



Aseptic technique: key principles

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The term 'asepsis' means an absence of potentially pathogenic microorganisms (Loveday *et al.*, 2014). The term 'aseptic technique' can be defined as a set of practices and procedures for ensuring asepsis and for preventing the transfer of potentially pathogenic microorganisms to a susceptible site on the body, or to sterile equipment/devices (Loveday *et al.*, 2014), or as the practice of carrying out a procedure using a method that minimises the risk of introducing contamination into a vulnerable area or onto an invasive device (Dougherty & Lister, 2015). An aseptic technique ensures that susceptible body sites (such as an open wound or insertion site for an invasive medical device) and the sterile parts of devices in contact with susceptible sites, are not contaminated during procedures such as wound dressings, urethral catheterisation or insertion of an intravenous cannula (Loveday *et al.*, 2014).

An effective aseptic technique requires strict application of guidance on hand hygiene and correct use of personal protective equipment (for detailed guidance on these aspects, see clinicalskills.net procedures on "Routine hand hygiene" and "Standard precautions: use of personal protective equipment"). When deciding whether to wear sterile or non-sterile gloves for aseptic technique, assess the risk of your gloves being in contact with non-intact skin or mucous membranes during the procedure, as well as the potential for exposure to blood, body fluids, secretions and excretions (Loveday *et al.*, 2014). A clean rather than sterile procedure may be sufficient for dressing chronic wounds, which are likely to be colonised with bacteria (Ashton, 2014). However, a sterile technique must be used if the patient is immunocompromised or has undergone surgery, which carries a high infection risk (Ashton, 2014). When using a sterile technique, the equipment, fluids and dressings used are sterile, whereas for a 'clean technique', clean but non-sterile single-use gloves are used with tap water (that is safe enough to drink) for cleansing (Fernandez & Griffiths, 2012). (See procedure on 'Cleaning chronic wounds').

The principles of aseptic technique can be applied to many different procedures. See, for example, the clinicalskills.net procedures on catheterisation and intravenous cannulation. Refer to these procedures for more specific guidance.

This guideline focuses on the key principles of aseptic technique. Note that individual organisations may have their own guidelines on aseptic technique: always follow local policy. Loveday *et al.* (2014) recommend that organisations should provide education to ensure that healthcare workers are competent in aseptic technique. Contents of sterile packs vary according to the manufacturer, so you will need to adapt the procedure shown accordingly.

Explain the procedure to the patient



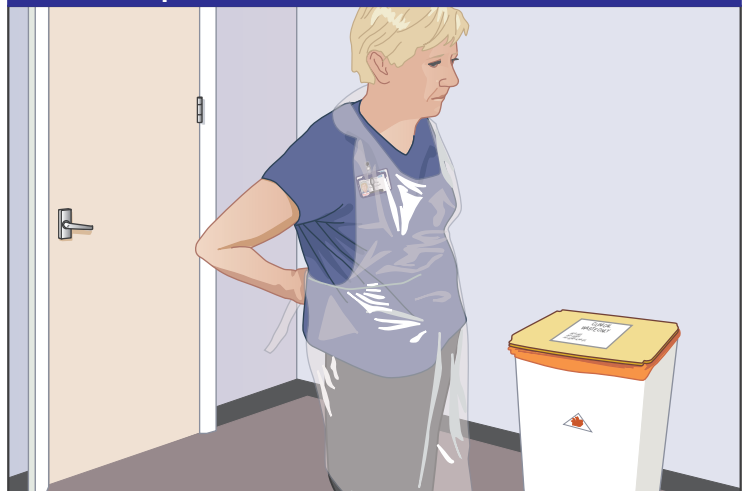
Explain the procedure to the patient and gain consent. Refer to the patient's notes as necessary. For example, read the wound dressing plan.

Perform hand hygiene



Wash and dry your hands, or use alcohol-based hand sanitiser if your hands are visibly clean. Dispose of the paper towel in the general (black) waste bag (see clinicalskills.net procedure on "Routine hand hygiene" for guidance on washing and drying hands).

Put on an apron



Put on an apron. Put the neck strap over your head and then tie the straps up at the back (see clinicalskills.net procedure on "Standard precautions: use of personal protective clothing").

