Selection, use and maintenance of respiratory equipment

AS 23907 Sharps injury protection — Requirements and test methods — Sharps containers

AS/NZS 3825 Procedures and devices for the removal and disposal of scalpel blades from scalpel handles

AS/NZS 4261 Reusable containers for the collection of sharp items used in human and animal medical applications

AS/NZS 4261 AMDT 1 Reusable containers for the collection of sharp items used in human and animal medical applications

AS 3816 – Management of clinical and related wastes

AS/NZS 4146 – Laundry practice

AS/NZS 3733 – Textile floor coverings – cleaning

AS/NZS 4815 – Office-based health care facilities not involved in complex patient procedures and processes—Cleaning, disinfecting and sterilizing reusable medical and surgical instruments and equipment, and maintenance of the associated environment

AS/NZS 4187 – Reprocessing of reusable medical devices in health service organisations

ISO 17665-1:2006 – Sterilization of health care products

AS 1668.1 – The use of ventilation and air conditioning in buildings

AS 1668.2 – Mechanical ventilation in buildings

AS 1071 – Placement and presentation of hand hygiene materials in relation to the basin in healthcare settings

ISO 17664-1 – Processing of health care products

International standards

European Standard EN 1500 – hygienic handrub

European Standard CEN-EN 12791 – surgical hand disinfection

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