



衛生防護中心
Centre for Health Protection

Infection Control Guidelines for Clinical Procedures Involving Skin Penetration

Infection Control Branch
Centre for Health Protection
Department of Health



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轄下執行疾病預防
及控制的專業架構
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Infection Control Guidelines for Clinical Procedures Involving Skin Penetration

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Introduction

For the purpose of these Guidelines, clinical procedures involving skin penetration refer to clinical procedures undertaken in a clinical setting that involve piercing the skin with an instrument, resulting in a breach of skin integrity. The **Operator** refers to any person who performs or intends to perform such procedures. The **Recipient** refers to any person who receives such procedures. These procedures carry a risk of transmitting viral (including but not limited to human immunodeficiency virus (HIV), hepatitis B virus (HBV), and hepatitis C virus (HCV)), bacterial (e.g. *Staphylococcus aureus*, *Mycobacterium* spp.), and fungal (e.g. *Candida* spp.) infections. All blood and other body fluids should be considered potentially infectious. As infected individuals may remain asymptomatic in the early stages, unrecognised transmission is possible. The risk of infection applies to both the Operator and the Recipient of the procedure. Therefore, appropriate infection control measures should be adhered to minimise the risk of disease transmission.

1. Environmental hygiene

- a) The environment should be kept clean, dry, well-ventilated and well-lit.
- b) Adequate facilities for hand hygiene must be available in the procedure area.
- c) Eating, drinking and smoking must not be permitted in the procedure area.
- d) All environmental surfaces used to carry out the procedure should be smooth and impervious to allow thorough cleaning and disinfection.
- e) Linen or paper towels covering the surface of the examination or procedure area should be clean and changed between

Recipients. Soiled linen should be replaced immediately.

- f) Appropriate disinfectants such as diluted household bleach should be used for environmental cleaning and disinfection. For details on the use of bleach, please refer to the document “[*The Use of Bleach*](#)” published by the Centre for Health Protection, Department of Health.

2. Selection, processing and storage of instruments

- a) All skin-penetrating instruments must be sterile.
- b) Use pre-packaged, disposable, single-use instruments whenever possible.
- c) Single-use items, or items that cannot be reprocessed, should not be reused or reprocessed, and should be discarded after use.
- d) Sterile items must not be used beyond their expiry date.
- e) Assess the integrity of the packaging of sterile items prior to use. Sterile packages should remain sealed until immediately before use to prevent contamination.
- f) Unopened sterile items (e.g. alcohol pads, sterile needles, sterile cotton wool balls and sterile cotton wool sticks) should be stored in enclosed cabinets, with expiry dates checked regularly. Opened sterile items that are not used immediately should be discarded, or reprocessed if reusable, to maintain sterility.
- g) All reusable items must be reprocessed after each use.
- h) Cleaning is the first step in reprocessing a device after use. Cleaning refers to the removal of visible soil, organic material, and inorganic material from objects and surfaces. This is normally accomplished manually or mechanically using water with detergents or enzymatic products. Designated sinks should

be used for cleaning.

- i) Reusable items that are involved with a break in the skin or mucous membrane or entering a sterile body cavity are defined as critical items and must undergo sterilisation after cleaning. Reusable items that are in contact with mucous membranes or body fluids are defined as semi-critical items and must undergo at least high-level disinfection after cleaning. Reusable items that contact intact skin are considered non-critical and should undergo at least low-level disinfection if necessary after cleaning.
- j) For details on sterilisation methods, please refer to Appendix I.
- k) Both sterile and disinfected items should be stored properly to prevent contamination.
- l) Storage areas should be maintained clean and dry.

3. Preparation of the Operator

- a) Operators should wear clean work clothing and wear a surgical mask in the procedure area.
- b) Any cuts or breaks on the hands should be covered with waterproof dressings.
- c) Nails should be kept short. Artificial nails, nail polish, rings, wrist-watches and bracelets should be removed.
- d) Operators with respiratory symptoms, such as cough or sore throat, should wear a surgical mask and seek medical advice.
- e) Hand hygiene should be performed according to the “Five Moments for Hand Hygiene” (Appendix II):
 - (i) Before touching a patient (or Recipient)

- (ii) Before a clean/aseptic procedure
 - (iii) After body fluid exposure risk
 - (iv) After touching a patient (or Recipient)
 - (v) After touching patient (or Recipient) surroundings
- f) Liquid soap and alcohol-based hand rub must not be used beyond their expiry date.
- g) When hands are visibly soiled or likely contaminated with blood or other body fluids, wash with liquid soap and water as follows:
- (i) Wet hands under running water.
 - (ii) Apply liquid soap and rub hands together to make a soapy lather.
 - (iii) Away from the running water, rub hand according to the 7 steps of hand hygiene technique for at least 20 seconds (Appendix III). Do not rinse off the soap while rubbing.
 - (iv) Rinse hands thoroughly under running water.
 - (v) Dry hands thoroughly with a clean, disposable paper towel.
 - (vi) The cleaned hands should not touch the water tap directly again.
- h) When hands are not visibly soiled, performing hand hygiene with 70–80% alcohol-based hand rub is an effective alternative. The steps are as follows:
- (i) Apply a palmful of alcohol-based handrub to cover all surfaces of the hands.
 - (ii) Rub hands according to the 7 steps of hand hygiene technique for at least 20 seconds (Appendix III) until the

hands are dry.

