

Principles of asepsis 2: technique for a simple wound dressing

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Abstract This article, the second in a two-part series on asepsis, provides a step-by-step guide to using an aseptic technique to change a simple wound dressing, applying the principles of asepsis discussed in part 1.

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Professional responsibilities

This procedure should be undertaken only after approved training, supervised practice and competency assessment, and carried out in accordance with local policies and protocols.

The term asepsis has been defined as “freedom from infection or infectious (pathogenic) material” (Taylor, 2019). Aseptic technique is a process designed to protect patients during invasive clinical procedures by using infection prevention and control measures to minimise, where possible, the presence of pathogenic micro-organisms (National Health and Medical Research Council, 2019). The technique is achieved by identifying and protecting key sites (such as wounds or puncture sites) and key parts (equipment that comes into contact with a key site) by consistently applying a set of principles. These include:

- Good hand hygiene;
- Correct and appropriate use of personal protective equipment (PPE);
- Use of sterile equipment and/or cleaning – and allowing to dry – existing key parts to a standard that ensures they are aseptic before use;
- Using a non-touch technique throughout (NHMRC, 2019).

Medical asepsis applies these standard principles of infection prevention to minimise the risk of contamination by micro-organisms in procedures such as applying and changing simple wound dressings.

Surgical asepsis is more complex and is used in high-risk areas such as operating theatres; it incorporates full sterile barrier precautions and should also be performed for procedures such as central venous access insertions (Loveday et al, 2014). Key points for aseptic technique are outlined in Box 1.

As discussed in part 1 of this series – Denton and Hallam (2020) – commercial frameworks have been developed to help standardise the delivery of an aseptic technique; a widely used example is Aseptic Non-Touch Technique (ANTT) (Rowley et al, 2010). In line with Department of Health (2015) guidance, many healthcare facilities and organisations should provide staff training on ANTT and use such an approach. The aim of an aseptic technique and/or ANTT is to prevent pathogenic micro-organisms from being introduced into susceptible sites from contaminated hands, key parts and surfaces (NHMRC, 2019).

Box 1. Key points for aseptic technique

- Aseptic technique should be used for “...any procedure that breaches the body’s natural defences...” (Loveday et al, 2014)
- Key parts and key sites must not be touched unless using single-use sterile gloves
- Hand decontamination is a fundamental component of any procedure involving an aseptic technique
- Any breach in asepsis by touching key parts or sites poses a risk to the patient/client
- The registered nurse and or nursing associate is accountable for any acts or omissions and the delegation of any procedure/care
- All healthcare workers undertaking any procedure should be trained and competent in that procedure

Accountability and risk assessment

Registered nurses (RNs) and nursing associates (NAs) are accountable and may be required to rationalise their actions; healthcare workers must have the relevant training and competence when undertaking any procedure. RNs remain accountable for those procedures as any delegation of procedures and other aspects of patient care to other healthcare workers, patients, relatives and carers also comes under the remit of RNs; this does not apply to NAs (Nursing and Midwifery Council, 2019).

Risk assessment is an important element of any nursing procedure or practice, including aseptic technique. It should incorporate assessment of the complexity of the procedure being undertaken and whether or not key parts can be protected by a non-touch technique. If there is a risk of key parts or sites being compromised, sterile gloves are required alongside other infection prevention precautions.

Aseptic technique is fundamental to the prevention of healthcare-associated infections (HCAIs) (Loveday et al, 2014).

Clinical Practice

Practical procedures

Fig 1. Simple dressing pack



Check packaging is intact and the expiry date has not passed

Healthcare workers undertaking an aseptic procedure should be aware of the infection prevention and control precautions required, and the risks associated with poor technique (National Institute for Health and Care Excellence, 2017). Poor technique can lead to the transfer of transient organisms that live on the skin, such as *Staphylococcus aureus*, which may lead to a localised or systemic infection.

Inadequate skin decontamination before the insertion of a peripheral cannula or other vascular access device may also lead to infection from micro-organisms already present on the skin, including the patient's own (Loveday et al, 2014).

