



*National Institute for  
Clinical Excellence*

***National Institute for  
Clinical Excellence***

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# Infection control

## Prevention of healthcare-associated infection in primary and community care

### Clinical Guideline 2

June 2003

Developed by Thames Valley University under the auspices of  
the National Collaborating Centre for Nursing and Supportive Care

## Clinical Guideline 2

### Infection control

#### Prevention of healthcare-associated infection in primary and community care

Issue date: June 2003

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This document has been circulated to the following:

- NHS Trust Chief Executives in England and Wales
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- Local Health Group General Managers
- Medical and Nursing Directors in England and Wales
- Strategic Health Authority Chief Executives in England and Wales
- Clinical Governance Leads in England and Wales
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- Royal Colleges

#### This guidance is written in the following context:

This guidance represents the view of the Institute, which was arrived at after careful consideration of the evidence available. Health professionals are expected to take it fully into account when exercising their clinical judgment. The guidance does not, however, override the individual responsibility of health professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

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The following guidance is evidence based. The grading scheme used for the recommendations (A, B, C, D or health and safety legislation [H&S]) is described in Appendix A; a summary of the evidence on which the guidance is based is provided in the full guideline (see Section 5).

# 1 Guidance

This guideline makes recommendations on the standard principles for preventing healthcare-associated infections and on measures for preventing infections associated with three specific aspects of care: the use of long-term urinary catheters, enteral feeding systems, and central venous catheters. Each of these includes education of patients, carers and healthcare personnel.

## 1.1 Standard principles

The recommendations on standard principles provide guidance on infection control precautions that should be applied by all healthcare personnel, and other carers, to the care of patients in community and primary care settings.

The recommendations are divided into three broad recommendation headings:

- hand hygiene
- the use of personal protective equipment
- the safe use and disposal of sharps.

### 1.1.1 General recommendations

1.1.1.1 Everyone involved in providing care in the community should be educated about standard principles and trained in hand decontamination, the use of protective clothing and the safe disposal of sharps.

D

1.1.1.2 Adequate supplies of liquid soap, handrub, towels and sharps containers should be made available wherever care is delivered.

D

### 1.1.2 Hand hygiene

1.1.2.1 Hands must be decontaminated immediately before each and every episode of direct patient contact or care and after any activity or contact that could potentially result in hands becoming contaminated.

B

1.1.2.2 Hands that are visibly soiled, or potentially grossly contaminated with dirt or organic material, must be washed with liquid soap and water.

A

1.1.2.3 Hands must be decontaminated, preferably with an alcohol-based handrub unless hands are visibly soiled, between caring for different patients and between different care activities for the same patient.	A
1.1.2.4 Before regular hand decontamination begins, all wrist and ideally hand jewellery should be removed. Cuts and abrasions must be covered with waterproof dressings. Fingernails should be kept short, clean and free from nail polish.	D
1.1.2.5 An effective handwashing technique involves three stages: preparation, washing and rinsing, and drying. Preparation requires wetting hands under tepid running water <b>before</b> applying liquid soap or an antimicrobial preparation. The handwash solution must come into contact with <b>all</b> of the surfaces of the hand. The hands must be <b>rubbed</b> together vigorously for a minimum of 10–15 seconds, paying particular attention to the tips of the fingers, the thumbs and the areas between the fingers. Hands should be rinsed thoroughly before drying with good quality paper towels.	D
1.1.2.6 When decontaminating hands using an alcohol handrub, hands should be free from dirt and organic material. The handrub solution must come into contact with all surfaces of the hand. The hands must be <b>rubbed</b> together vigorously, paying particular attention to the tips of the fingers, the thumbs and the areas between the fingers, until the solution has evaporated and the hands are dry.	D
1.1.2.7 An emollient hand cream should be applied regularly to protect skin from the drying effects of regular hand decontamination. If a particular soap, antimicrobial hand wash or alcohol product causes skin irritation an occupational health team should be consulted.	D
<b>1.1.3 Use of personal protective equipment</b>	
1.1.3.1 Selection of protective equipment should be based on an assessment of the risk of transmission of microorganisms to the patient, and the risk of contamination of the healthcare practitioner's clothing and skin by patients' blood, body fluids, secretions or excretions.	D, H&S
1.1.3.2 Gloves must be worn for invasive procedures, contact with sterile sites and non-intact skin or mucous membranes, and all activities that have been assessed as carrying a risk of exposure to blood, body fluids, secretions or excretions, or to sharp or contaminated instruments.	D, H&S

1.1.3.3 Gloves must be worn as single-use items. They must be put on immediately before an episode of patient contact or treatment and removed as soon as the activity is completed. Gloves must be changed between caring for different patients, and between different care or treatment activities for the same patient.	D, H&S
1.1.3.4 Gloves must be disposed of as clinical waste and hands decontaminated after the gloves have been removed.	D, H&S
1.1.3.5 Gloves that are acceptable to healthcare personnel and that conform to European Community (CE) standards must be available.	H&S
1.1.3.6 Sensitivity to natural rubber latex in patients, carers and healthcare personnel must be documented, and alternatives to natural rubber latex gloves must be available.	H&S
1.1.3.7 Neither powdered gloves nor polythene gloves should be used in healthcare activities.	D, H&S
1.1.3.8 Disposable plastic aprons should be worn when there is a risk that clothing may be exposed to blood, body fluids, secretions or excretions, with the exception of sweat.	D, H&S
1.1.3.9 Full-body fluid-repellent gowns must be worn where there is a risk of extensive splashing of blood, body fluids, secretions or excretions, with the exception of sweat, onto the skin or clothing of healthcare practitioners (for example when assisting with childbirth).	D, H&S
1.1.3.10 Plastic aprons should be worn as single-use items, for one procedure or episode of patient care, and then discarded and disposed of as clinical waste.	D, H&S
1.1.3.11 Face masks and eye protection must be worn where there is a risk of blood, body fluids, secretions or excretions splashing into the face and eyes.	D, H&S
1.1.3.12 Respiratory protective equipment, for example a particulate filter mask, must be used when clinically indicated.	D, H&S

### 1.1.4 Safe use and disposal of sharps

- 1.1.4.1 Sharps must not be passed directly from hand to hand, and handling should be kept to a minimum.
- 1.1.4.2 Needles must not be recapped, bent, broken or disassembled before use or disposal.
- 1.1.4.3 Used sharps must be discarded into a sharps container (conforming to UN3291 and BS 7320 standards) at the point of use by the user. These must not be filled above the mark that indicates that they are full.
- 1.1.4.4 Containers in public areas must be located in a safe position, and must not be placed on the floor. They must be disposed of by the licensed route in accordance with local policy.
- 1.1.4.5 Needle safety devices must be used where there are clear indications that they will provide safer systems of working for healthcare personnel.