- i) Single-use latex or nitrile gloves should be worn if anticipating risk of exposure to blood, mucous membranes, non-intact skin or other potentially infectious materials.
- j) A pair of gloves must not be used for more than one Recipient.
- k) Wearing gloves does not replace the need for hand hygiene.
- l) Perform hand hygiene before putting on and after taking off gloves.
- m) In addition to gloves, other personal protective equipment may be indicated. For details on the use of personal protective equipment, please refer to the document “[Use of Personal Protective Equipment](#)” published by the Centre for Health Protection, Department of Health.

4. Preparation of the Recipient

- a) Review the Recipient’s information, with attention to potential risk factors, including but not limited to skin infections, infectious diseases (e.g. viral hepatitis, HIV infection), chronic illnesses (e.g. diabetes mellitus, renal disease), or immunodeficiency due to any cause (e.g. hematologic and solid tumours, long-term immunosuppressive therapy, including steroids).
- b) Advise Recipients to observe good personal hygiene. Where necessary, advise them to shower or wash hair (for scalp procedures) before the procedure.
- c) Inspect the intended site of skin penetration to ensure it is clean and free from cuts, abrasions, redness, rash, or any signs of infection. Do not proceed with skin penetration if signs of

infection in the intended site are present.

- d) Advise Recipients to wear a surgical mask if they have respiratory symptoms, such as cough or sore throat.

5. Aseptic techniques

- a) Hand hygiene must always be performed prior to any aseptic procedure, including skin penetration.
- b) Antiseptics must not be used beyond their expiry date.
- c) Before commencing the procedure, disinfect the penetration site and the surrounding area using one of the following antiseptics: 0.5%–4% w/v chlorhexidine in 60% w/w isopropyl alcohol or 70% w/w ethyl alcohol, 2% w/v chlorhexidine gluconate in 70% v/v isopropyl alcohol, 0.5%–4% w/v chlorhexidine in aqueous solution, 10% w/v alcoholic or aqueous povidone-iodine (1% w/v available iodine), 60%–90% v/v isopropyl alcohol, or 60%–95% v/v ethyl alcohol. The antiseptic should be applied with movement from clean to dirty areas, i.e., from centre outwards.
- d) Follow manufacturers' instructions on the use of antiseptics. Allow antiseptics to dry completely before commencing the procedure.
- e) Do not touch the intended site of skin penetration after disinfecting the site.
- f) Operators should hold instruments by the handle, avoiding contact with the part(s) that will penetrate the skin. After removal of all instruments, verify against the insertion record to ensure complete retrieval of all instruments. Any missing instrument must be recovered immediately.
- g) Single-use packaging is preferred for skin antiseptics. If

antiseptic solutions in multi-use packaging are used, transfer only the required amount for each session into a properly disinfected container, and discard any remaining solution in the container after each session.

6. Waste disposal

- a) Discard used sharp instruments in skin penetration directly into a sharps container that is lidded and puncture-resistant. The sharps box should be sealed when it is three-quarters full.
- b) Waste must be handled properly and safely according to written policies and procedures promulgated by the Environmental Protection Department pursuant to the Waste Disposal Ordinance (Cap. 354).

7. Points to note by Recipient after the procedure

- a) If develop signs or symptoms of infection, including but not limited to localised redness, pain, swelling, purulent discharge or a sensation of heat of the penetration sites, or non-specific systemic symptoms like fever, chills and malaise, Recipients should seek medical advice promptly.

8. Management of sharps injuries in Operators

- a) In the event of injury from a used instrument, the Operator should:
 - (i) Rinse the wound immediately under running water and soap.
 - (ii) Report the incident promptly according to local or

organisational reporting procedures.

- (iii) Seek medical advice for proper wound care and post-exposure management for blood borne infections. If there is any doubt, consult the nearest emergency department immediately for blood testing and follow-up.
 - (iv) Ensure clear documentation and investigation of the nature of the exposure to identify contributing factors and implement corresponding preventive measures for similar incidents in the future.
- b) Operators are advised to check their hepatitis B immune status before commencing work. Non-immune individuals should receive hepatitis B vaccination for protection.
- c) For details on postexposure management and prophylaxis, please refer to the document [“Recommendations on Post-Exposure Management for HBV, HCV, and HIV Following Exposure to Blood or Other Body Fluids”](#) published by the Centre for Health Protection, Department of Health.

