

Healthcare Associated Infection
and Cleanliness Division

Ambulance guidelines

Reducing infection through effective
practice in the pre-hospital environment



DH INFORMATION READER BOX

Policy HR/Workforce Management Planning Clinical	Estates Performance IM & T Finance Partnership working
Document purpose	Best Practice Guidance
Gateway reference	10003
Title	Reducing infection through effective practice in the pre-hospital environment
Author	HCAI and Cleanliness Division
Publication date	18 Jun 2008
Target audience	Pre-hospital staff, ambulance trust staff
Circulation list	
Description	Feedback can be submitted via the Programme's website www.clean-safe-care.nhs.uk
Cross reference	N/A
Superseded documents	N/A
Action required	N/A
Timing	N/A
Contact details	Janice Stevens HCAI and Cleanliness Division Department of Health Room 210a, 80 London Rd SE1 6LH 020 7972 6575 www.clean-safe-care.nhs.uk
For recipient's use	

Contents

• Introduction	4
• Hand hygiene	5
• Personal protective equipment	6
– Gloves	6
– Aprons	7
– Sleeve protectors	7
– Shoe protectors and protective suit	8
• Aseptic technique	8
– Intravenous cannulation	8
– Urinary catheter insertion and catheter care	9
– Wounds – suturing and gluing	10
– Airway maintenance	10
• Environmental cleanliness	11
– Ambulance stretcher beds	11

Introduction

Healthcare associated infections (HCAs) impact on the high quality of care we all strive to provide for patients. Infection is a significant cause of harm and can result in patient suffering, unnecessary pain, anxiety, increased hospital stays, or even death.

HCAs are infections acquired in hospitals or as a result of healthcare interventions. They are caused by a wide variety of micro-organisms, including meticillin resistant *Staphylococcus aureus* (MRSA) and *Clostridium difficile*. HCAs are commonly spread by the contaminated hands of healthcare workers, equipment and medical devices.

Many HCAs are avoidable and everyone involved in patient care can contribute to reducing the burden of infection.

Implementing the *Code of Practice for the Prevention and Control of Healthcare Associated Infections* (Health Act 2006) is a legal requirement for NHS care providers. The Code of Practice states: *'Effective prevention and control of HCAs has to be embedded into everyday practice and applied consistently by everyone.'*

Every clinical practitioner has the potential to significantly reduce the risk of infection to their patients by ensuring that they consistently comply with evidence-based practice and guidelines every time they undertake a clinical procedure.

In the pre-hospital environment, there are three key high-risk areas for the transfer of infection:

- direct transfer, through the hands of clinical practitioners;
- invasive devices, particularly those used for intravenous cannulation; and
- the emergency environment.

This guide explains how the risk of infection can be reduced by adhering to good practice in:

- hand hygiene;
- the use of personal protective equipment;
- aseptic technique; and
- working in the pre-hospital environment.

Hand hygiene

Hand hygiene is widely recognised as the single most important activity for minimising the risk of infection. If the correct techniques are not used to clean hands, areas can be missed, which will leave them contaminated and will risk spreading infection.

Wherever possible, **soap and water** should be used to clean hands.

If soap and water are not available, hands can be cleaned with detergent wipes first, followed by thorough drying either with paper towels or by air drying, and then alcohol gel can be used.

Alcohol gel should only be used to decontaminate visibly clean hands, as it can be ineffective if hands are soiled.

Alcohol gel should be used between different care activities for one patient, as well as between caring for different patients at a scene.

Before a shift begins all wrist and hand jewellery should be removed.

Healthcare staff are being encouraged to adopt a 'bare below the elbows' clothing policy for all staff. This aims to prevent the spread of infection from contaminated sleeves and to aid effective hand-hygiene procedures. This includes ambulance and pre-hospital staff, who are often at risk of contamination from the duties they carry out.

When ambulance staff need to wear long-sleeved clothing, such as high-visibility jackets, the following steps should be taken:

- Be aware of any possible contaminants
- Roll up or pull back sleeves
- Always remove long-sleeved coats and watches and/or roll up shirt sleeves to wash hands effectively
- Wear sleeve protectors when necessary.

Local uniform policy should contain clear instructions on personal hygiene regarding fingernails, hand and skin care and jewellery.

Hands should be washed in accordance with hand-washing guidance available on the Clean, Safe Care web site at **www.clean-safe-care.nhs.uk**

Personal protective equipment

Personal protective equipment (PPE) is used to protect uniforms from contaminants and to prevent any spread of infection to patients, the wearer, other staff or members of the public. The selection of PPE must be based on an assessment of the risk of transmission of microorganisms to the patient or to the healthcare workers, and the risk of contamination of the healthcare workers' clothing and skin by blood or body fluids.

It includes:

- gloves – sterile and non-sterile;
- aprons;
- sleeve protectors;
- shoe protectors; and
- protective suits.

This list is not exhaustive and other items recommended by the Health Protection Agency and Health & Safety Executive should be added for specific diseases.

All vehicles used to respond to patients should carry a stock of PPE for use by staff.

