York Teaching Hospital NHS
NHS Foundation Trust

Principles of Asepsis

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Target audience:	All clinical staff
Relevant Regulations and Standards	

Executive Summary

This policy relates to the aseptic principles and practice that must be carried out when performing clinical procedures.

Version History Log

Version	Date Approved	Version Author	Status & location	Details of significant changes
2		L. Horton-Fawkes	Infection Prevention Nurse York Hospital	Addition of appendix referencing skin prep. Change of format.

Contents

1 Introduction & Scope

The Health Act (2008) incorporates a number of Clinical Care Protocols to which NHS bodies must adhere, in relation to preventing and controlling the development of Health Care Associated Infections (HCAI's) and states the following:

- Clinical procedures must be carried out in a manner that maintains and promotes the principles of asepsis.
- Education, training and assessment in Aseptic Technique must be provided to all persons undertaking such procedures.
- The technique must be standardised across the organisation.
- Audit must be undertaken to monitor compliance with Aseptic Technique (as part of HII)

This policy applies to all healthcare workers working within the organisation, including medical staff, nurses, allied health professionals and students, who carry out aseptic procedures. This policy is primarily for ward and clinic based procedures and does not cover those which are carried out in operating theatres, or pharmacy departments.

2 Definitions

Asepsis - is the absence of infectious organisms such as bacteria, fungi, viruses, or other microorganisms which may cause disease

Aseptic techniques – are those aimed at minimising infection, ensuring that only uncontaminated objects/fluids make contact with sterile/susceptible sites.

Antisepsis – is the removal of transient microorganisms from the skin by the use of chemical solutions, for disinfection

Aseptic non-touch technique (ANTT) – the only part of sterile equipment that may be handled, is that which will **not** be exposed to the susceptible site.

Key Part – A key part is the sterile part of equipment that comes into direct contact with other key/sterile parts i.e. exposed lumens of catheters, intravenous (I.V.) line connections, needles, syringe tips etc.

Risk Assessment – the method used to quantify the risk to health and safety

3 Policy Statement

An aseptic technique should be implemented during any invasive procedure that bypasses the body's natural defences, e.g. the skin and mucous membranes, or when handling equipment such as, intravascular devices.

Lapses in aseptic techniques have been implicated in outbreaks of infection (Manning *et al.* 2001). It is essential when aseptic techniques are used as a method of preventing infection that these procedures are **evidence based** and are **carried out correctly**.

3.1 Aims of aseptic technique

- To prevent the introduction of potentially pathogenic organisms into susceptible sites such as, sterile body cavities (bladder) or wounds
- To prevent cross transmission of potentially pathogenic microorganisms between the member of staff and the patient

4 Equality Impact Assessment

The Trust statement on Equality is available in the Policy for Development and Management of Policies at Section 3.3.4.

A copy of the Equality Impact Assessment for this policy is at appendix iv).

5 Accountability

Corporate accountabilities are detailed in the **Policy for Development and Management of Policies** at section 5.

All healthcare professionals and volunteers are responsible and accountable to the Chief Executive for the correct implementation of this policy.

Professional staff are accountable according to their professional code of conduct. Medical staff are professionally accountable through the General Medical Council, and nurses are professionally accountable to the Nursing and Midwifery Council.

6 Consultation, Assurance and Approval Process

Consultation, assurance and approval process is detailed in section 6 of the **Policy for the Development and Management of Policies.**

The Stakeholder is the Hospital Infection Prevention Committee.

7 Review and Revision Arrangements

The date of review is given on the front coversheet.

Persons or group responsible for review is the Hospital Infection Prevention Committee

The Compliance Unit will notify the author of the policy of the need for its review six months before the date of expiry.

On reviewing this policy, all stakeholders identified in section 6 will be consulted as per the Trust's Stakeholder policy. Subsequent changes to this policy will be detailed on the version control sheet at the front of the policy and a new version number will be applied.

Subsequent reviews of this policy will continue to require the approval of the appropriate committee as determined by the **Policy for Development and Management of Policies.**

8 Dissemination and Implementation

8.1 Dissemination

Once approved, this policy will be brought to the attention of relevant staff as per the **Policy for Development and Management of Policies**, section 8 and Appendix C Plan for Dissemination.

This policy is available in alternative formats, such as Braille or large font, on request to the author of the policy.