Procedure for changing a simple wound dressing

Equipment

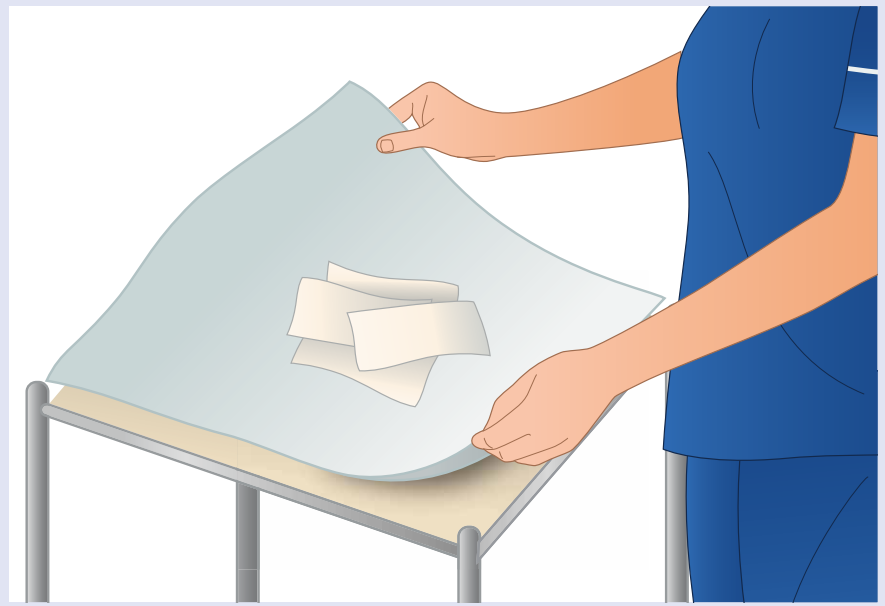
- Wipeable dedicated dressing tray or trolley;
- Detergent wipes, or detergent and disposable cloth;
- Sterile dressing pack;
- Cleansing solution;
- Apron;
- Sterile and/or non-sterile gloves as required;
- Appropriate wound dressing.

The procedure

1. Familiarise yourself with the patient's care plan, the reason they have a wound and the condition of the wound at the last dressing change. You should also check whether the patient requires pain relief before dressings are applied/changed, and which cleansing solution and dressing is required for the procedure.

2. Introduce yourself to the patient, explain the procedure, check their ID and obtain consent. Administer pain relief if required and allow time for it to take effect.

Fig 2. Open dressing pack using minimal touch



3. Prepare the patient environment and ensure the patient's privacy and dignity are protected. Position the patient so the wound can be easily accessed and there is minimal chance of contamination of the key site from bedding and clothing.

4. Decontaminate your hands. In most cases, an alcohol-based hand rub (ABHR) that conforms to British Standards can be used. However, if the hands are visibly soiled or dirty, or there is potential to spread organisms that are alcohol-resistant (for example, *C difficile* – a spore-forming bacteria) or other organisms that may cause diarrhoeal illnesses (such as norovirus), soap and water should be used (NICE, 2017).

5. Prepare the surface for the aseptic technique. If the procedure is in a setting 'closer to home' (for example, a local health centre/GP practice) or in the patient's own home, a wipeable procedure tray dedicated for aseptic procedures may be used. In clinical healthcare settings, a dedicated wipeable dressing trolley or wipeable procedure tray should be available. Cleaning with detergent or a detergent wipe reduces the number of viable pathogenic organisms (Loveday, et al, 2014).

6. Assemble the required equipment for the planned dressing or procedure. In this instance – for a simple dressing – a basic sterile dressing pack is sufficient (Fig 1). Dressing or procedure packs vary in content depending on the manufacturer, so it

is important to check the content before beginning any dressing application/change or procedure. Some packs may contain sterile gloves, which may be required if there is likely to be contact with a key part or key site; for a simple dressing, these are unlikely to be required. If contact is possible and the pack does not contain sterile gloves, sterile gloves will need to be included when gathering the equipment. If the wound requires cleansing, an appropriate solution should be considered, such as normal saline.

7. Before use, check packaging is intact and the expiry dates on all products have not already passed.

8. Perform hand hygiene using ABHR.

9. Open the dressing pack and equipment. Dressing packs should be opened using minimal touch (touching the corners only – Fig 2) to reduce the risk of contaminating

Fig 3. Simple dressing pack's container and subdivisions



any of the equipment inside. The opened dressing pack is often referred to as the 'sterile field'.

10. Some pre-packaged dressing packs contain a waste bag that can be used to move equipment once the dressing pack is opened; this is achieved by carefully placing a hand inside the bag without compromising any of the equipment. Some dressing packs contain single-use forceps for this purpose. If this is the case, the waste bag can be placed on the lower shelf of the dressing trolley or, if a trolley has not been used, in an appropriate place by the patient to collect any waste from the dressing procedure.