Do not undertake or attempt any procedure unless you are, or have supervision from, a properly trained, experienced and competent person. Always first explain the procedure to the patient and obtain their consent, in line with the policies of your employer or educational institution.

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Clean the working area



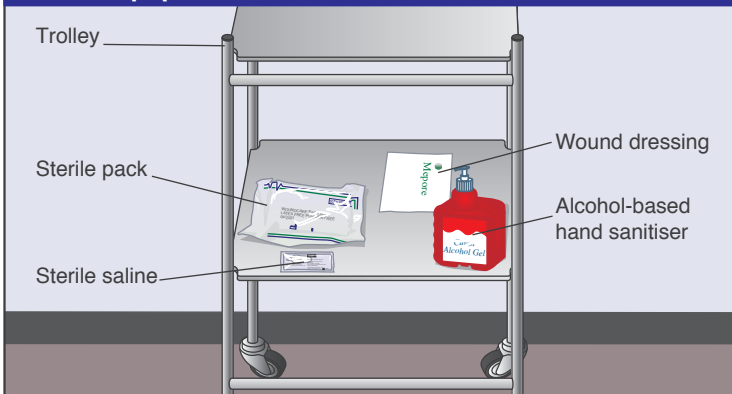
The trolley or other surface (such as a tray) should be clean and dry. Use detergent or alcohol-based wipes to clean all areas effectively, then allow the surface to dry. Work systematically: clean top shelf first, then bottom shelf and poles. Alternatively, clean the surface according to local policy.

Select and check equipment



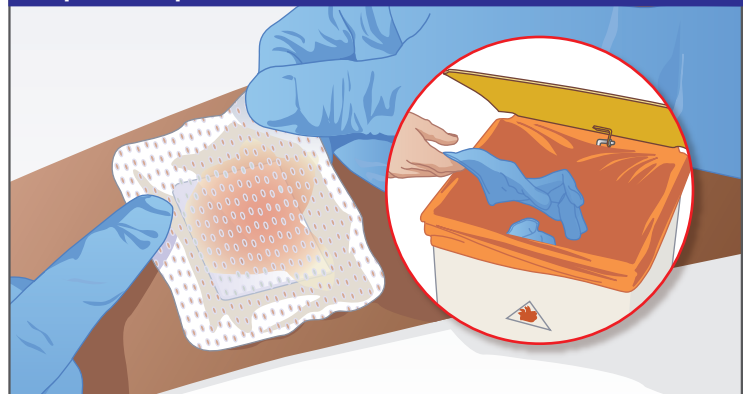
Select the equipment you will need, depending on the procedure. For example, the appropriate sterile pack (e.g., for wound care or catheterisation), sterile cleaning fluid if required, a sterile syringe if wound irrigation will be needed, and any other equipment (e.g., wound dressing or sterile scissors). Check the expiry dates of sterile packs and fluids and check that the packaging is intact.

Gather equipment



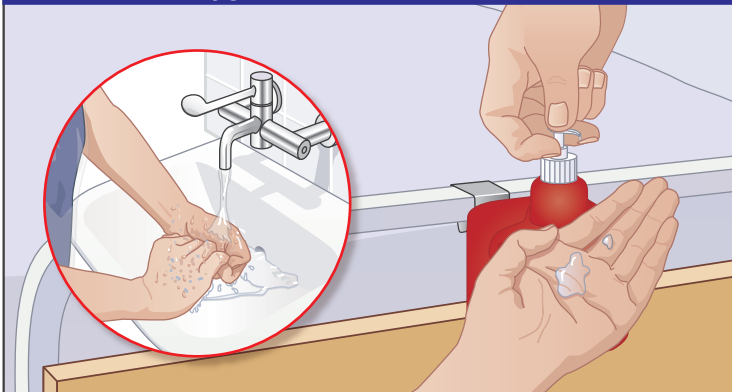
Place equipment on lower shelf of trolley (or in tray, if used). Sterile packs usually supply medium-sized gloves only. If these do not fit you, bring a larger- or smaller-sized pack of sterile gloves. If the pack does not contain a small waste bag, add one to your equipment. You need access to alcohol-based hand sanitiser. You may also need non-sterile gloves for patient preparation before starting the aseptic procedure. Lloyd-Jones (2013) notes that the most effective healing takes place at body temperature (36-38°C) and delayed healing is seen when the temperature falls below core body temperature or rises above 42°C. It is therefore important to ensure that any solution used is, where possible, warmed to body temperature.