All PPE should be disposed of as **clinical waste**.

The following sections set out advice for the use of each of these items of PPE.

Gloves

Gloves should only be worn:

- if there is a risk of contact with blood and/or body fluids;
- when sharp or contaminated instruments are being handled; and/or
- if there is likely to be contact with non-intact skin or mucous membranes during general care or an invasive procedure.

Gloves can also be worn to protect the wearer's hands from organic contamination, but they should be changed for clean gloves before any invasive technique is performed on a patient.

Gloves should not be worn unnecessarily; there should be an assessment of the task to be carried out and of the risks to both the patient and the healthcare worker before the decision is made to wear gloves.

Gloves should also:

- only be put on immediately before patient contact;
- be changed between each patient task;
- be changed between caring for different patients;
- be changed as soon as they are contaminated; and
- be discarded as **clinical waste**.

Gloves must **not** be worn:

- when driving to and from a scene; or
- for longer than necessary.

Hand hygiene rules should be adhered to **before** putting on gloves and **after** removing them – **washing with soap and water whenever possible, or using detergent wipes and alcohol gel if no washing facilities are available.**

All gloves used should be latex-free (because of possible allergies to latex). Non-sterile gloves are suitable for the majority of procedures, although a supply of sterile gloves is recommended for certain invasive procedures, for example catheterisation, suturing and gluing.

Aprons

Aprons should be worn:

- if there is a risk of contamination of the wearer's uniform from blood or body fluids;
- when carrying out any cleaning procedure that may cause contamination of the uniform; and
- when transporting known infectious patients.

Aprons should be disposed of:

- after a single use;
- as **clinical waste**;
- by unfastening or breaking ties;
- by pulling apron away from the neck and shoulders touching the inside of the apron only;
- by turning the apron inside out, folding or pulling into a bundle and discarding.

Sleeve protectors

Cross-contamination can occur when healthcare staff wear the same long-sleeved clothing to lift numerous patients. As washing clothing between lifts is not normally possible, sleeve protectors can be used. The use of sleeve protectors should not lead to long-sleeved clothing not being washed regularly.

Sleeve protectors can be worn to protect the wearer's uniform from the wrist to the elbow, for example when lifting a patient where there is a risk of contamination from body fluids or skin cells.

Sleeve protectors:

- are for single patient use;
- can be worn over the top of gloves; and
- should be disposed of as **clinical waste**.

Remember: arms can be cleaned or washed between patients – sleeves cannot.

Shoe protectors and protective suits

These should be worn if the use of aprons, gloves and sleeve protectors is not enough to protect the member of staff or their uniform from contamination.

Aseptic technique

Asepsis is defined as the absence of pathogenic organisms. Aseptic technique is used to describe clinical procedures that have been developed to prevent the contamination of wounds and other susceptible body sites by using sterile equipment and fluids during invasive medical procedures and by avoiding contamination of the equipment by adopting a non-touch technique.

Aseptic technique keeps procedures as free from organisms as possible.

The principles of aseptic technique are:

- keeping the exposure of susceptible sites to a minimum;
- ensuring appropriate hand decontamination prior to the procedure;
- using gloves (sterile or non-sterile, depending on the nature of the susceptible site);
- ensuring that all fluids and materials used are sterile;
- checking that all packs used are sterile and show no evidence of damage;
- ensuring that contaminated and non-sterile items are not placed in the sterile field;
- not reusing single-use items; and
- reducing staff and/or bystander activity (wherever possible) in the immediate vicinity of the area in which the procedure is to be performed.

The principles of aseptic 'no-touch' technique play a vital role in preventing the transmission of infection in any environment. It is the responsibility of each staff member to understand these principles and to incorporate them into everyday practice.

If aseptic technique cannot be applied, for example because of the nature of the emergency, it is suggested that the receiving hospital staff are informed at patient handover and that this is documented on a Patient Report Form.

Intravenous cannulation

The circumstances in which an intravenous cannula should be used are set out in the Institute of Health and Care Development (IHCD) training manual, that states only patients who need immediate treatment with drugs or fluid should be cannulated before arrival at a hospital site.

The member of staff should insert the cannula aseptically whenever it is physically possible to do so.

Good practice from *Saving Lives* High Impact Intervention No. 2 on peripheral intravenous cannula care recommends:

1. Apply the tourniquet (single use and disposable).

2. Palpate the vein.
3. Decontaminate your hands.
4. Make a sterile field – for example using a sterile cannula dressing pack.
5. Clean the site for venepuncture using 2% chlorhexidine gluconate in 70% isopropyl alcohol – **do not re-palpate the vein.**
6. Leave skin to dry for 30 seconds.
7. Choose a cannula, open the pack and place the cannula aseptically in the sterile field.
8. Decontaminate your hands and don gloves.
9. Insert the cannula according to IHCD guidelines, ensuring that the insertion site is not touched. If insertion attempt is not successful, the same cannula should not be used again.
10. Use a sterile, semi-permeable, transparent dressing to secure the cannula.
11. Record the date and time of insertion on an 'ambulance' label.
12. Place the label on the dressing at the furthest point from the insertion site.
13. Dispose of any items used in the appropriate waste receptacles.
14. Decontaminate hands.
15. Record the date and time of insertion on a Patient Report Form.