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Appendix I: Sterilisation methods

1. Steam sterilisation:

- Critical items that are not heat-sensitive can be sterilised reliably with steam under pressure using steam sterilisers.
- There are four parameters of steam sterilisation:
 - Steam: Ideal steam for sterilisation is dry saturated steam and entrained water (dryness fraction $\geq 97\%$).
 - Pressure: Serves as a means to obtain the high temperatures necessary to quickly kill the microorganisms.
 - Temperature: Specific temperatures must be achieved to ensure the microbicidal activity. The two common steam-sterilising temperatures are 121°C and 132°C.
 - Time: Minimal time (holding time) to kill the microorganisms at specific temperatures. Recognised minimum exposure periods for sterilisation of wrapped healthcare supplies are 30 minutes at 121°C in a gravity displacement steriliser or 4 minutes at 132°C in a pre-vacuum steriliser.
- Steam sterilisers must be well-maintained and used in accordance with the recommendations of the user manual.
- Steam sterilisers must be operated only by a person who has been adequately instructed in their use. The operating person should record the details of each load and the mechanical indicators in a log book specifically kept for this purpose.
- A sterilisation process should be verified before it is put into use. Monitoring and verification of the sterilisation process can be achieved by using physical, chemical and biological monitors and indicators. Sterilisation indicators should be used according to the indicator manufacturer's instructions.

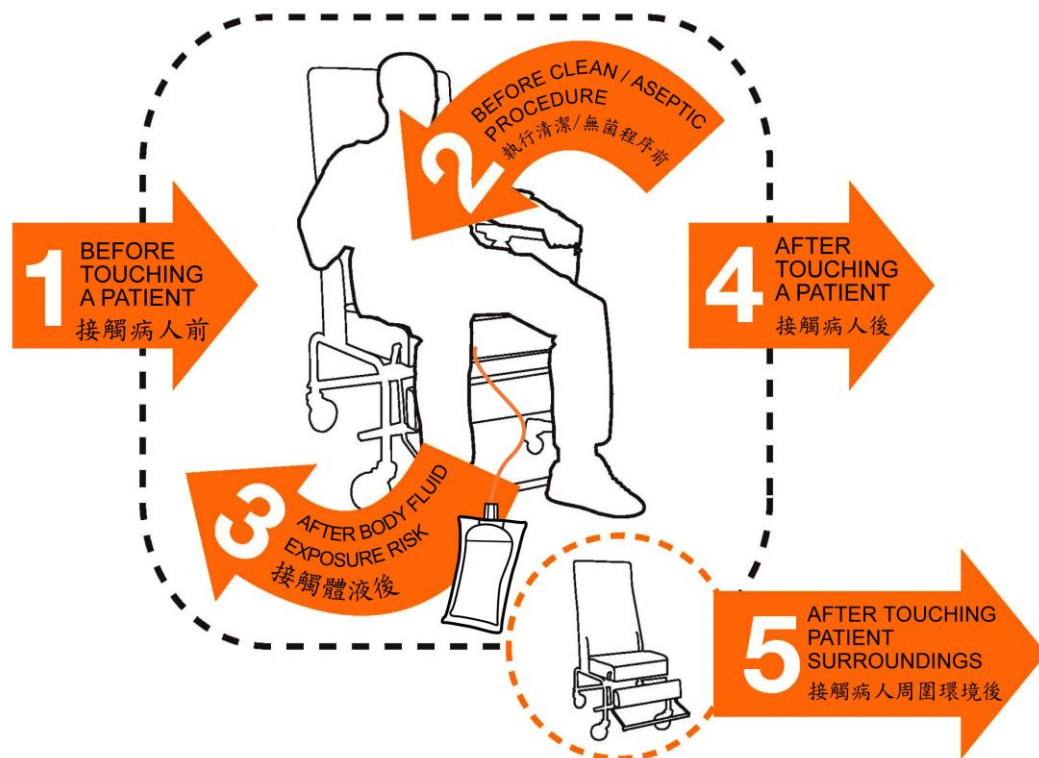
2. Low-temperature sterilisation technologies:

- This method is used to sterilise heat- and moisture-sensitive instruments. An example is hydrogen peroxide gas plasma. Instrument compatibility will vary with the chemical.
- Sterilisation with gaseous chemical methods should be carried out in chambers with automated cycles that provide safety for the operating person and guarantee the processes.

Appendix II: Five moments for hand hygiene

5 Moments for Hand Hygiene

潔手五時刻



Appendix III: Hand hygiene technique



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