8.2 Implementation of Policies

The Policy will be disseminated through the Consultants; Clinical Directors; Directorate Manager; Matrons; and Ward Managers via emails and meetings.

9 Document Control including Archiving

The register and archiving arrangements for policies will be managed by the Compliance Unit. To retrieve a former version of this policy the Compliance Unit should be contacted.

10 Monitoring Compliance and Effectiveness

This policy will be monitored for compliance with the minimum requirements outlined below.

10.1 Process for Monitoring Compliance and Effectiveness

Evidence	Monitoring /Who by	Frequency
a) Hand hygiene	Hand hygiene audits completed by ward/ department staff	Monthly
b) ANTT	High Impact Intervention no's 1,2,3, & 6	As required

Evidence	Monitoring /Who by	Frequency
c) Use of Personal Protective Equipment	As above	Monthly
d) Decontamination equipment	Matron Environment Audits completed by matrons	Monthly
e) Decontamination environment	Monit audits completed by domestic teams PEAT inspections completed by PEAT teams	According to risk category for each ward/ department
f) Isolation	IPT documentation records. CPD whiteboard records.	For individual patient cases
g) Data	CPD data, laboratory database surveillance by IPT	Monthly

10.2 Standards/Key Performance Indicators

Saving Lives High Impact Interventions

Hand Hygiene compliance data

IPT performance dashboards

11 Training

See section 11 of the **Policy for Development and Management of Policies** for details of the statutory and mandatory training arrangements.

12 Trust Associated Documentation

YHFT [CORP.RL10] Policy for the Development and Management of Policies

YHFT [CLIN.IC19] Infection Prevention Policy for the Decontamination of Reusable Medical Devices and the Environment

YHFT [CLIN.IC12] Infection Prevention Policy for Effective Hand Hygiene

YHFT [CLIN.IC6] Infection Control Standard Precautions Policy

YHFT [CLIN.IC8] Infection Prevention Isolation Policy

YHFT [CLIN.IC9] Laundry Policy

13 External References

The Stationary Office, London. www.dh.gov.uk/greenbook

Infection Control Nurses Association (ICNA) 2003, "Preventing *Healthcare Associated Infection"*. www.ips.uk.net

National Institute for Clinical Excellence (NICE) (2003) *Infection Control www.nice.org.uk*

Epic 2: *Guidelines for Preventing Healthcare Associated Infection in NHS Hospitals.* Journal of Hospital Infection (2007) Vol. 65 Supp 1

Saving Lives – Delivering Clean Safe Care (2007) www.dh.gov.uk

14 Appendices

Appendix i)

Indications for the use of aseptic techniques

- Suturing and care of surgical wounds
- Insertion of invasive devices, such as peripheral and central venous catheters (CVC)
- Insertion of urethral catheters
- Redressing and accessing of CVC lines
- Accessing peripheral venous catheters
- Preparation of intravenous therapy
- Insertion of percutaneous enteral gastrostomy (PEG) tubes
- Insertion of tracheostomy tubes
- Biopsies

(The above list is not exhaustive, and should only be used as examples)

Appendix ii)

Essential Factors Involved in Aseptic Techniques

Aseptic non-touch technique (ANTT) is the method employed to prevent contamination of wounds and other susceptible sites by organisms which could cause infection, by ensuring that only uncontaminated equipment and fluids come into contact with sterile/susceptible sites during clinical procedures. **These techniques should be employed during any procedure that bypasses the body's natural defences.** (Epic 2 - 2007)

Skin preparation

Skin preparation is an essential part of aseptic procedures; skin cannot be 'sterilized' but certain chemical preparations reduce microbial levels. 70% Isopropyl Alcohol acts by denaturing proteins is bactericidal but short acting; chlorhexidine 2% acts by disrupting the cell wall of organisms, is bactericidal and has a long duration of action. (Up to 6 hours) Thus, a combination of the two is recommended for adequate skin decontamination prior to insertion of invasive devices.

Reusable Equipment

Reusable equipment employed during an aseptic procedure should be cleaned with Clinell wipes and must be fit for purpose, e.g. steel dressing trolley for dressing changes. All packs/single use equipment e.g. dressing packs, cannula packs, syringe packs etc. must be intact, in date with no visible signs of contamination.