If any of the above steps cannot be performed due to circumstances, for example life-threatening or environmental conditions, the inserted device must be classified as EMERGENCY INSERTED intravenous cannula, and must be recorded on a Patient Report Form and handed over to the hospital staff receiving the patient, so that the cannula can be replaced aseptically as soon as it is possible to do so – this should be within 24 hours.

Always ensure that the giving set and any syringes used for administering drugs through the cannula are handled aseptically. For certain procedures, for example administering diazepam slowly, titrated to response, or atropine for symptomatic bradycardia (following Joint Royal Colleges Ambulance Liaison Committee guidelines), retain the sterile field to hold the syringe(s) between doses.

Urinary catheter insertion and catheter care

Sterile packs, sterile gloves and aprons should be available for use by all staff trained to insert catheters.

Aseptic technique should be applied throughout the procedure.

To ensure that hand hygiene is maintained, liquid soap and paper towels need to be carried by staff for use in patient homes.

For more information on catheter insertion please visit the Clean, Safe Care web site and look at the High Impact Interventions page at www.clean-safe-care.nhs.uk

All staff need to be aware of the risk of infection for the patient if catheter bags are not cared for correctly when transporting patients.

Urinary catheter drainage bags:

- must not be placed on the floor; and
- must be kept below the bladder at all times to prevent backflow.

Wounds – suturing and gluing

Sterile packs, sterile gloves and aprons should be available for all staff qualified in suturing and gluing.

Aseptic technique must be applied throughout these procedures.

Hand hygiene must be maintained. If running water is not available, detergent wipes must be used, then alcohol gel, before putting on gloves and after removing them.

Airway maintenance

Equipment used for airway maintenance – for example endotracheal tubes and laryngeal masks – should remain in sterile packaging until the point of use.

These items should be removed from the packaging and inserted immediately. They must not come into contact with other items before use.

Environmental cleanliness

Environmental cleanliness is essential, not only to aid infection prevention but also for patient confidence and perceptions of safety.

The exterior of vehicles should be kept clean, for the health and safety of staff and patients and also of other road users. A clean vehicle will help staff keep their hands clean when opening and shutting doors.

Written local policies should be available for the cleaning, decontamination, disinfection and sterilisation of all equipment and vehicles.

Ambulance interiors should be thoroughly cleaned (including inside cupboards, walls and equipment), as specified in the National Patient Safety Agency's cleaning specification.

All equipment used for patient treatment – for example monitors, carry chairs, spinal boards, scoop stretchers and all other items used for the movement of patients – should be cleaned using detergent wipes or soap and water then either air-dried or wiped with clean paper towels after every patient use.

Extra attention must be given to items soiled with blood and/or body fluids; these should also be wiped with chlorine-based fluid to decontaminate them after cleaning with detergent.

Extra attention to cleaning is required immediately after the transport of any patient with diarrhoea, as the infection status of the patient may not be known. The vehicle interior, including the walls and floors and all items used to treat the patient, must first be cleaned with soap and water and then with chlorine-based fluid, to ensure that any infected matter is removed – as, for example, *Clostridium difficile* spores are only removed by thorough cleaning and chlorine disinfection.

Ambulance stretcher beds

- **All** items of linen must be changed after every patient, and the linen disposed of according to local protocols.
- The stretcher must be wiped over with detergent wipes or soapy water and a clean cloth then air-dried or wiped dry with clean paper towels after every patient use.
- If the stretcher has been soiled with blood or body fluids, it should also be wiped with chlorine-based fluid to decontaminate it after it has been cleaned with detergent.
- Pillows should have a plastic cover, which can be wiped with a detergent wipe before a clean pillowcase is fitted.

Under no circumstances should linen (pillowcases, sheets or blankets) be used for more than **one** patient.

References

1. EPIC 2 Guidelines
2. Ambulance Service Paramedic Training Manual IHCD revised 2007
3. JRCALC UK Ambulance Service Clinical Practice Guidelines 2006
4. Ambulance Service basic training IHCD 3rd edition 2003 updated June 2007
5. Saving Lives Department of Health 2007
6. Essential Steps Department of Health 2007
7. CNA 2003 Asepsis: Preventing Healthcare associated infection
8. NPSA cleanyourhands 2007
9. DH Uniform and Workwear policy

Acknowledgements

The development of this guidance has been a collaborative process involving many people and organisations.

Thank you to everyone who has contributed, especially the twelve ambulance trusts and stakeholder bodies, who shared their experience and knowledge. Special thanks to Diane Hadlington, Gillian Gale and Carole Fry from the Department of Health for their specialist input.



© Crown copyright 2008

288259 1p 0.5k June 08 (Richard Edward)

Produced by COI for the Department of Health

www.dh.gov.uk/publications