D,  
H&S

D,  
H&S

D,  
H&S

D,  
H&S

D,  
H&S

## 1.2 Care of patients with long-term urinary catheters

These guidelines apply to adults and children and should be used in conjunction with the guidance on standard principles (Section 1.1). These guidelines focus on preventing infection. However, because infection has a complex interrelationship with encrustation and blockage, these aspects of catheter management are also addressed.

The recommendations are divided into five distinct interventions:

- education of patients, their carers and healthcare personnel
- assessing the need for catheterisation
- selection of catheter drainage options
- catheter insertion
- catheter maintenance.

### 1.2.1 Education of patients, their carers and healthcare personnel

- 1.2.1.1 Patients and carers should be educated about and trained in techniques of hand decontamination, insertion of intermittent catheters where applicable, and catheter management before discharge from hospital.

D

- 1.2.1.2 Community and primary healthcare personnel must be trained in catheter insertion, including suprapubic catheter replacement and catheter maintenance. **D**
- 1.2.1.3 Follow-up training and ongoing support of patients and carers should be available for the duration of long-term catheterisation. **D**

## 1.2.2 Assessing the need for catheterisation

- 1.2.2.1 Indwelling urinary catheters should be used only after alternative methods of management have been considered. **D**
- 1.2.2.2 The patient's clinical need for catheterisation should be reviewed regularly and the urinary catheter removed as soon as possible. **D**
- 1.2.2.3 Catheter insertion, changes and care should be documented. **D**

## 1.2.3 Catheter drainage options

- 1.2.3.1 Following assessment, the best approach to catheterisation that takes account of clinical need, anticipated duration of catheterisation, patient preference and risk of infection should be selected. **C**
- 1.2.3.2 Intermittent catheterisation should be used in preference to an indwelling catheter if it is clinically appropriate and a practical option for the patient. **A**
- 1.2.3.3 For urethral and suprapubic catheters, the choice of catheter material and gauge will depend on an assessment of the patient's individual characteristics and predisposition to blockage. **D**
- 1.2.3.4 In general, the catheter balloon should be inflated with 10 ml of sterile water in adults and 3–5 ml in children. **D**
- 1.2.3.5 In patients for whom it is appropriate, a catheter valve may be used as an alternative to a drainage bag. **A**

### 1.2.4 Catheter insertion

- |         |                                                                                                                                                                                                             |   |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| 1.2.4.1 | All catheterisations carried out by healthcare personnel should be aseptic procedures. After training, healthcare personnel should be assessed for their competence to carry out these types of procedures. | D |
| 1.2.4.2 | Intermittent self-catheterisation is a clean procedure. A lubricant for single-patient use is required for non-lubricated catheters.                                                                        | A |
| 1.2.4.3 | For urethral catheterisation, the meatus should be cleaned before insertion of the catheter, in accordance with local guidelines/policy.                                                                    | D |
| 1.2.4.4 | An appropriate lubricant from a single-use container should be used during catheter insertion to minimise urethral trauma and infection.                                                                    | D |

### 1.2.5 Catheter maintenance

- |         |                                                                                                                                                                                                                                             |   |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| 1.2.5.1 | Indwelling catheters should be connected to a sterile closed urinary drainage system or catheter valve.                                                                                                                                     | D |
| 1.2.5.2 | Healthcare personnel should ensure that the connection between the catheter and the urinary drainage system is not broken except for good clinical reasons, (for example changing the bag in line with the manufacturer's recommendations). | D |
| 1.2.5.3 | Healthcare personnel must decontaminate their hands and wear a new pair of clean, non-sterile gloves before manipulating a patient's catheter, and must decontaminate their hands after removing gloves.                                    | D |
| 1.2.5.4 | Carers and patients managing their own catheters must wash their hands before and after manipulation of the catheter, in accordance with the recommendations in the standard principles section (Section 1.1).                              | A |
| 1.2.5.5 | Urine samples must be obtained from a sampling port using an aseptic technique.                                                                                                                                                             | D |
| 1.2.5.6 | Urinary drainage bags should be positioned below the level of the bladder, and should not be in contact with the floor.                                                                                                                     | D |
| 1.2.5.7 | A link system should be used to facilitate overnight drainage, to keep the original system intact.                                                                                                                                          | D |

1.2.5.8	The urinary drainage bag should be emptied frequently enough to maintain urine flow and prevent reflux, and should be changed when clinically indicated.	D
1.2.5.9	The meatus should be washed daily with soap and water.	A
1.2.5.10	Each patient should have an individual care regimen designed to minimise the problems of blockage and encrustation. The tendency for catheter blockage should be documented in each newly catheterised patient.	D
1.2.5.11	Bladder instillations or washouts must not be used to prevent catheter-associated infection.	A
1.2.5.12	Catheters should be changed only when clinically necessary, or according to the manufacturer's current recommendations.	D
1.2.5.13	Antibiotic prophylaxis when changing catheters should only be used for patients with a history of catheter-associated urinary tract infection following catheter change, or for patients who have a heart valve lesion, septal defect, patent ductus or prosthetic valve.	B
1.2.5.14	Reusable intermittent catheters should be cleaned with water and stored dry in accordance with the manufacturer's instructions.	D

### 1.3 Care during enteral feeding

These guidelines apply to adults and children and should be used in conjunction with the guidance on standard principles (Section 1.1). The recommendations are divided into four distinct interventions:

- education of patients, their carers and healthcare personnel
- preparation and storage of feeds
- administration of feeds
- care of insertion site and enteral feeding tube.

#### 1.3.1 Education of patients, their carers and healthcare personnel

1.3.1.1	Patients and carers should be educated about and trained in the techniques of hand decontamination, enteral feeding and the management of the administration system before being discharged from hospital.	D
---------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---

1.3.1.2 Community staff should be trained in enteral feeding and management of the administration system. **D**

1.3.1.3 Follow-up training and ongoing support of patients and carers should be available for the duration of home enteral tube feeding. **D**

### 1.3.2 Preparation and storage of feeds

1.3.2.1 Wherever possible pre-packaged, ready-to-use feeds should be used in preference to feeds requiring decanting, reconstitution or dilution. **A**

1.3.2.2 The system selected should require minimal handling to assemble, and be compatible with the patient's enteral feeding tube. **B**

1.3.2.3 Effective hand decontamination must be carried out before starting feed preparation. **A**

1.3.2.4 When decanting, reconstituting or diluting feeds, a clean working area should be prepared and equipment dedicated for enteral feed use only should be used. **D**

1.3.2.5 Feeds should be mixed using cooled boiled water or freshly opened sterile water and a no-touch technique. **D**

1.3.2.6 Feeds should be stored according to the manufacturer's instructions and, where applicable, food hygiene legislation. **D**

1.3.2.7 Where ready-to-use feeds are not available, feeds may be prepared in advance, stored in a refrigerator, and used within 24 hours. **D**

### 1.3.3 Administration of feeds

1.3.3.1 Minimal handling and an aseptic no-touch technique should be used to connect the administration system to the enteral feeding tube. **C**

1.3.3.2 Ready-to-use feeds may be given for a whole administration session, up to a maximum of 24 hours. Reconstituted feeds should be administered over a maximum 4-hour period. **C**

1.3.3.3 Administration sets and feed containers are for single use and must be discarded after each feeding session. **B**

### 1.3.4 Care of insertion site and enteral feeding tube

1.3.4.1 The stoma should be washed daily with water and dried thoroughly.

D

1.3.4.2 To prevent blockage, the enteral feeding tube should be flushed with fresh tap water before and after feeding or administering medications. Enteral feeding tubes for patients who are immunosuppressed should be flushed with either cooled freshly boiled water or sterile water from a freshly opened container.