Prepare the patient and environment



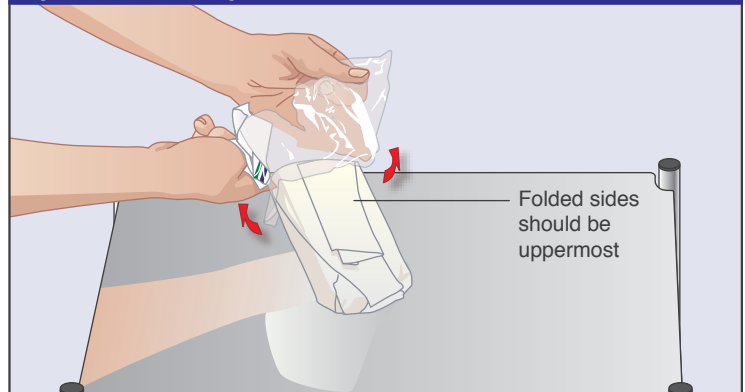
Aseptic technique should be carried out in a clean, dust-free environment. To reduce contamination, ward-cleaning activities should be minimised in the immediate vicinity while wound dressings are performed (Ayliffe *et al.*, 2000). You may be able to take the patient to a treatment room. If working at the bedside, take the trolley to the patient and draw the curtains for privacy. Explain the steps in the procedure. Position the patient as required, exposing only the relevant body area. If dressing a wound, loosen the dressing now. Depending on the procedure and the risk of contact with body fluids (e.g., wound exudates), you may need to wear non-sterile gloves for this: remove these carefully and dispose of them in the infective (orange) waste bag.

Perform hand hygiene



Clean your hands by decontaminating with alcohol-based hand sanitiser or by handwashing.

Open the sterile pack



Open the outside of the sterile pack and let the inner sterile pack slide out onto the trolley surface with the folded sides uppermost. Avoid contaminating the clean surface of the trolley or sterile field with any part of your body.

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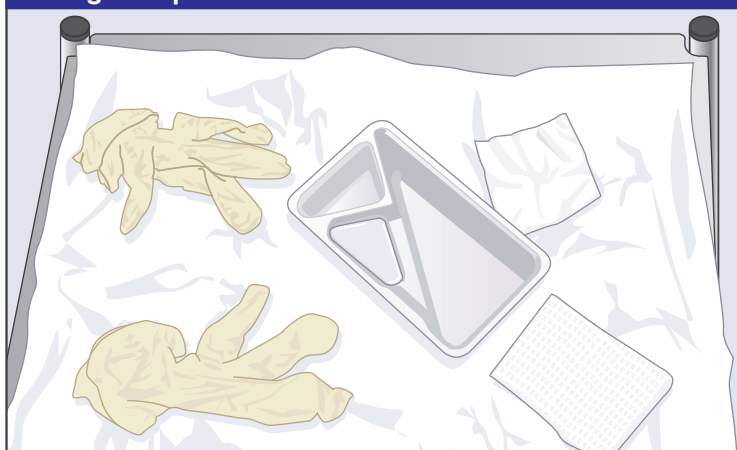
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Unfold the sterile pack



Unfold the sterile paper, holding the paper by the corner edges only. If the sterile pack you are using does not contain a waste bag, attach a waste bag to the side of the trolley now (see method for doing this below).

