

Aseptic Technique

(haemodialysis)

Staff Training and Self-assessment Workbook

Staff Name:

Date://

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Instructions

This self-directed learning package has been developed to provide clinical staff with the required knowledge in aseptic technique in accordance with the *Australian Guidelines for the Prevention and Control of Infection in Healthcare (2010)*.

- Step 1 -** Read the workbook.
- Step 2 -** Complete the questions and submit to the appropriate person according to your organisational procedures
- Step 3 -** Complete the relevant competency assessments in front of an appointed auditor according to your organisational procedures. The competency assessment tools provided are designed to audit practice of the clinician performing a procedure requiring aseptic technique, and are to be used in conjunction with the appropriate local organisational clinical procedure. Use a new audit tool for each procedure, even if it is performed by the same clinician.

There are two competency assessment tools provided, namely:

1. Connection to haemodialysis
2. Disconnection to haemodialysis

- Note 1 –** An online learning package (OLP) has been developed for SA Health staff to use. This workbook has been updated in accordance with the SA Health OLP and may be used as either an additional resource or as a stand-alone package for those hospitals without access to the SA Health OLP.
- Note 2 -** The workbook is designed to assist in the training and assessment of clinician aseptic practices within the ward setting. Aseptic practices for surgical procedures in the operating room need to comply with current ACORN standards.
- Note 3 -** The competency assessment tables are examples and are based on the **principles of aseptic practice**. Providing asepsis is maintained, variations in workflow are acceptable.
- Note 4 -** Unless otherwise specified, “perform hand hygiene” refers to **routine** hand hygiene using either soap and water or an alcohol-based hand rub.

What is Aseptic Technique?

Aseptic technique aims to prevent pathogenic micro-organisms, in sufficient quantity to cause infection, from being introduced to susceptible body sites by hands, surfaces and equipment. It protects patients during invasive clinical procedures by utilising infection prevention measures that minimise the presence of micro-organisms.

Why is aseptic technique important?

“There are around 200,000 healthcare associated infections (HAIs) in Australian acute healthcare facilities each year. This makes HAIs the most common complication affecting patients in hospital. As well as causing unnecessary pain and suffering for patients and their families, these adverse events prolong hospital stays and are costly to the health system. However, HAI is a potentially preventable adverse event rather than an unpredictable complication. It is possible to significantly reduce the rate of HAIs through effective infection prevention and control.”

Australian Guidelines for the Prevention and Control of Infection in Health Care, p. 7

Key Concepts of Aseptic Technique

Key parts

Key parts are the sterile components of procedure equipment. Examples include bungs, needle hubs, syringe tips etc.

Key sites

A key site is any insertion or access site or wound that is connected to, or is part of the patient.

Examples include:

- > insertion / access sites of intravenous devices,
- > urinary devices,
- > open wounds etc.

Key parts and key sites must be identified and protected at all times. Key parts must only come into contact with other key parts and / or key sites.

Aseptic fields

Aseptic fields are important in providing a controlled aseptic work space to help maintain the integrity of key parts and key sites during clinical procedures.

Examples include:

- > *disinfected plastic trays* - where key parts can be easily and optimally protected with the use of covers or caps
- > *sterile dressing trays* - are used when key parts and or key sites (usually due to their size or number), cannot be easily protected at all times with covers and caps, or be handled at all times by a non-touch technique. The size of the aseptic field will be dependent upon the complexity of the procedure to be performed e.g., insertion of CVC, peripherally inserted central catheter (PICC) or complex wound dressings
- > *sterile procedure packs* – e.g. urinary catheter pack.

Aseptic Technique Process

Aseptic technique is a framework for aseptic practice. It includes both a risk assessment and the use of specific infection control measures.

Risk Assessment

Consider the risk to either the patient or yourself of acquiring an infection as a result of the procedure. A risk assessment should be performed prior to commencing a clinical procedure requiring aseptic technique, using the following steps:

- > determine the type and complexity of the procedure
- > determine what are the key parts and key sites
- > determine whether the key parts or key sites need to be touched
- > determine the appropriate infection prevention measures to protect key parts and key sites.