D

## 1.4 Care of patients with central venous catheters

These recommendations apply to the care in the community of all adults and children with central venous catheters that are being used for the administration of fluids, medications, blood components and/or total parenteral nutrition. They should be used in conjunction with the recommendations on standard principles (Section 1.1).

These recommendations do not specifically address the more technical aspects of the care of patients receiving haemodialysis, who will generally have their central venous catheters managed in dialysis centres.

The recommendations are divided into four intervention categories:

- education of patients, their carers and healthcare personnel
- general asepsis
- catheter site care
- standard principles for catheter management.

### 1.4.1 Education of patients, their carers and healthcare personnel

1.4.1.1 Before discharge from hospital, patients and their carers should be taught any techniques they may need to use to prevent infection and safely manage a central venous catheter.

D

1.4.1.2 Community healthcare personnel caring for a patient with a central venous catheter should be trained, and assessed as competent, in using and consistently adhering to the infection prevention practices described in this guideline.

D

1.4.1.3 Follow-up training and support should be available to patients with central venous catheters and their carers.

D

## 1.4.2 General asepsis

- |         |                                                                                                                                                                                    |   |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| 1.4.2.1 | An aseptic technique must be used for catheter site care and for accessing the system.                                                                                             | B |
| 1.4.2.2 | Before accessing or dressing central venous catheters, hands must be decontaminated either by washing with an antimicrobial liquid soap and water, or by using an alcohol handrub. | A |
| 1.4.2.3 | Hands that are visibly soiled or contaminated with dirt or organic material must be washed with soap and water before using an alcohol handrub.                                    | A |
| 1.4.2.4 | Following hand antisepsis, clean gloves and a no-touch technique or sterile gloves should be used when changing the insertion site dressing.                                       | D |

## 1.4.3 Catheter site care

- |         |                                                                                                                                                                                                                                                                                            |   |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| 1.4.3.1 | Preferably, a sterile, transparent, semipermeable polyurethane dressing should be used to cover the catheter site.                                                                                                                                                                         | A |
| 1.4.3.2 | If a patient has profuse perspiration, or if the insertion site is bleeding or oozing, a sterile gauze dressing is preferable to a transparent, semi-permeable dressing.                                                                                                                   | D |
| 1.4.3.3 | Gauze dressings should be changed when they become damp, loosened or soiled, and the need for a gauze dressing should be assessed daily. A gauze dressing should be replaced by a transparent dressing as soon as possible.                                                                | D |
| 1.4.3.4 | Transparent dressings should be changed every 7 days, or sooner if they are no longer intact or moisture collects under the dressing.                                                                                                                                                      | A |
| 1.4.3.5 | Dressings used on tunnelled or implanted central venous catheter sites should be replaced every 7 days until the insertion site has healed, unless there is an indication to change them sooner.                                                                                           | A |
| 1.4.3.6 | An alcoholic chlorhexidine gluconate solution should be used to clean the catheter site during dressing changes, and allowed to air dry. An aqueous solution of chlorhexidine gluconate should be used if the manufacturer's recommendations prohibit the use of alcohol with the product. | A |

- 1.4.3.7 Individual sachets of antiseptic solution or individual packages of antiseptic-impregnated swabs or wipes should be used to disinfect the dressing site. D
- 1.4.3.8 Healthcare personnel should ensure that catheter-site care is compatible with catheter materials (tubing, hubs, injection ports, luer connectors and extensions) and carefully check compatibility with the manufacturer's recommendations. D

#### 1.4.4 General principles for catheter management

- 1.4.4.1 The injection port or catheter hub should be decontaminated using either alcohol or an alcoholic solution of chlorhexidine gluconate before and after it has been used to access the system. C
- 1.4.4.2 In-line filters should not be used routinely for infection prevention. D
- 1.4.4.3 Antibiotic lock solutions should not be used routinely to prevent catheter-related bloodstream infections (CRBSI). A
- 1.4.4.4 Systemic antimicrobial prophylaxis should not be used routinely to prevent catheter colonisation or CRBSI, either before insertion or during the use of a central venous catheter. A
- 1.4.4.5 Preferably, a single lumen catheter should be used to administer parenteral nutrition. If a multilumen catheter is used, one port must be exclusively dedicated for total parenteral nutrition, and all lumens must be handled with the same meticulous attention to aseptic technique. D
- 1.4.4.6 Preferably, a sterile 0.9 percent sodium chloride injection should be used to flush and lock catheter lumens. D
- 1.4.4.7 When recommended by the manufacturer, implanted ports or opened-ended catheter lumens should be flushed and locked with heparin sodium flush solutions. D
- 1.4.4.8 Systemic anticoagulants should not be used routinely to prevent CRBSI. D
- 1.4.4.9 If needleless devices are used, the manufacturer's recommendations for changing the needleless components should be followed. D

- 1.4.4.10 When needleless devices are used, healthcare personnel should ensure that all components of the system are compatible and secured, to minimise leaks and breaks in the system. **D**
- 1.4.4.11 When needleless devices are used, the risk of contamination should be minimised by decontaminating the access port with either alcohol or an alcoholic solution of chlorhexidine gluconate before and after using it to access the system. **D**
- 1.4.4.12 In general, administration sets in continuous use need not be replaced more frequently than at 72-hour intervals unless they become disconnected or a catheter-related infection is suspected or documented. **A**
- 1.4.4.13 Administration sets for blood and blood components should be changed every 12 hours, or according to the manufacturer's recommendations. **D**
- 1.4.4.14 Administration sets used for total parenteral nutrition infusions should generally be changed every 24 hours. If the solution contains only glucose and amino acids, administration sets in continuous use do not need to be replaced more frequently than every 72 hours. **D**

## 2 Notes on the scope of the guidance

All NICE guidelines are developed in accordance with a scope document that defines what the guideline will and will not cover. The scope of this guideline was established at the start of the development of the guideline, following a period of consultation; it is available from: [www.nice.org.uk/article.asp?a=24523](http://www.nice.org.uk/article.asp?a=24523)

This guideline aims to provide a standard set of measures for preventing healthcare-associated infection that can be followed by anyone giving or receiving care in primary or community care. It covers the care of patients of all ages who are receiving healthcare interventions in primary and community care, and is relevant to primary and community healthcare personnel who have direct contact with and make decisions concerning the care of patients.

