Aseptic Technique

Practice Guidelines

# TITLE: Aseptic technique during invasive clinical procedures

## This practice guideline applies to:

All healthcare workers performing procedures in a healthcare setting.

## Purpose of practice guideline:

This practice guideline outlines the procedure for the application of aseptic technique for standard and surgical procedures that are consistent with the NHMRC Infection Control guidelines1. By following these practice guidelines, healthcare workers are ensured standardisation of clinical practices, improved compliance with protecting key sites and parts, and therefore minimised risk of infection to the patient/resident.

## Practice guideline aims:

1. To ensure healthcare workers provide high-quality standardised Aseptic Technique practice that conforms to evidence-based practice guidelines.

* To ensure healthcare workers understand the principles of Aseptic Technique and apply them to practice effectively.
* To provide healthcare workers with a standardised approach to Aseptic Technique by which healthcare workers can be educated, assessed, and monitored to ensure compliance with Aseptic Technique principles.

## Background:

It is estimated while there are around 165,000 healthcare-associated infections (HAIs) each year in Australian acute healthcare facilities 1, there is limited evidence in Australia of the infection burden among residents in long-term care, however, international evidence suggests this is considerable 1. HAI events cause unnecessary pain and suffering for patients/residents and their families, prolong hospital stays and increase healthcare costs to the patient/resident, organisation, and healthcare system.

Aseptic Technique is an important set of clinical practices that are aimed at protecting the patient/resident and reducing the risk of patients/residents acquiring an infection 1. It is essential that healthcare workers are properly educated and trained in Aseptic Technique, and apply these principles to ensure efficient, safe, and standardised practices during every procedure.

## Process:

The essential principles of Aseptic Technique should be performed sequentially2.

## Risk Assessment

The level of Aseptic Technique practice selected for all clinical procedures will vary based on the completion of an Aseptic Technique risk assessment 1.

The Aseptic Technique risk assessment will consist of:

* the technical difficulty of the procedure and the ability to achieve asepsis,
* user competence,
* protection of key parts and sites,
* emergency situations; and
* environmental conditions.

If a procedure cannot be performed easily without contaminating key parts and key sites directly, then surgical Aseptic Technique must be utilised. If key parts and key-sites can be protected, then standard Aseptic Technique can be utilised1.

In an emergency situation or uncontrolled environment, it is not always possible to apply Aseptic Technique principles. If a breach occurs, this must be documented, and infection risks should be mitigated as soon as possible1.

## Environmental Control Measures

Before conducting a procedure, healthcare workers should ensure there are no avoidable environmental risks nearby. Environmental controls are used to reduce the risk of contamination from movement, touch, or proximity. Examples of environmental risks include:

* Bed making.
* Commode use.
* Environmental cleaning (if in close proximity).
* Movement of privacy curtains.
* Confined working areas.
* Number of people present.

## Infection Prevention Measures

Infection prevention measures for consideration during Aseptic Technique include hand hygiene, glove use, and personal protective equipment (PPE) use.

**Hand hygiene:** Effective hand hygiene is an essential part of Aseptic Technique and must be performed following the 5 moments of hand hygiene, before and after a procedure.

Effective hand hygiene is an essential part of Aseptic Technique:

* Routine hand hygiene should be performed using a neutral pH soap and running water for 40-60 seconds, or an alcohol-based hand rub for 20-30 seconds.
* Surgical hand scrub using an antimicrobial skin cleanser or waterless surgical scrub formulation for surgical Aseptic Technique.

**Glove use:** Hand hygiene cannot always remove all pathogenic organisms and protecting the key-sites and key-parts is a vital component of achieving asepsis1.

The selection of sterile or non-sterile gloves is dependent on the procedure being undertaken, and individual healthcare workers' competency. When preparing for the procedure healthcare workers should assess their own competency and experience in performing the procedure and determine if touching key-parts or sites is required. If touching key parts or sites may occur, sterile gloves are required.

1. In standard Aseptic Technique, non-sterile gloves are usually worn to protect healthcare workers from blood or body fluid exposure.

* In surgical Aseptic Technique, sterile gloves are required for all surgical procedures and where key-parts and key-sites are touched directly (i.e., when a non-touch technique cannot be achieved), to minimise the risk of contamination.

**PPE:** Other PPE should be worn according to standard precautions and to reduce the risk of blood and body fluid exposure to healthcare workers. Maximum barrier precautions may be required during invasive procedures to reduce the risk to the patient/resident of acquiring a HAI during the procedure (ie: during a CVC insertion).

## Aseptic Field Selection and Management

Aseptic fields are important in establishing a controlled aseptic working space that will promote and ensure the integrity of asepsis during clinical procedures.

The aseptic field must be managed to ensure that key parts and sites are protected and should be prepared as close as possible to the time of use. Selection of a tray or trolley that is appropriate in size will ensure key parts are adequately contained within the aseptic field. Trays or trolleys should be cleaned with an appropriate disinfectant wipe and allowed to dry before placing any items on the tray or trolley. If the surface remains wet, then asepsis will be compromised.

The aseptic field may also need to be extended by draping the patient/resident. Sterile drapes provide an additional workspace where sterile equipment may be placed as well as protecting the key site from contamination.

**General aseptic fields:** Used in standard Aseptic Technique when key parts can easily be protected using a non-touch technique and micro-critical aseptic fields. Micro-critical aseptic fields are those key-parts protected by syringe caps, sheathed needles, covers, or packaging.

* Key parts are easily protected by micro-critical aseptic fields and a non-touch technique.
* The main aseptic field does not have to be managed as a key part.
* Asepsis of the immediate procedural environment is promoted by general aseptic field management.