Infection Prevention Measures

Infection prevention measures are used to manage the risks identified by the risk assessment. Measures include the following, and are described below:

1. Environmental control
2. Hand hygiene
3. Appropriate use of personal protective equipment
4. Aseptic field management
5. Non-touch technique.

Factors which impact on the utilisation of infection prevention measures are the:

- > **number and size of key parts and key sites** - determines the size of the aseptic field required, e.g. a sterile tray placed on a trolley is required to adequately contain the equipment for a CVC insertion
- > **length of the procedure** - the longer the procedure, the greater the risk of contamination
- > **technical difficulty of the procedure** - the more technically difficult the procedure, the greater the need to touch key parts and key sites during the procedure - asepsis is maintained using sterile gloves and/or sterile forceps, and often full barrier precautions
- > **experience of the clinician in performing the procedure** – less experienced clinicians may not feel confident in using a non-touch technique
- > **compliance of the patient** - impacts on the ability to prevent contamination of key parts and key sites, e.g. a clinician may require assistance with a paediatric patient to maintain a non-touch technique.

1. Environmental Controls

Prior to conducting an aseptic procedure, clinicians should ensure that there are no avoidable environmental risks nearby. Environmental controls are used to reduce the risk of contamination by movement, touch or proximity. Examples of environmental risks may include:

- > bed making
- > cleaning the environment (if in close proximity)
- > use of commodes by other patients in a shared room
- > movement and proximity of privacy curtain
- > confined working area
- > excessive number of people present.

2. Hand hygiene

Effective hand hygiene is an essential part of aseptic technique.

Routine hand hygiene should be performed using neutral pH soap and running water (duration of entire wash – 60 seconds) or an alcohol-based hand rub (duration of entire rub 20 – 30 seconds) – refer to *WHO Guidelines on Hand Hygiene in Health Care: First Global Patient Safety Challenge Clean Care is Safer Care (2009)*.

Surgical hand antisepsis using an approved (i.e. conforms to EN12791 testing) antimicrobial skin cleanser or waterless hand rub formulation is required when full barrier precautions are necessary, e.g. during a CVC insertion – refer to *SA Health Hand Hygiene Guidelines (2012)*.

3. Appropriate use of protective personal equipment (PPE)

Gloves are indicated for many procedures requiring aseptic technique:

- > **non-sterile gloves** may be necessary to protect the clinician from blood or body fluids or exposure to toxic drugs during administration
- > **sterile gloves** are required in procedures where key parts and / or key sites are touched directly (i.e. when a non-touch technique cannot be achieved), to minimise the risk of contamination.

Gloves do not replace the need for hand hygiene. Hand hygiene must be performed before and after glove use.

Other PPE should be worn according to standard precautions to reduce the risk of blood and body fluid exposure to the clinician.

Full barrier protection is required during invasive procedures to reduce the risk to the patient of acquiring a healthcare associated infection during procedures such as CVC insertion.

4. Aseptic field management

The aseptic field must be managed to ensure that key parts and key sites are protected and should be prepared as close as possible to the time of actual use. Select a tray or trolley of an appropriate size to ensure key parts are adequately contained within the aseptic field.

Disinfect the tray or trolley with an appropriate disinfectant wipe and allow to dry, before placing any items in or on the tray or trolley. If a surface remains wet then asepsis will be compromised.

The aseptic field may also need to be extended by draping the patient. The sterile drape will provide additional work space where sterile equipment may be placed as well as protecting the key site from contamination.

5. Non-touch technique

Non-touch technique is a technique where the clinician's hands do not touch, and thereby contaminate key parts and key sites. This is critical for maintaining asepsis. Asepsis can be achieved by either:

- > using a **non-touch technique**; examples include use of sterile gauze or sterile forceps
- > using sterile gloves.

Types of Aseptic Procedures

For the purposes of the Training and Self-Assessment Work Book, procedures should be considered as either non-invasive or invasive.

An invasive procedure can be described as a procedure that involves entry into the internal body via an:

- > insertion of a tube or medical device capable of entering tissue, the vascular system, cavities or organs
- > incision of the skin
- > interruption to a circuit or device.

1. Non-invasive procedure

a) Simple procedures

Simple procedures are those which require few steps and are not technically difficult. These procedures generally have a shorter duration, and involve relatively few key parts.