The guideline includes advice on preventing infections associated with the use of long-term urinary catheters, enteral feeding systems and central venous catheters. It includes recommendations on preventing infection associated with the insertion of long-term urinary catheters. It does not include recommendations on measures to prevent infection associated with the insertion of central venous catheters or enteral feeding systems, because these activities are carried out in acute care. This guideline does not include advice on the diagnosis, treatment or management of specific infections.

Although this is an NHS guideline, the recommendations may also be relevant to people working in social services, secure settings and the voluntary sector.

## 3 Implementation in the NHS

### 3.1 In general

- 3.1.1 Local health communities should review their existing practice for the prevention of healthcare-associated infection in primary and community care against this guideline as they develop their Local Delivery Plans. The review should consider the resources required to implement the recommendations set out in Section 1, the people and processes involved, and the timeline over which full implementation is envisaged. It is in the interests of patients that the implementation timeline is as rapid as possible.
- 3.1.2 Relevant local clinical guidelines, care pathways and protocols should be reviewed in the light of this guidance and revised accordingly.
- 3.1.3 This guideline should be used in conjunction with relevant health and safety legislation.

### 3.2 Audit

- 3.2.1 Suggested audit criteria are listed in Appendix E. These may be used as the basis for local clinical audit, at the discretion of those in practice.

## 4 Research recommendations

The following research recommendations have been identified for this NICE guideline, not as the most important research recommendations, but as those that are most representative of the full range of recommendations. The Guideline Development Group's full set of research recommendations is detailed in the full guideline produced by Thames Valley University under the auspices of the National Collaborating Centre for Nursing and Supportive Care (see Section 5).

- 4.1 Qualitative and quantitative studies are needed to investigate current practice among community healthcare personnel. This research should include investigation into the availability of hand decontamination equipment, gloves and protective equipment in community and primary care settings, their use by different healthcare personnel, and compliance with current guidance.
- 4.2 With regard to urinary catheterisation, research is needed in a number of areas, including the following.
  - Epidemiological studies of the prevalence and incidence of bacteriuria/clinical urinary tract infection during long-term catheterisation in different populations and different care settings.
  - Randomised controlled trials of different approaches to urinary drainage, and of different urethral catheter materials.
  - Randomised controlled trials of strategies to reduce, prevent and manage encrustation and blockage.
  - Cohort studies to determine whether monitoring of urinary pH can be used to predict time to blockage.
  - Randomised controlled trials to establish the optimum time interval between changing equipment.
- 4.3 Research is needed to obtain more information about home enteral feeding practices. The following areas of research are recommended.
  - Epidemiological studies of the incidence of clinical infection associated with reconstituting enteral feeds for different populations and in different care settings.
  - Descriptive studies of enteral feeding practices in a range of primary care trusts.
  - A qualitative study of healthcare practitioners' understanding and use of risk assessment in practice.

- Randomised controlled trials to assess the effectiveness of 'hazard analysis and critical control point' (also known as HACCP, a system to identify potential hazards in food preparation) in reducing the incidence of infection related to enteral feeding.
- Randomised controlled trials of single-use, single-patient-use and reusable syringes.
- Randomised controlled trial comparing the use of cooled boiled water with sterile water for flushing enteral feeding tubes.

4.4 Central venous catheterisation is a well researched area, but the following investigations may inform future clinical practice.

- Studies of the effectiveness of subcutaneous low-molecular-weight heparins or low-dose warfarin to prevent catheter thrombus, colonisation and CRBSI.
- An investigation of the efficacy of antimicrobial impregnated central venous catheters and catheters with new forms of heparin bonding to provide sustained protection against CRBSI in patients with long-term central venous catheters in the community.

## 5 Full guideline

The National Institute for Clinical Excellence commissioned the development of this guidance from Thames Valley University under the auspices of the National Collaborating Centre for Nursing and Supportive Care. The Centre established a Guideline Development Group that reviewed the evidence and developed the recommendations. The full guideline, *Infection control: guidelines for preventing healthcare-associated infections in primary and community care*, is published by Thames Valley University, it is available on its website ([www.richardwellsresearch.com](http://www.richardwellsresearch.com)), the NICE website ([www.nice.org.uk](http://www.nice.org.uk)), and on the website of the National Electronic Library for Health ([www.nelh.nhs.uk](http://www.nelh.nhs.uk)).

The members of the Guideline Development Group are listed in Appendix B. Information about the independent Guidelines Advisory Committee is given in Appendix C.

The booklet *The guideline development process – information for the public and the NHS* has more information about the Institute's guideline development process. It is available from the Institute's website and copies can also be ordered by telephoning 0870 1555 455 (quote reference N0038).

## 6 Related NICE guidance

The Department of Health commissioned national evidence-based guidelines on the prevention of hospital-acquired infections. The supporting evidence has been updated to correspond with this guidance.

NICE is in the process of developing clinical guidelines on the following topics.

- Nutritional supplements: feeding methods, including nutritional supplements and enteral and parenteral feeding.
- Wound care management, including the prevention of skin breakdown.

The expected dates of issue of these guidelines have not yet been confirmed.

## 7 Review date

The process of reviewing the evidence is expected to begin 4 years after the date of issue of this guideline. Reviewing may begin earlier than 4 years if significant evidence that affects the guideline recommendations is identified sooner. The updated guideline will be available within 2 years of the start of the review process.

## Appendix A: Grading scheme

The grading scheme and hierarchy of evidence used in this guideline (see tables) is from Eccles and Mason (2001). A grading category has been added for recommendations directly based on health and safety legislation.