Effective hand hygiene

Effective hand hygiene is the most important component of good infection prevention and control as hands are a common route of transmission of infection. Transient bacteria can be removed by effective hand hygiene techniques. This can be achieved by washing hands with an antimicrobial

liquid soap and water, or by using an alcohol–based hand rub. When hands are visibly dirty or contaminated by organic material, such as blood or excretions, they must first be washed in soap and water if alcohol-based hand rubs are going to be used to achieve hand antisepsis. (Epic 2 – 2007) This also applies when caring for those with *Clostridium difficile* or any other diarrhoeal illness.

Click here for the Policy for Effective Hand Hygiene

Personal Protective Equipment (PPE)

PPE should be employed following a risk assessment regarding its use before each procedure. For example, non-sterile gloves may be worn if the operator can, guarantee that the key parts will not be contaminated. If this is in doubt, or for complex high-risk actions e.g. CVC line insertion, then sterile gloves must be worn. Gowns or aprons should be used dependant on risk of contamination to the operators clothing, or unless stated as a requirement during high risk procedures. (See above) Masks and goggles are only required if there is an anticipation of splashes of either blood or body fluids posing a risk to the operator. (Refer to Transmission Based Precautions Policy)

Creating and maintaining a sterile field

A sterile field is an area that is created by placing a sterile towel/s around the procedure site and on the surface that will hold sterile instruments and/or dressings. Sterile items are defined as those which are free of potentially harmful micro-organisms. If a sterile item comes into contact with a non-sterile item, object, person or environmental contaminant, the object is no longer sterile therefore the procedure must be abandoned and restarted.

Use of safe invasive procedure

Safe and effective techniques used during an aseptic procedure can minimise the risk of infection and cross contamination. Post-procedure infections are more likely to occur if excessive bleeding occurs as this can increase susceptibility to invasive organisms; and if tissue is damaged

due to rough or excessive manipulation during the procedure.

Creating a safe environment

- Clinical rooms should be designated for the performance of invasive procedures wherever possible, if this is not possible the patient's bed space should be prepared for this activity at a time of low activity on the ward to minimise risk of dust movement.
- General activity and number of people in these areas should be kept to a minimum.
- Surfaces within the procedure room must be free of unnecessary clutter.
- Doors and windows must be closed during procedures, and fans must be switched off.
- The parts of the room and surfaces that may have been contaminated during a procedure must be cleaned and disinfected between patients. This includes examination trolleys, dressing trolleys and examination lamps.

Gloves must be single use items. They are 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 different care activities for the same patient. (Epic 2)

Appendix iii)

What makes skin preparation effective?

- 70% Isopropyl alcohol
    - Acts by denaturing proteins
    - Is bactericidal but short acting
    - Effective against gram-positive and gram-negative organisms
    - Also fungicidal and virucidal
- 2% Chlorhexidine
    - Quaternary ammonium compound (positively charged polyatomic ions). Also known as QACs, poor efficacy as a skin prep ***unless*** used in high enough concentrations to provide residual activity i.e. 2%; or used in conjunction with alcohol (Other QACs include Tisept, Savlodil, Dettol).
    - Acts by disrupting the bacterial cell wall
    - Bactericidal but does not kill spore forming organisms
    - It is persistent and has a long duration of action, with some residual efficacy up to 24hrs
    - More effective against gram-positive organisms
- 70% Povidone - iodine
    - Acts by oxidation / substitution of free iodine
    - Bactericidal and active against spore forming organisms
    - Effective against both gram-positive and gram-negative organisms
    - Rapidly inactivated by organic material such as blood
    - Patient skin sensitivity is occasionally a problem
    - Chlorhexidine more effective

Edwards, P. S., Lipp, A., Holmes, A. Preoperative skin antiseptics for preventing surgical wound infections after clean surgery. *Cochrane Database Systematic Review*. 2004 (3):CD003949.

Noorani, A., Rabey, N., Walsh, S. R. *et al.* Systematic review and meta - analysis of preoperative antisepsis with chlorhexidine versus povidone–iodine in clean - contaminated surgery. *British Journal of Surgery,* 2010; 97: 1614-1620.

Appendix iv)

Equality Impact Assessment Tool

To be completed when submitted to the appropriate committee for consideration and approval.