Examples include:

- > closed surgical incision dressing
- > peripheral IV insertion site dressing.

b) Complex procedures

Complex procedures generally have more steps than a simple procedure, are usually more technically difficult and may require touching of key parts or key sites.

Examples include:

- > PICC, CVC, pulmonary artery (PA) catheter and arterial line dressings (when key parts or sites need to be touched); in haemodialysis setting changes a Vas cath dressing would be considered complex
- > large open wound dressings requiring packing.

2. Invasive procedures

Invasive procedures can be performed with or without touching key parts and / or key sites.

Examples that *do not touch* key parts or key sites include:

- > “needling” an arteriovenous (A-V) access point
- > administration of peripheral intravenous (IV) medications, IV flush
- > peripheral IV cannulation (ensure vein is not palpated after skin preparation).

Examples that are performed touching key parts and / or key sites include:

- > insertion of a Vas cath
- > insertion of a PICC, CVC, PA catheter, arterial line, indwelling urinary catheters.

Key Part Examples

1. Cannulation and connection during haemodialysis procedure

Key parts include –

- > syringe tip (hub)
- > needle (both needle tip and hub)
- > connection points of the cannulae
- > top of the ampoule
- > gauze swab
- > skin preparation swab
- > machine line ends.

Key sites include -

- > A-V access point
- > Hubs of Vas cath or Permacath.

2. Disconnection during haemodialysis procedure

Key parts include –

- > syringe tip (hub)
- > top of the ampoule
- > gauze swabs
- > recirculation connector ends
- > puncture site dressing.

References

1. Australian Commission on Safety and Quality in Health Care 2012, *Safety and Quality Improvement Guide Standard 3: Preventing and Controlling Healthcare Associated Infections*, Australian Commission on Safety and Quality in Health Care, Sydney.
2. National Health & Medical Research Council. (2010) Australian Guidelines for the Prevention and Control of Infection in Healthcare.
3. SA Health Hand Hygiene Guidelines Sep 2012.
4. The ANTT Organisation 2012, the ANTT Clinical Practice Framework...From surgery to Community Care v3.0, The ANTT Organisation, UK.
5. The Australian College of Operating Room Nurses Ltd. ACORN Standards for perioperative nursing. 2012 – 2013. Adelaide, South Australia
6. WHO Guidelines on Hand Hygiene in Health Care: First Global Patient Safety Challenge Clean Care is Safer Care. 2009. World Health Organisation. Geneva.

Other Resources

1. SA Health Aseptic Technique Online Learning Package
Found at: <http://digitalmedia.sahealth.sa.gov.au/>
2. SA Health applying Aseptic Technique Principles in Haemodialysis - September 2013
Found at: <http://www.health.sa.gov.au/INFECTIONCONTROL/Default.aspx?tabid=143>

For more information

Infection Control Service
Communicable Disease Control Branch
Telephone: 1300 232 272
www.health.sa.gov.au/infectioncontrol

Aseptic Technique Assessment Questions

Please complete these questions prior to completing a competency assessment in aseptic technique. Choose the most correct answer.

1. What is aseptic technique?

- ☐ Aseptic technique aims to prevent pathogenic organisms, in sufficient quantity to cause infection, from being introduced to susceptible sites by hands, surfaces and equipment.
- ☐ Aseptic technique is a framework for aseptic practice. It includes a risk assessment and the use of infection control measures.
- ☐ Aseptic technique protects patients during clinical procedures by using appropriate infection prevention measures.
- ☐ All of the above.

2. Why is aseptic technique important? Choose the most correct answer.

- ☐ Clinicians have been told to use aseptic technique as this is considered best practice.
- ☐ Procedures requiring aseptic technique are performed in operating theatres to prevent surgical wound infection.
- ☐ By using aseptic technique it is possible to significantly reduce the rate of health care associated infection.

3. When should you use sterile gloves?

- ☐ Sterile gloves are required in procedures where key parts and / or key sites are touched directly to minimise the risk of contamination.
- ☐ To protect the clinician from body fluid exposure.
- ☐ During any invasive procedure.

4. Select the core questions you need to consider when conducting a risk assessment. Tick all that apply.

- ☐ What are the appropriate infection prevention measures to protect key parts and key sites?
- ☐ What information do I need to provide to the patient?
- ☐ Is the procedure simple, complex or invasive?
- ☐ Do I need to touch any key parts and key sites?
- ☐ What are the key parts and key sites?