11. Prepare the wound cleansing solution. To minimise risk, this should be opened and emptied without touching a key part; for example, normal saline steripods can be opened by snapping off the top. Simple dressing packs will have a single-use container with subdivisions (Fig 3) or contain a single-use pot for liquids/solutions.

12. Apply appropriate PPE. This will include a clean disposable plastic apron, which will provide a protective barrier between the nurse's clothing and any potential contaminants arising from the procedure.

13. Remove the previous dressing. If there is any risk of contact with body fluid, single-use non-sterile gloves should be used.

14. Remove gloves (if used). Perform hand hygiene using ABHR. It is important to perform further hand hygiene before redressing the wound, even if gloves have not been used. Hand hygiene is always required after any type of gloves is removed.

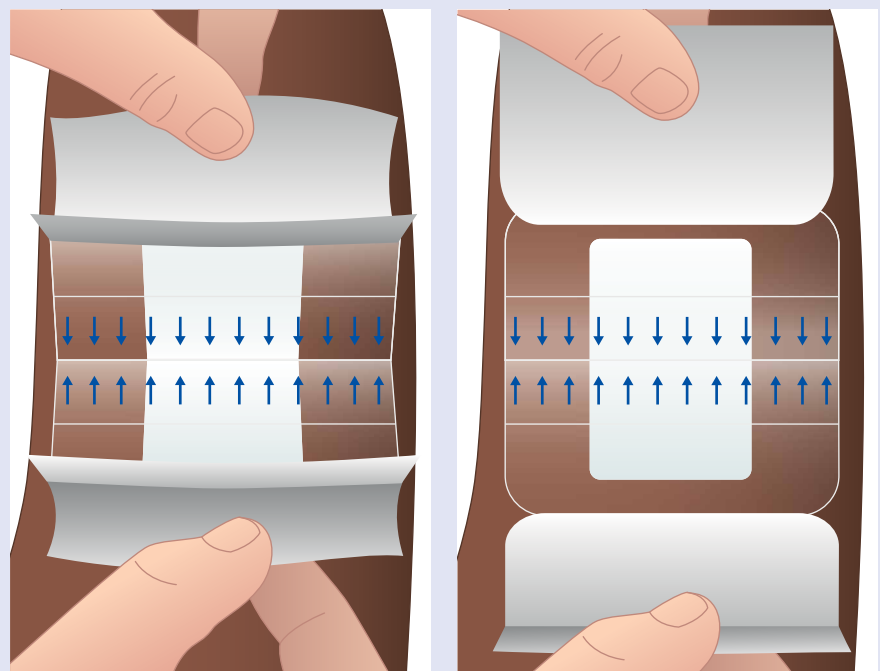
15. If wound cleansing is required and cannot be achieved without direct contact with the wound using steripod or forceps and gauze, single-use sterile gloves should be worn.

16. Application of the dressing, which will be in contact with the key site, must be performed using a non-touch technique (Fig 4). If the dressing cannot be applied without touching any key parts or sites, single-use sterile gloves will be required.

17. Apply an outer dressing or fixator, if required, to ensure the dressing is secure.

18. Remove PPE and dispose of it according to local policy, then perform hand hygiene.

Fig 4. **Apply dressing using a non-touch technique**



Gloves, if worn, should be removed first, followed by the apron.

19. Clean your trolley/equipment and then perform hand hygiene. Any equipment that is not single use should be cleaned and stored, while the trolley/tray should be cleaned with detergent or a detergent wipe and stored according to local policy and procedures.

20. Hand hygiene should be performed once the procedure is completed and before the next task/procedure or care episode is undertaken.

21. Update the patient's records. Documentation should include, as a minimum, the date and time of the procedure, a brief description of the procedure, condition of the wound, the dressing(s) used and the name, signature and designation of the person undertaking the procedure. If it was undertaken by a trainee under supervision, the name, signature and designation of the trainer is also required.

Conclusion

Asepsis incorporates infection prevention practices, including hand hygiene, correct use of PPE, aseptic area and not touching key parts/sites. There are two main types of asepsis – medical and surgical; both require observation of infection prevention principles, but surgical asepsis also

includes full sterile barrier precautions. Medical asepsis is used when undertaking an aseptic technique for a simple wound dressing. **NT**

References

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Principles of asepsis

- | | |
|--|------|
| Part 1: Understanding the rationale for aseptic technique | May |
| Part 2: Aseptic technique for a simple wound dressing | June |