**Critical aseptic fields:** Used to protect key parts and sites, or when open and invasive procedures require a large working area, for a long duration (ie: surgical procedures in the operating room)1.

* Key parts/sites are large, numerous, and cannot be protected easily with a cover or cap.
* Key parts/sites cannot be handled with a non-touch technique.
* Invasive procedures require a large aseptic working area.
* The critical aseptic field is to be managed as a key part, and only sterile items are to be placed within the aseptic field.
* Sterile gloves are required to maintain asepsis.

## Non-touch Technique

A non-touch technique is a technique where the healthcare worker's hands do not touch and therefore contaminate key parts or sites. When sterile gloves are used, key parts/sites should not be touched unless necessary to do so. A non-touch technique is required at all times to maintain asepsis, which can be achieved by either:

* Using a non-touch technique, e.g., using sterile gauze or sterile forceps
* Using sterile gloves.

## Waste Management

Waste should be discarded in the appropriate receptacle according to the facility's waste management plan. Sharps must be discarded in a sharps bin at the point of care.

## Cleaning of Equipment

Upon completion of the aseptic procedure, and following hand hygiene, all equipment used during the procedure must be thoroughly cleaned using a detergent and if required, a disinfectant. The healthcare worker should ensure all surfaces that have been used are cleaned and allowed to dry before being put away. Upon completion of cleaning, hand hygiene should be performed.

## Practice Guidelines:

1. Obtain consent from the patient/resident, check for allergies, and complete patient identification using three nationally recognised identifiers.
2. Perform a risk assessment and manage environmental risks.
3. Perform hand hygiene.
4. Clean the work surface (tray/trolley) with a detergent and/or disinfectant product.
5. Identify and gather equipment for the procedure. Inspect packaging for damage, sterility indicators and expiry dates. Ensure additional equipment (ie: tourniquet) is clean.
6. Perform hand hygiene, with soap and water or ABHR.
7. Prepare the aseptic field.
8. Open procedure packs using corners and place the sterile equipment onto the sterile field.
9. Prepare the patient, using gloves where appropriate to protect from potential body fluid exposures.
10. Remove gloves if used.
11. Perform hand hygiene.

**NOTE: For standard aseptic procedures, use soap and water or ABHR**

**For surgical aseptic procedures, a surgical scrub is required.**

1. Apply gloves if required.

**NOTE:** **Non-sterile gloves are typically the gloves of choice for standard aseptic procedures.**

**If it is necessary to touch key parts or key sites directly, sterile gloves are used to minimise the risk of contamination.**

**Sterile gloves are used for all surgical aseptic procedures.**

1. Perform procedures ensuring all key parts are protected:

* Sterile items are used once and disposed of in the waste bag.
* Only sterile items contact the key site.
* Sterile items do not come into contact with non-sterile items.

1. Dispose of all waste and sharps.
2. Remove gloves (if used) and perform hand hygiene.
3. Clean equipment.
4. Perform hand hygiene.

## Outcomes:

Aseptic Technique is applied to any procedure where asepsis is required.

## Monitoring of Performance:

Adherence to policy will be regularly monitored. This will occur through the use if:

* Monitoring of patient/resident outcomes and HAIs.
* Case review of patient/residents with HAI and clinical procedures associated with their care.
* Auditing of compliance to Aseptic Technique guidelines
* Monitoring of healthcare workers training and education in Aseptic Technique
* Monitoring of Healthcare workers Competency in Aseptic Technique

## Responsibility:

This practice guideline has been endorsed by the Healthcare Facility Executive and will be implemented by the Infection Prevention and Control team. Hospital and department managers are responsible for ensuring healthcare workers' compliance with this policy.

Steps to be taken by the department managers or delegate if non-compliance is identified during a healthcare worker’s practice include:

* Formal documented assessment of aseptic and non-touch technique practice.
* Supervision of healthcare works practice until competence is demonstrated.
* Notify Infection Prevention staff of breach in aseptic technique.
* Provide further training and education, then re-assess the healthcare worker’s practice within one week of providing education.

## Acknowledgements:

This practice guideline was adapted from resources developed by Princess Alexandra Hospital (Queensland), SA Health (South Australia) and The Queen Elizabeth Hospital (South Australia). Information in this policy is based on the recommendations of the NHMRC Australian guidelines for the Prevention and Control of Infection in Healthcare 1 and the Aseptic Non-Touch Technique (ANTT) Procedural Guidelines3. It has been adapted from resources developed by Princess Alexandra Hospital (Queensland), SA Health (South Australia) and The Queen Elizabeth Hospital (South Australia).

## Definitions

**ABHR:** Alcohol-Based Hand Rub

**HAIs:** Healthcare-Associated Infections

**Healthcare setting:** The place where healthcare occurs, including acute care hospitals, urgent care centres, rehabilitation centres, aged and disability residential care, specialised outpatient services (ie: haemodialysis, dentistry, and office-based services), and community care.

**Health care worker:** A person who works in a healthcare or social care setting (e.g., medical practitioners, nurses, midwives, carers, dentists, allied health, students on placement; as well as executives, managers, and administration).

**Key parts:** Parts of the procedure equipment that must remain aseptic throughout a clinical procedure, in order to protect the patient/resident from contamination or infection (e.g., wound dressing, syringe tip, needle, catheter lubrication)1.

**Key sites:** Open of broken wounds, surgical or intravenous access sites 1

## References

1. National Health and Medical Research Council. *Australian Guidelines for the Prevention and Control of Infection in Healthcare*. National Health and Medical Research Council; 2019.

2. Principles for aseptic technique: Information for healthcare workers. (2021).

3. Aseptic Non Touch Technique (ANTT). ANTT Procedure Guidelines. Accessed 12 March, 2024. <https://www.antt.org/resources.html>

## Version

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