5. What constitutes an invasive procedure? Tick all that apply.

- ☐ Insertion of a medical device.
- ☐ Interruption to a circuit e.g. disconnection of an IV infusion.
- ☐ Invasive procedures can be described as either simple or complex.
- ☐ Key parts are always touched during an invasive procedure.

6. What constitutes the infection control measures required in aseptic technique? Tick all that apply.

- ☐ Environmental controls.
- ☐ Preparing the patient for the procedure.
- ☐ Gaining patient consent.
- ☐ Hand hygiene.
- ☐ Aseptic field management.

7. Asepsis can be achieved by using which of the following? Tick all that apply.

- ☐ Non-sterile gloves.
- ☐ Sterile forceps.
- ☐ Connecting items without touching key parts.
- ☐ Sterile gloves.

8. A haemodialysis, which of the following is a key site? Tick all the apply.

- ☐ Plastic dressing tray.
- ☐ Arteriovenous (A-V) access point.
- ☐ Hubs of a Vas cath or Permacath.
- ☐ All of the above.

9. The machine line ends should be considered as one of several key parts used when connecting a patient to dialysis.

- ☐ True
- ☐ False

10. The dressing tray should be considered as one of the several key parts used when disconnecting a patient to dialysis.

- ☐ True
- ☐ False

Connection to haemodialysis

Competency Assessment

* Of note: The following workflow has been used as an example only. Clinicians should be deemed compliant to aseptic practice providing individual technique does not breach the aseptic field.

Action		Procedure	Score	Comments
1. Consent & patient ID	1.1	Obtain consent from the patient.		
	1.2	Check for allergies (patient / notes).		
	1.3	Complete patient identification using three nationally recognised identifiers.		
subtotal				
2. Manage environmental risks	2.1	Manage environmental factors prior to commencing the procedure. <i>(* note – dialysis machine is clean prior to use)</i>		
subtotal				
3. Procedure preparation	3.1	Perform hand hygiene.		
	3.2	Disinfect trolley or tray as per local protocol.		
	3.3	Allow to dry before use.		
	3.4	> gather equipment. > inspect packages for damage, check sterility indicators & expiry dates.		
	3.5	Perform hand hygiene.		
	3.6	Set up cannulation tray - peel open sterile equipment required ensuring key parts remain protected. > <i>asepsis is maintained by ensuring key parts are not touched / contaminated.</i>		
subtotal				
4. Patient preparation	4.1	Perform hand hygiene.		
	4.2	Complete weights, BP, fluid assessment, machine settings, place tourniquet insitu, relevant checks completed.		
subtotal				

5. Procedure	5.1	Perform hand hygiene		
	5.2	<p>Apply relevant PPE (<i>to protect from potential body fluid exposure</i>).</p> <p>Asepsis is maintained by ensuring key parts are not touched / contaminated:</p> <ul style="list-style-type: none"> > clean AV access with disinfectant swab (unless contraindicated). > apply liberally and allow area to completely dry. > once area is dry, cannulate; AV access ensuring tip and site of entry are not touched / not contaminated. > secure the device. > flush cannula ensuring syringe tip and cannula hub are not touched / contaminated. <p>(<i>disinfect with chlorhexidine and alcohol if key part is contaminated</i>).</p>		
	5.2	Connect patient to dialysis machine, using a non-touch technique to protect all key parts.		
subtotal				
6. Decontamination	6.1	Clean tray and machine screen; discard all sharp devices into sharps containers. (If there is an interruption between any of these steps or gross blood contamination on gloves, <i>perform HH & reapply PPE</i>).		
	6.2	<ul style="list-style-type: none"> > remove gloves / PPE. > perform hand hygiene. 		
subtotal				.
7. Documentation	7.1	Document, sign medication, record observations, clean area.		
	7.3	Perform hand hygiene before leaving area.		
Total Score				

Connection to haemodialysis

Aseptic technique assessment sheet

1. During the assessment, the assessor assigns a category corresponding to the performance level for each of the performance criteria (see below key)
2. If the performance falls into the category "NYC", comments must be included, comments are optional if category "C" is demonstrated/achieved
3. A copy of the completed assessment tool is provided for the nurse, the original is filed in the health care worker's personnel file.