Name of Policy:	

1.	**What are the intended outcomes of this work?**	
2	**Who will be affected?**	
3	**What evidence have you considered?**	
a	**Disability**	
b	**Sex**	
c	**Race**	
d	**Age**	
e	**Gender Reassignment**	
f	**Sexual Orientation**	
g	**Religion or Belief**	
h	**Pregnancy and Maternity**.	
i	**Carers**	
j	**Other Identified Groups**	
4.	**Engagement and Involvement**	

a.	Was this work subject to consultation?	Yes
b.	How have you engaged stakeholders in constructing the policy	No
c.	If so, how have you engaged stakeholders in constructing the policy	
d.	For each engagement activity, please state who was involved, how they were engaged and key outputs	
5.	**Consultation Outcome** Approved by Hospital Infection Prevention Committee *Now consider and detail below how the proposals impact on elimination of discrimination, harassment and victimisation, advance the equality of opportunity and promote good relations between groups*	
a	Eliminate discrimination, harassment and victimisation	
b	Advance Equality of Opportunity	
c	Promote Good Relations Between Groups	
d	What is the overall impact?	
	Name of the Person who carried out this assessment:	
	Date Assessment Completed	
	Name of responsible Director	

If you have identified a potential discriminatory impact of this procedural document, please refer it to the Equality and Diversity Committee, together with any suggestions as to the action required to avoid/reduce this impact

Appendix v)

Checklist for the Review and Approval

To be completed and attached to any document which guides practice when submitted to the appropriate committee for consideration and approval.

	Title of document being reviewed:	Yes/No/ Unsure	Comments
1	**Development and Management of Policies**		
	Is the title clear and unambiguous?		
	Is it clear whether the document is a guideline, policy, protocol or procedures?		
2	**Rationale**		
	Are reasons for development of the document stated?		
3	**Development Process**		
	Is the method described in brief?		
	Are individuals involved in the development identified?		
	Do you feel a reasonable attempt has been made to ensure relevant expertise has been used?		
	Is there evidence of consultation with stakeholders and users?		
	Has an operational, manpower and financial resource assessment been undertaken?		
4	**Content**		
	Is the document linked to a strategy?		
	Is the objective of the document clear?		

	Title of document being reviewed:	Yes/No/ Unsure	Comments
	Is the target population clear and unambiguous?		
	Are the intended outcomes described?		
	Are the statements clear and unambiguous?		
5	**Evidence Base**		
	Is the type of evidence to support the document identified explicitly?		
	Are key references cited?		
	Are the references cited in full?		
	Are local/organisational supporting documents referenced?		
5a	**Quality Assurance**		
	Has the standard the policy been written to address the issues identified?		
	Has QA been completed and approved?		
6	**Approval**		
	Does the document identify which committee/group will approve it?		
	If appropriate, have the staff side committee (or equivalent) approved the document?		
7	**Dissemination and Implementation**		
	Is there an outline/plan to identify how this will be done?		
	Does the plan include the necessary training/support to ensure compliance?		
8	**Document Control**		

	Title of document being reviewed:	Yes/No/ Unsure	Comments
	Does the document identify where it will be held?		
	Have archiving arrangements for superseded documents been addressed?		
9	**Process for Monitoring Compliance**		
	Are there measurable standards or KPIs to support monitoring compliance of the document?		
	Is there a plan to review or audit compliance with the document?		
10	**Review Date**		
	Is the review date identified?		
	Is the frequency of review identified? If so, is it acceptable?		
11	**Overall Responsibility for the Document**		
	Is it clear who will be responsible for coordinating the dissemination, implementation and review of the documentation?		

Individual Approval			
If you are happy to approve this document, please sign and date it and forward to the chair of the committee/group where it will receive final approval.			
Name		Date	
Signature			
Committee Approval			
If the committee is happy to approve this document, please sign and date it			

and forward copies to the person with responsibility for disseminating and implementing the document and the person who is responsible for maintaining the organisation's database of approved documents.			
Name		Date	
Signature			

Appendix vi)

Plan for dissemination of policy

To be completed and attached to any document which guides practice when submitted to the appropriate committee for consideration and approval.

Title of document:	
Date finalised:	
Previous document in use?	
Dissemination lead	
Which Strategy does it relate to?	
If yes, in what format and where?	
Proposed action to retrieve out of date copies of the document:	**Compliance Unit will hold archive**

Dissemination Grid

To be disseminated to:	**1)**	**2)**
Method of dissemination		
who will do it?		
and when?		
Format (i.e. paper or electronic)	**Electronic**	

Dissemination Record

Date put on register / library	
Review date	
Disseminated to	
Format (i.e. paper or electronic)	
Date Disseminated	
No. of Copies Sent	
Contact Details / Comments	