Arrange the pack contents on the sterile field



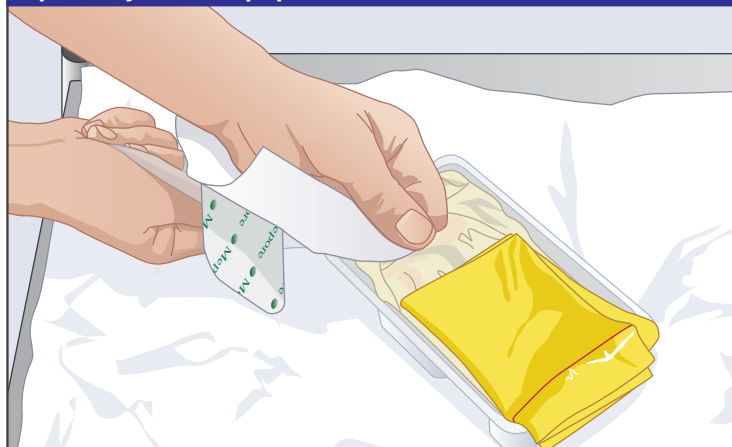
Arrange the items on the sterile field using a pair of sterile forceps. Alternatively, if a plastic disposal bag is included in the pack, your hand can be placed inside to use it as a sterile 'glove' to arrange the items on the sterile field (Dougherty & Lister, 2015).

Attach the waste bag to the trolley



Attach the bag to the side of the trolley between you and the patient so that you will not need to stretch across the trolley to dispose of waste. Pull the edge of the bag open so that you can easily drop in used items.

Open any other equipment



Carefully open any other sterile equipment (e.g., wound dressing, catheter) onto the sterile field, without touching the sterile field with the equipment's non-sterile outer packaging.

Removing a dressing



Likewise, if carrying out a wound dressing, you can keep the sterile bag over your hand to remove a loosened, soiled dressing, and then invert the bag so that the dressing is inside it. Alternatively, if you used forceps to arrange the sterile field, you can use these to remove the dressing and discard these with the dressing into the waste bag. If you need greater dexterity, you can wear non-sterile gloves to remove the dressing; having done so, remove these gloves before proceeding.

Open any cleaning solution



If opening a saline sachet, clean the perforation area with an alcohol swab first, allowing it to dry.

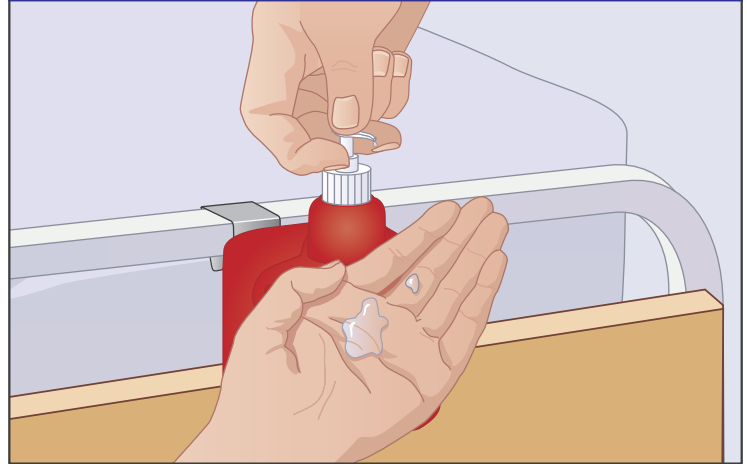
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Pour the cleaning solution



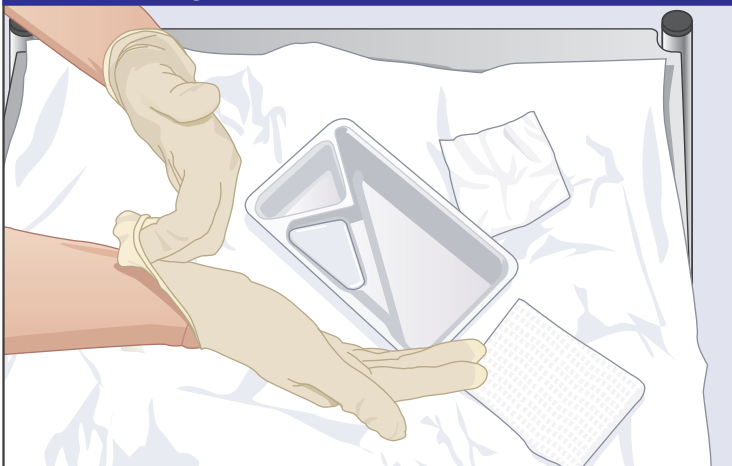
Then tear the perforation and pour the fluid into the sterile container on the sterile field, avoiding splashing.