Category	Performance Level	Action Required
C (Competent)	Standard of practice is at or above the performance criteria outlined	<ul style="list-style-type: none">> aspects of performance that are satisfactory are documented and positive feedback given to the nurse.> positive feedback is given when appropriate.
NYC (Not Yet Competent)	Standard of practice is below the performance criteria outlined	<ul style="list-style-type: none">> all areas in which the standard of performance is below the criteria and discussed & documented through the use of examples of actual & expected practice> the nurse is provided with a learning program and times may be arranged for further practice so that the expected standard can be achieved within a prescribed timeframe.
Comments:		

Competency Assessment - Details

Please complete the details below:

Employee Name:

Unit/Department:

Signature: **Date:** / /

Assessor Name:

Signature: **Date:** / /

Disconnection to haemodialysis

Competency Assessment:

* Of note: The following workflow has been used as an example only. Clinicians should be deemed compliant to aseptic practice providing individual technique does not breach the aseptic field.

Action		Procedure	Score	Comments
1. Consent & patient ID	1.1	Obtain consent from the patient.		
	1.2	Check for allergies (patient / notes).		
	1.3	Complete patient identification using three nationally recognised identifiers.		
subtotal				
2. Manage environmental risks	2.1	Manage environmental factors prior to commencing the procedure. <i>* Note - dialysis machine is clean prior to use</i>		
	subtotal			
3. Procedure preparation	3.1	Perform hand hygiene.		
	3.2	Disinfect trolley or tray as per local protocol.		
	3.3	Allow to dry before use.		
	3.4	> gather equipment. > inspect packaging for damage, check sterility indicators & expiry dates.		
	5.5	Perform hand hygiene.		
	3.6	> prepare IV flush, IV extension set and IV therapy if required ensuring key parts using a non-touch technique. > Ensure key parts remain protected.		
	3.7	Set up run back tray - peel open sterile equipment required ensuring key parts remain protected.		
subtotal				

4. Procedure	4.1	Perform hand hygiene.		
	4.2	<ul style="list-style-type: none"> > apply relevant PPE > apply non-sterile gloves to protect from potential body fluid exposure; if required to touch key parts apply sterile gloves. > asepsis is maintained by ensuring key parts are not touched / contaminated. 		
	4.3	Disconnect arterial line and connect saline, run back as per procedure.		
	4.4	<ul style="list-style-type: none"> > disconnect venous line. > remove cannulas, tape, needles, ensure bleeding stops. > check patient site for bleeding. > discard all sharp devices into sharps containers. <p>(if there is an interruption between any of these steps, <i>perform HH & reapply PPE</i>).</p>		
subtotal				
5. Decontamination	4.1	Clean all equipment and clean patient environment.		
	4.2	Remove gloves / PPE; perform hand hygiene.		
subtotal				
6. Patient information and documentation	5.1	> document, sign medication, record observations, complete patient discharge checks.		
	5.2	Perform hand hygiene before leaving area.		
subtotal				
Total Score				

Disconnection to haemodialysis

Aseptic technique assessment sheet

1. During the assessment, the assessor assigns a category corresponding to the performance level for each of the performance criteria (see below key)
2. If the performance falls into the category "NYC", comments must be included, comments are optional if category "C" is demonstrated/achieved
3. A copy of the completed assessment tool is provided for the nurse, the original is filed in the health care worker's personnel file.

Category	Performance Level	Action Required
C (Competent)	Standard of practice is at or above the performance criteria outlined	<ul style="list-style-type: none">> aspects of performance that are satisfactory are documented and positive feedback given to the nurse> positive feedback is given when appropriate
NYC (Not Yet Competent)	Standard of practice is below the performance criteria outlined	<ul style="list-style-type: none">> all areas in which the standard of performance is below the criteria and discussed & documented through the use of examples of actual & expected practice> the nurse is provided with a learning program and times may be arranged for further practice so that the expected standard can be achieved within a prescribed timeframe.
Comments:		

Competency Assessment - Details

Please complete the details below:

Employee Name:

Unit/Department:

Signature: **Date:** / /

Assessor Name:

Signature: **Date:** / /