Recommendation grade	Evidence
A	Directly based on category I evidence
B	Directly based on: <ul style="list-style-type: none"><li>• category II evidence, <b>or</b></li><li>• extrapolated recommendation from category I evidence</li></ul>
C	Directly based on: <ul style="list-style-type: none"><li>• category III evidence, <b>or</b></li><li>• extrapolated recommendation from category I or II evidence</li></ul>
D	Directly based on: <ul style="list-style-type: none"><li>• category IV evidence, <b>or</b></li><li>• extrapolated recommendation from category I, II, or III evidence</li></ul>
Health and safety legislation (H&S)	Directly based on UK health and safety legislation

Evidence category	Source
Ia	Evidence from meta-analysis of randomised controlled trials
Ib	Evidence from at least one randomised controlled trial
IIa	Evidence from at least one controlled study without randomisation
IIb	Evidence from at least one other type of quasi-experimental study
III	Evidence from non-experimental descriptive studies, such as comparative studies, correlation studies and case-control studies
IV	Evidence from expert committee reports or opinions and/or clinical experience of respected authorities

Adapted from Eccles M, Mason J (2001) How to develop cost-conscious guidelines. *Health Technology Assessment* 5(16): 8

## Appendix B: The Guideline Development Group

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## Appendix C: The Guidelines Advisory Committee

The Guidelines Advisory Committee is an independent Committee established by NICE to validate the clinical guidelines developed by the National Collaborating Centres. The multidisciplinary Committee includes experts on guideline methodology, health professionals and people with experience of the issues affecting patients and carers. A full list of members of the Guidelines Advisory Committee can be found on the NICE website.

For each guideline, a number of Committee members oversee the development of the guideline and take responsibility for monitoring its quality. The Committee members who took on this role for this guideline were:

**Professor Martin Eccles** (Chairman of the Committee)  
Professor of Clinical Effectiveness  
Centre for Health Services Research  
University of Newcastle upon Tyne

**Miss Amanda Wilde**  
ABHI Representative

**Mrs Joyce Cormie**  
Lay Representative

**Mrs Judy Mead**  
Head of Clinical Effectiveness  
Chartered Society of Physiotherapy

**Dr Marcia Kelson**  
Director  
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London

## Appendix D: Prevention of healthcare-associated infections in primary and community care: understanding NICE guidance – information for patients, their carers and the public

The information in this appendix has been designed to support the production of your own information leaflets. You can download it from our website at [www.nice.org.uk](http://www.nice.org.uk) where it is available in English and Welsh. If you would like printed copies of the leaflets please ring the NHS Response Line on 0870 1555 455 and quote reference number N0219 for an English only version and N0220 for an English and Welsh version.

### About this information

This information describes the guidance that the National Institute for Clinical Excellence (called NICE for short) has given to the NHS on preventing infection in people receiving healthcare at home or in GP surgeries, health centres or clinics, or elsewhere in the community. It is based on a clinical guideline called *Infection control: prevention of healthcare-associated infections in primary and community care*, produced by NICE for doctors, nurses and others working in the NHS in England and Wales. The NICE guideline describes what procedures healthcare workers (such as doctors and nurses) should follow to minimise any risk of infection to their patients.

Although this booklet explains how you and your carer can help reduce the risk of infection, your doctor or nurse should follow exactly the same procedures described here. If you have any concerns about the precautions taken by your doctor or nurse please discuss this with them. A conscientious healthcare worker will not mind being asked, and if necessary reminded, to follow the advice in the guideline.

Although the information in this booklet has been written chiefly for patients and carers, it may also be useful for family members and for people with an interest in infection prevention or healthcare in general.

There is also a glossary at the back explaining some of the technical words used.

## Clinical guidelines

Clinical guidelines are about improving the care and treatment given by the health service. The recommendations in NICE guidelines are prepared by groups of health professionals, lay representatives with experience or knowledge of the condition or problem being discussed, and scientists. The groups look at the evidence available on the best way of treating or managing a condition or problem and make recommendations based on this evidence.

## What the recommendations cover

NICE clinical guidelines can look at different areas of diagnosis, treatment, care, self-help or a combination of these.

The recommendations in *Infection control: prevention of healthcare-associated infection in primary and community care* provide a set of measures to avoid infection that should be followed by anyone giving or receiving care at home, at a health centre or clinic, or elsewhere in the community. They cover:

- ways of avoiding infection, including hand washing, using gloves and aprons, using sharps safely, and educating patients and their carers about infection
- ways of avoiding and controlling infection for people who need a urinary catheter (see page 32), enteral feeding (see page 34) or a central venous catheter (see page 35).

This booklet does not describe specific infections or the diagnosis or treatment of infections. If you want to find out more about infections you should ask your community nurse, doctor or other healthcare worker.

## How guidelines are used in the NHS

In general, healthcare workers in the NHS are expected to follow NICE's clinical guidelines. But there will be times when the recommendations won't be suitable for someone because of his or her specific medical condition, general health, wishes or a combination of these. If you think that the treatment or care you receive does not match the treatment or care described here, you should discuss your concerns with your doctor or other healthcare worker.

## If you want to read other versions of this guideline

*Infection control: prevention of healthcare-associated infection in primary and community care*, a guide for professionals, and the full guideline (which contains all the details of the guideline recommendations and how they were developed) are both available from the NICE website ([www.nice.org.uk](http://www.nice.org.uk)).

## About infection control

Infections are caused by germs such as bacteria, fungi or viruses entering the body. They can be minor and stay in one area, like a boil, or they can spread throughout the body, like flu. Often, infections are easily dealt with, but sometimes they can cause serious problems. The recommendations on infection control in the NICE guideline are about preventing infections that are associated with healthcare – for example, ways of preventing germs being spread on the hands of a healthcare worker or a carer.

The advice below is for anyone giving or receiving care at home or in the community. This includes patients, their carers (this could include family members), community nurses, dietitians, and others involved in caring for people. There is additional advice for people who use a urinary catheter, have enteral feeding or have a central venous catheter. Before leaving hospital, you will be shown how to manage at home and the advice you'll be given will include important ways of reducing your risk of infection. Where applicable, you will be advised on the need for liquid soap, disinfectant handrub, towels and sharps containers and how to obtain supplies.

If you have questions about anything in this booklet, talk to your healthcare worker.

## About hand washing

Regular, careful hand washing is vital if you are looking after yourself or somebody else at home.

## When to wash your hands

- If your hands look dirty.
- Before and after any activity that could have dirtied your hands, even if they look clean, such as after going to the toilet and before and after preparing food.

- Before and after every activity or procedure involving contact with the patient, before contact with your body (if you are the patient), or with equipment.
- If you are caring for more than one person, wash your hands in between looking after each person.

## How to wash your hands

- Cover any cuts or grazes with a waterproof plaster.
- Keep your fingernails short, clean and free from nail polish.
- Take off your watch and any jewellery such as bracelets or rings (if you can).
- Wet your hands under luke-warm running water.
- If your hands look dirty, use a liquid soap or antimicrobial (anti-germ) solution and water.
  - Make sure the handwash you are using covers all of the surfaces of your hands. Rub your hands together vigorously for at least 10 to 15 seconds, remembering the tips of your fingers, your thumbs and the areas between the fingers.
  - Rinse your hands with warm water and dry them with good quality paper towels that are absorbent and soft.
- If your hands look clean, use an alcohol-based handrub, where supplied.
  - Make sure the solution used covers all the surfaces of your hands. Rub them together vigorously, remembering the tips of your fingers, your thumbs and the areas between the fingers.
  - Rub it in until it has evaporated and your hands are dry.
- Use a moisturising hand cream regularly to prevent dry hands. Tell your healthcare worker if a particular soap or product irritates your skin.