Clean your hands



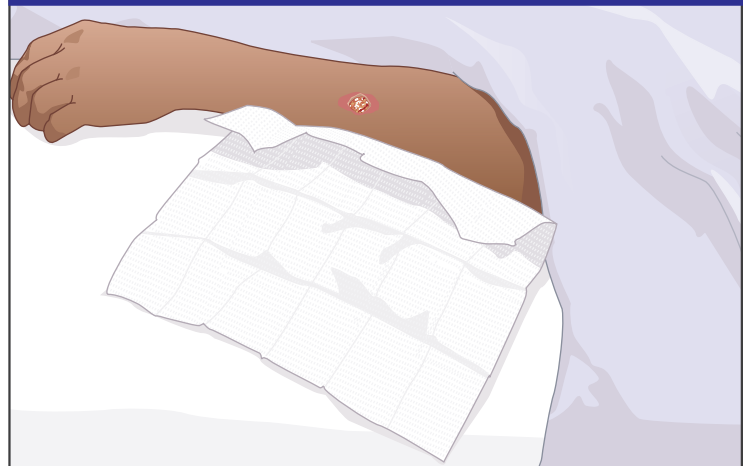
Clean your hands using alcohol-based hand sanitiser. Refer to clinicalskills.net procedure on "Routine hand hygiene".

Put on sterile gloves



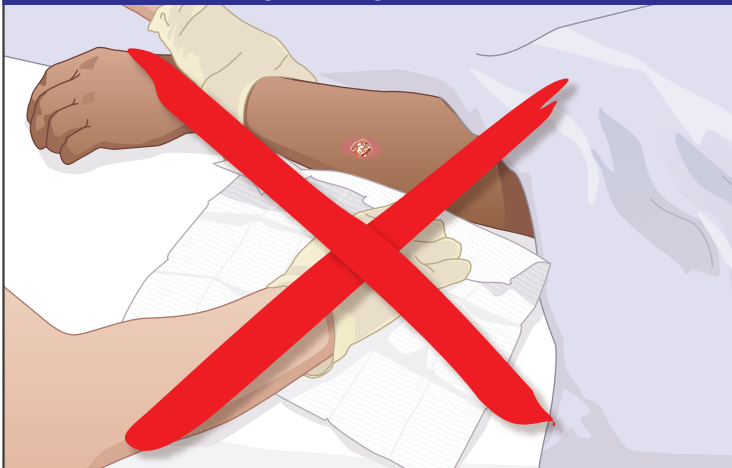
Put on sterile gloves (refer to clinicalskills.net procedure on "Standard precautions: use of personal protective clothing").

Use of a sterile towel



You can use the paper towel enclosed in the sterile pack to surround the working area.

Avoid contaminating sterile gloves or other sterile items



Avoid contaminating your sterile gloves during the procedure; for example, do not touch any part of the patient's body. Do not touch the bed, other furniture, your own face or hair, or any other non-sterile areas. Once any sterile equipment has been contaminated, you must discard it and not return it to the sterile field.

Carry out the aseptic procedure



Carry out the aseptic procedure following agreed guidelines. You can find useful guidance in the appropriate clinicalskills.net procedures on, for example, catheterisation and wound care. Observe the patient throughout. Drop used items into the waste bag during the procedure so that the sterile field remains as clean as possible.

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After the procedure



When the procedure is complete, check that the patient is comfortable before leaving the bedside.

Dispose of waste



At the end of the procedure, put all remaining disposable items (including sterile field) into the waste bag. Then dispose of the waste bag in the infectious (orange) waste bin.

Remove and dispose of gloves



Remove and dispose of gloves in the infectious (orange) waste bin.

Remove and dispose of apron



Break the apron's ties. Lift the apron away from your neck and shoulders, rolling or folding down while taking care to touch the inside only (not the contaminated outer side). Continue to fold or roll inwards to create a bundle with the inner side outermost. Dispose into the infectious (orange) waste bag (RCN, 2019; RCN, 2017; Dougherty & Lister, 2015).

Wash your hands



Wash your hands thoroughly using the correct technique. Document the procedure and any observations in the patient's records.

Clean the trolley



Clean the trolley or tray using an alcohol-based wipe (or in accordance with local policy).

Do not undertake or attempt any procedure unless you are, or have supervision from, a properly trained, experienced and competent person. Always first explain the procedure to the patient and obtain their consent, in line with the policies of your employer or educational institution.