## About protective equipment

You may need to use protective equipment at home to stop infection passing between you and the person you are caring for.

### Gloves

You will be given supplies of special protective gloves if you need them. They act as an additional barrier, but you should still wash your hands before and after you use them. If you are sensitive to rubber, or experience a skin reaction using gloves, tell your healthcare worker.

Put on your gloves before having any contact with the inside of the body (including inside the mouth) or with a wound, or if you're carrying out an activity that might lead to contact with blood or body fluids or with sharp or dirty instruments.

Each pair of gloves should only be used once. Gloves should be changed between patients, and between different activities or procedures for the same patient.

Your healthcare worker should advise you on how to dispose of the gloves. After you've disposed of them, wash your hands (as described on page 30).

## Aprons

You should be given a supply of disposable plastic aprons if there is a risk of body fluids or blood splashing onto your clothes. Wear the apron for one procedure only. Your healthcare worker should advise you on how to dispose of the apron. After you've disposed of it, wash your hands (as described on page 30).

## Face masks and eye protection

Face masks and eye protection will be provided if there is a risk of fluids splashing into your face or eyes.

## About sharps

'Sharps' are anything that might cut, graze or prick you such as needles, lancets or sharp instruments.

## Important things about sharps

- Handle sharps as little as possible.
- Discard sharps immediately after use.
- Put used sharps in your special sharps container. Keep the container in a safe place, off the floor and out of the reach of children.
- Do not hand sharps from one person to another.
- Do not re-cap needles, break them, or take them apart before using them or disposing of them in a sharps container.
- Ask your community nurse or doctor about how to dispose of sharps containers. They should not be put in normal domestic waste.

## About urinary catheters

You may be given a catheter if you cannot pass water (urinate). There are several reasons why this could be the case – for example, because of an injury or operation, or because your bladder is not working properly.

A catheter is a hollow tube that drains urine from your bladder into a special drainage bag. You may have a catheter valve instead of a bag; this is opened at regular intervals to drain the urine from your bladder.

An indwelling catheter is one that's in place all the time. An intermittent catheter is inserted at regular intervals or when you feel the need to urinate. An intermittent catheter may be used if it is considered appropriate for your medical condition.

Usually, the catheter is inserted through the urethra (the tube where urine normally comes out). Sometimes a catheter is inserted into the bladder through a specially made hole in the side of the abdomen (this type of catheter is called a 'suprapubic catheter'). A small balloon keeps the catheter in place inside the bladder.

With practice, many people find it easy to manage a catheter at home. Before you leave hospital you will be shown how to look after your catheter and drainage system. You will be given some supplies and told how you will be able to get more supplies when you need them, and how to get support and help after you return home.

If you become able to pass urine without your catheter, it should be removed by your healthcare worker as soon as possible.

## Avoiding infection – what you can do

It is very common to get an infection when you are using a urinary catheter. Bacteria get into the urethra from the drainage bag, or at the point where the tube enters your body.

Following the advice below will help to reduce and control infection.

### Handling the catheter

- Wash your hands (as described on page 30) before and after handling your catheter or drainage bag.
- Clean the place where the catheter enters your body daily with soap and water and dry it.

## Preventing catheter blockages

- Your doctor or nurse should make sure that there are procedures in place that will help to reduce the risk of having problems with your catheter, such as blockages in the tube.

## Intermittent catheters

- When inserting an intermittent catheter, use the lubricant you have been given (some intermittent catheters are supplied ready lubricated). The lubricant makes it easier to put the catheter in place and helps avoid infection. If you are using a sachet of lubricant, then this should be used once then thrown away. Containers or tubes of lubricant can be used more than once, but should only be used by one patient.
- Wash your reusable intermittent catheter with water and store it, dry, according to the manufacturer's instructions (your healthcare worker should tell you how to do this).

## Managing the drainage system

- Keep your drainage bag or catheter valve connected to the catheter at all times, except when changing the bag. This 'closed system' reduces your risk of infection.
- At night, add on your special night drainage bag without breaking the closed system.
- Keep your drainage bag lower than your bladder to allow urine to drain.
- Don't let the bag touch the floor when you are in bed or resting, because this can increase the infection risk. Use the stand provided.
- Empty your drainage bag regularly – for example, when it is full, you feel uncomfortable, or when it pulls on the catheter.
- Your healthcare worker should advise you about how often the drainage bag should be changed.
- Ask your community nurse to advise you about the signs and symptoms of infection, and what to do if the catheter does not appear to be draining.

## About enteral feeding

Enteral feeding, sometimes called enteral nutrition or artificial feeding, is prescribed for adults and children who cannot eat normally. Liquid feed is given through a fine tube that enters the body by one of three ways:

- through the nose into the stomach – naso-gastric feeding
- directly into the stomach – gastrostomy or PEG feeding
- directly into the small bowel – jejunostomy feeding.

Some people who have serious problems with their digestive system may need to receive feed through a tube for a long time or even for life. Many can manage their own nutrition therapy at home.

Before you leave hospital, you and your carer/s will have thorough training until you feel confident about managing at home. You will get support and help from healthcare workers once you get home and for as long as you need tube feeding.

## Avoiding infection – what you can do

Avoiding infection is very important for people who are on enteral feeding because infections such as gastroenteritis (stomach upset) can occur. You should follow the detailed instructions and procedures you have been shown. Careful and regular hand washing is very important (see pages 29–30).

Whenever possible, you should be given pre-packaged feed that is ready to use and does not need mixing or diluting. If you or your carer have to prepare the feed, it is important not to touch it directly with your hands, and to use a clean working area and clean equipment when preparing it. Cooled boiled water or fresh sterile water (not bottled mineral or table water) should be used to mix the feed. It may be prepared up to 24 hours in advance and kept in the fridge, if the manufacturer's instructions say it is alright to do so.

## Important points about enteral feeding

- Store the feed according to the manufacturer's instructions.
- Wash your hands thoroughly (see page 30) before preparing the feed or touching the equipment.
- Handle the equipment as little as possible.
- Wash the place where the tube enters the body (insertion site or stoma) with water every day and dry it well.

- To prevent blockage, the enteral feeding tube should be flushed with fresh tap water before and after feeding or administering medications. Enteral feeding tubes for people whose immune systems are not functioning properly (who are 'immunosuppressed') should be flushed with either cooled freshly boiled water or sterile water (not bottled mineral or table water) from a freshly opened container.
- Handle the feeding system as little as possible when connecting it to the tube.
- A pack of pre-packaged feed can be used for up to 24 hours in a feeding session. Feeds that you have prepared yourself should not be used for longer than 4 hours in a feeding session.
- After each session dispose of the bags and administration sets as household rubbish.
- Ask the healthcare worker who looks after the enteral feeding aspect of your care about signs and symptoms of infection. Find out what to do if you think you have an infection.

## About central venous catheters

A central venous catheter (CVC) is a tube that is put into a major vein, normally in the chest or neck. (A vein is a blood vessel that carries blood to the heart.)

There are many reasons why people may have a CVC. They may need blood products, liquid drugs, food or other fluids delivered slowly into their bloodstream. Some people may need to use a CVC for a long time or for life. With help and support, many patients can manage their CVC at home.

## Avoiding infection – what you can do

Because a CVC is put into a major vein, serious infections can happen very quickly. People with CVCs, their carers and healthcare workers need to follow these strict rules to prevent infection.

Before you leave hospital, you and your carer/s will have in-depth training in managing your CVC safely at home. You will be given ongoing support and help after you return home so that you continue to feel confident about following these instructions.

Your healthcare workers will also have had special training in avoiding infection.

## Important points about central venous catheters

- Make sure you follow the instructions given by your healthcare worker at all times.
- Wash your hands carefully with soap and water or a handrub solution (as described on page 30) before touching your CVC.
- Wear sterile gloves for touching the insertion site or changing your dressing.
- Change the dressing on your insertion site every 7 days or sooner if necessary, for example if it becomes wet, dirty or loose. Use the cleaning solution and dressings provided.
- Do not put any cream, ointment or solution on the insertion site, unless it has been prescribed for you.
- Clean your catheter and its entry points as instructed, before and after you use it, with the solutions provided.
- Change your administration set as you have been instructed.

**Contact your healthcare worker or hospital's emergency department if you think you have an infection (common signs are swelling at the insertion site, feeling unwell and having a temperature), or if anything looks or feels different. You should be given an emergency number as well as one to call during office hours. It is important to act quickly.**

## Further information

The NICE guideline (a guide for professionals), *Infection control: prevention of healthcare-associated infections in primary and community care*, and the full guideline (which contains all the details of the guideline recommendations and how they were developed) are both available from the NICE website, [www.nice.org.uk](http://www.nice.org.uk). Copies of *Infection control: prevention of healthcare-associated infections in primary and community care* are also available from the NHS Response Line; telephone 0870 1555 455 and give the reference number N0218.

NHS Direct has information on the issues covered in this booklet. See the NHS Direct website, [www.nhsdirect.nhs.uk](http://www.nhsdirect.nhs.uk), or phone NHS Direct on 08 45 46 47.

There is more about NICE and the way that the NICE guidelines are developed on the NICE website, [www.nice.org.uk](http://www.nice.org.uk). You can download the booklet *The guideline development process – information for the public and the NHS* from the website, or you can order a copy by phoning the NHS Response Line on 0870 1555 455 and quoting reference number N0038.

## Glossary

**Administration set:** All the tubing necessary to deliver fluids or feeds into a person.

**Alcohol-based handrub:** A liquid that you use to rub over your hands to kill germs that can cause infection, and which dries quickly.

**Bacteria:** Microscopic germs that can cause infection.

**Bladder:** A hollow, muscular organ in the body that holds urine.

**Catheter:** A thin tube used to put liquids into the body or drain them away.

**Catheter valve:** A valve connected to the catheter outlet that allows urine to be kept in the bladder until the valve is opened. The valve must be opened to drain urine away at regular intervals, so that the bladder doesn't get too full.

**Central venous catheter (CVC):** A tube that is put into a major vein, normally in the chest or neck. (A vein is a blood vessel that carries blood to the heart.)

**Enteral feeding:** Giving liquid food through a tube directly into the gastrointestinal tract (gut).

**Dietitian (or dietician):** A healthcare professional who specialises in diet and nutrition.

**Fungi:** Microscopic germs (different from bacteria or viruses) that can cause infection, especially in people who are weak and debilitated.

**Handrub:** See 'Alcohol based handrub'.

**Indwelling urethral/urinary catheter:** A catheter that is inserted into the bladder through the urethra and remains in place for a period of time.

**Intermittent (urinary) catheter:** A catheter you can put in and remove as needed.

**Lancet:** A small pointed two-edged blade (usually used to obtain blood samples).

**Long-term (urinary) catheter:** A catheter left in place for 28 days or more.

**Ready-to-use feeds:** Feeds prepared and supplied by the manufacturer, which only require attaching to the administration set or feeding tube.

**Sharps:** Any sharp instrument that could cause injury. This includes scalpels, needles and lancets.

**Single-use:** For use on one occasion only.

**Sterile:** Germ free, for example sterile gloves, sterile catheter.

**Suprapubic catheter:** A catheter that is inserted into the bladder through a hole made in the abdomen.

**Urethra:** The natural tube in the body that carries urine from the bladder to the outside.

**Urinary catheter:** A thin flexible tube used to drain urine from the bladder.

**Urinary night drainage bag:** A bag used for overnight urine collection.

**Viruses:** Germs even smaller than bacteria that can cause infection (they are responsible for many common infections, such as colds, chickenpox and measles).

## Appendix E: Technical detail on the criteria for audit of prevention and control of healthcare-associated infection in primary and community care

### Possible objectives for an audit

Audits could be carried out to ensure that:

- healthcare personnel have access to appropriate equipment and training, and carry out infection control measures competently and appropriately
- patients and carers receive appropriate information and training to carry out infection control measures
- patients' notes have complete and appropriate records with regard to long-term urinary catheterisation, home enteral tube feeding or central venous catheter (CVC).

### People that could be included in an audit

An audit could include:

- healthcare personnel in all or selected primary and community settings
- patients, and where appropriate carers, in all or selected primary and community settings.

### Measures that could be used as a basis for an audit

See the tables below, which suggest measures that could be used as a basis for audit of standard principles of prevention and control of healthcare-associated infection, and for audit of prevention and control of potential infection associated with the use of long-term urinary catheters, enteral feeding systems or CVCs.

## Standard principles

Criterion	Standard	Exception	Data collection
1. All healthcare personnel have an appropriate supply of hand decontamination equipment, gloves, aprons and protective clothing in their care setting	100%	None	Self-audit.
2. All healthcare personnel involved in care are trained and updated	100%	None	Review of staff education records.
3. All patients and carers are aware of the need to: <ul style="list-style-type: none"> <li>a) decontaminate their hands</li> <li>b) use protective clothing</li> <li>c) dispose of sharps safely</li> </ul>	100%	None	Direct questioning of patients and carers.

## Care of patients with urinary catheters

Criterion	Standard	Exception	Data collection
1. All patients have a patient record that documents the type of catheter, catheter insertion, changes and care	100%	None	Review of patient notes.
2. Healthcare personnel receive training and updates in the management of urinary catheters	100%	None	Review of staff education records.
3. All healthcare personnel decontaminate their hands and wear a new pair of non-sterile gloves before manipulating the system	100%	None	Observation/self-audit.
4. All long-term catheters are connected to a sterile closed drainage system or valve	100%	None	Observation.
5. All patients and carers are aware of the need to a) decontaminate their hands b) keep the system closed	100%	None	Direct questioning of patients and carers.

## Care during enteral feeding

Criterion	Standard	Exception	Definition of terms
1. All healthcare personnel involved in the care of people receiving enteral feeding are trained and updated	100%	None	Review of staff education records.
2. All healthcare personnel decontaminate their hands before starting feed preparation and manipulating the system	100%	None	Observation/self-audit, incidence of home enteral tube feeding (HETF)-related infection.
3. Ready-to-hang foods are used wherever possible, and hung for no longer than the maximum recommended time	100%	None	Observation/patient records, incidence of HETF-related infection.
4. All patients and carers are aware of the need to: <ul style="list-style-type: none"> <li>a) decontaminate their hands</li> <li>b) keep the system closed</li> </ul>	100%	None	Direct questioning of patients and carers.

## Care of patients with central venous catheters (CVCs)

Criterion	Standard	Exception	Definition of terms
1. All healthcare personnel involved in care of people with CVCs receive training and updates in the management of central venous catheters	100%	None	Review of staff education records/direct observation/self-audit.
2. The need for a CVC is regularly assessed and the catheter is removed when it is no longer essential for medical management	100%	None	Review of patient notes.
3. All patients and carers are aware of the need to: <ul style="list-style-type: none"> <li>a) decontaminate their hands when manipulating the system</li> <li>b) use aseptic techniques when accessing or modifying the system</li> </ul>	100%	None	Direct questioning of patients and carers.

## Calculation of compliance

Compliance (%) with each measure described in the table above is calculated as follows.

$$\frac{\text{Number of patients whose care is consistent with the **criteria** *plus* number of patients who meet any **exception** listed}{\text{Number of patients to whom the **measure** applies}} \times 100$$

Clinicians should review the findings of measurement, identify whether practice can be improved, agree on a plan to achieve any desired improvement and repeat the measurement of actual practice to confirm that the desired improvement is being achieved.

## Appendix F: Glossary

**Alcohol handrub:** A liquid rubbed over the hands to decontaminate them, which dries quickly.

**Aseptic procedure (technique):** Method used to prevent microbial contamination of the catheter insertion site. This means that sterile equipment is used and that healthcare personnel wear sterile gloves or employ a no-touch technique during this procedure.

**Bacteraemia:** Bacteria in the bloodstream.

**Bladder instillation:** Introducing a therapeutic liquid into the bladder and leaving it there for a variable 'holding' time to dissolve particulates/encrustation, alter pH, or suppress bacterial growth.

**Bladder washout:** The introduction into the bladder of a sterile fluid that is allowed to drain more or less immediately, for the purpose of diluting the bladder contents/unblocking an obstruction to restore free catheter drainage.

**Catheter-associated urinary tract Infection:** The occurrence of local or distant clinical symptoms or signs attributable to bacteria present either within the urinary tract, or in the bloodstream (with the urinary tract as the source).

Infection may arise either at the time of, or immediately following catheter insertion; or subsequently, because the colonising flora within the catheterised urinary tract become invasive (this may occur spontaneously or follow catheter manipulation).

NB. The presence of pus cells in the urine (pyuria) of a patient with an indwelling catheter does not, by itself, signify infection.

**Catheter valve:** A valve connected to the catheter outlet allowing the bladder to be used to store urine. Urine is drained by opening the valve at regular intervals.

**Clean procedure (technique):** Hands are decontaminated before and after the procedure.

**CRBSI (catheter-related bloodstream Infection):** Bacteraemia/fungaemia in a patient with an intravascular catheter with at least one positive blood culture obtained from a peripheral vein, clinical manifestations of infections (that is, fever, chills, and/or hypotension), and no apparent source for the BSI except the catheter. One of the following should be present: a positive semiquantitative (> 15 CFU/catheter segment) or quantitative (> 10<sup>3</sup> CFU/catheter segment) culture whereby the same organism

(species and antibiogram) is isolated from the catheter segment and peripheral blood; simultaneous quantitative blood cultures with a  $\geq 5:1$  ratio of central venous catheter versus peripheral; differential period of central venous catheter culture versus peripheral blood culture positivity of  $> 2$  hours.

**Enteral feeding:** Feeding via a tube. This can include any method of providing nutrition via the gastrointestinal tract.

**Expert opinion:** Opinion derived from seminal works and appraised national and international guidelines.

**HACCP (Hazard analysis and critical control point):** A system to identify potential hazards in food preparation.

**Hand decontamination:** Decontamination refers to the process for the physical removal of blood, body fluids, and transient microorganisms from the hands – that is, handwashing and/or the destruction of microorganisms – hand antisepsis.

**Handrub:** See 'Alcohol handrub'.

**Indwelling urethral/urinary catheter:** A catheter that is inserted into the bladder via the urethra and remains in place for a period of time.

**Long-term (urinary) catheter:** A catheter left in place for 28 days or more.

**Link system:** An extension attached to the drainage outlet of the day bag and connected to a larger capacity night drainage bag.

**Needle safety devices:** Any device designed to reduce the incidence of sharps injuries. This may include needleless syringes, needle protection devices and needle free devices.

**Night drainage bag:** Bags used for overnight urine collection.

**No-touch technique:** Avoiding direct contact of the hand with equipment.

**Ready-to-use feeds:** Feeds prepared and supplied by the manufacturer that only require attaching to the administration set or feeding tube.

**Risk assessment:** The weighing up of factors associated with a procedure to ascertain the level of protection required.

**Self-catheterisation:** Urinary catheterisation undertaken by the patient.

**Sharps:** Any sharp instrument that may cause injury. This includes scalpels, needles and lancets.

**Single patient use:** Refers to items that can be used several times but are reserved for use by one patient only.

**Single-use:** For use on one occasion only.

**Sterile:** Free from any living microorganisms, for example sterile gloves, sterile catheter.

**Suprapubic catheter/catheterisation:** Suprapubic catheterisation creates a tunnel from the abdominal wall to the bladder. Urine can then be drained directly from the bladder into a bag through this tunnel.

**Urethra:** The tube that conveys urine from the bladder to the external urethral orifice.

**Washout(s):** See 'Bladder washout'.