

# The Newcastle upon Tyne NHS Hospitals Foundation Trust

## Infection Prevention and Control Practice in the Operating Department

Effective: November 2007

Review: March 2012

### 1. Introduction

Safe working practices must be followed for ALL patients regardless of known or suspected infection. The principles upon which this practice is based is that of 'Standard Precautions'. Blood and body fluids of all patients must be considered potentially hazardous for blood borne viruses. Standard precautions assess the activity to be completed and not the individual who is to receive the care. All patients have the right to be treated with dignity and respect, and the use of standard precautions eliminates the risk of random inappropriate practice, and permits staff to deliver high standards of care to all patients at all times. The following guidelines are recommended for operating department staff when invasive procedures are carried out thereby protecting both patients and staff. Every procedure carried out in the operating department should be assessed in terms of blood/body fluid loss and precautions taken accordingly.

### 2. General Principles

2.1 All health care workers carrying out exposure prone procedures must have evidence of hepatitis B immunity or evidence that they are not a carrier. Staff who know or suspect that they may have been exposed to HIV should not undertake exposure prone activities. Further guidance must be sought from the Occupational Health Department. This also applies to staff who now suspect that they have hepatitis C or D.

Reference should be made to current Newcastle Hospitals NHS Foundation Trust:-

- (i) Immunisation Policy for Trust Staff and Protection Against Infectious Disease
- (ii) Policy for the Management of Healthcare Workers infected with Human Immunodeficiency Virus (HIV) and hepatitis C and for the prevention and management of Hepatitis B infection.

2.2 Personnel are able to influence the environment by maintaining personal hygiene, wearing theatre attire correctly, reporting health problems, monitoring visitors and maintaining a clean environment. Theatre attire is designed to minimise the transfer of micro-organisms from the mucous membranes, skin and hair of the surgical team to the patient. It also provides the surgical team with some protection from the patient. Refer to Theatre Uniform Guidelines.

2.3 Cuts and abrasions must be covered with a dressing that is waterproof. Contamination with blood or body fluid must be immediately washed with soap and water. Staffs that have exudative lesions, eczema or similar skin conditions should be reviewed by the Occupational Health Department before participating in exposure prone procedures.

2.4 Hands must be decontaminated before and after every patient contact, as soon as patient safety permits. Gloves must be worn whenever contamination of the hands

is expected. This is always in addition to and **not** instead of handwashing. Gloves must comply with European Community Standards; being of acceptable quality, free from pinholes and must not tear or split easily. Torn or punctured gloves must be changed as quickly as is safely possible (see Trust Disposable Gloves Policy). Gloves must be changed and discarded after each procedure or patient episode or if visibly contaminated.

- 2.5 Contamination of clothing with blood/body fluids must be avoided. The scrub team should wear disposable fluid repellent gowns or reusable impervious gowns. All shoes should be of a 'closed toe' type to protect against sharps injury. Wellington boots are recommended where heavy blood/body fluid loss is anticipated. These must be easy to clean and disinfect. It is the responsibility of the user to decontaminate their own footwear.
- 2.6 Protection of the mucous membranes of the eyes, mouth and nose from procedures that involve splashing or spraying of blood, body fluids or bone chips is essential. Risks are higher during major trauma, abdominal surgery, fractures and when drills/lasers are used due to the scale of exposure to blood/body fluids. Masks and protective eye wear covering front and side of the eyes, or full face visors must be worn by the surgical scrub team and those performing invasive procedures. These should either be disposable or cleaned according to manufacturer's instructions after use. Ordinary prescription spectacles do not provide sufficient protection. Visors cannot be used with magnifying loupes. Loupes should, therefore, be fitted with side shields.
- 2.7 Eating is prohibited in the operating theatre. In exceptional circumstances e.g. during long procedures, unscrubbed theatre personnel are permitted to eat/drink in the anaesthetic room provided the following precautions are taken:
- Food or drink is not consumed at the same time as IV drugs are being prepared
  - Prior to returning to the theatre the bench is cleaned using a 70% alcohol wipe
  - Hands are decontaminated before returning to the theatre
- 2.8 Sharps handling should be absolutely minimised. Needles must never be resheathed. An appropriate instrument/device for the careful application and removal of surgical blades to and from a handle must be used. Blades must never be mounted or removed by hand. It is recommended that a neutral zone is used eg. receptacle to pass sharps. **NEVER PASS HAND TO HAND.** Refer to local agreement for procedures carried out under magnification. A disposable device should be used to contain needles and sharps and this should be disposed of safely at the end of the procedure. The use of blunt tipped atraumatic needles should be encouraged where possible. Refer to existing Trust Policy 'Prevention of Inoculation Injuries'.

In the event of accident or injury refer to Trust policy 'Code of Practice for Needlestick Injuries'.

- 2.9 All clinical waste should be placed in yellow clinical waste bags, no more than three quarters full and swan necked to ensure an effective seal. Heavily contaminated waste should be placed in a UN approved rigid plastic container with yellow cable tie. Human body parts should be placed in a UN approved rigid container with a blue cable tie. Suction receptacles must be disposed of in a

purpose made box or double bagged. These should be closed systems with solidifying granules or gel if necessary. Refer to Trust 'Waste Management Policy'.

- 2.10 Contaminated linen and clothes must be changed at the end of the case and bagged according to Trust 'Hospital Laundry Policy'. Mop heads must be sent to the laundry daily and bagged accordingly. It is essential that theatre staff mop and remove debris from the floor **prior** to domestic staff cleaning the theatre. Mop buckets for spillage should be emptied after each use and kept dry until next required.
  - 2.11 When preparing theatre, non essential equipment/furniture should be moved away if contamination is likely. If heavy blood loss is expected protect table/attachments with plastic sheeting. Theatre furniture is cleaned with detergent and warm water. Fluid repellent or disposable drapes should be available for cases expected to yield heavy blood/body fluids loss. In the event of blood spillage a solution of sodium hypochlorite 10,000ppm available chlorine must be used promptly in accordance with manufacturers instructions followed by thorough rinsing. All disinfectants must be freshly prepared and discarded after use. Refer to Trust 'Disinfection Policy' and COSHH Regulations (1999). Instructions can be found inside spill kits.
  - 2.12 Before equipment is brought into the operating theatre it should be inspected for dust and cleaned.
  - 2.13 Used instruments should be cleaned by mechanical means in the Sterile Services Department (SSD) whenever possible rather than locally. Anaesthetic equipment must be sent to SSD for hotwash/autoclave. Reusable anaesthetic circuits must be sent for hot wash weekly, and disposable tubing discarded at this time providing a disposable filter is present in the circuit and changed between patients. **Disposable single use equipment must never be reused or reprocessed.**
  - 2.14 When collecting/transferring patients there is usually no need for theatre orderlies/porters to wear protective clothing unless the patient is losing blood/body fluids.
  - 2.15 When selecting dressing/drains it must be ensured that these contain expected blood loss.
  - 2.16 To reduce the risk of airborne cross infection, unnecessary movement, opening and closing of doors and exposure of wounds should all be avoided.
  - 2.17 Special consideration must be taken to maintain the integrity of the sterile field at all times. The sterile field should be constantly monitored and maintained. Any break in sterility must be reported and acted on to ensure patient safety. Preparation of sterile trolleys in advance, and with the use of sterile sheets to cover them, is not recommended. The trolleys are subject to contamination over time and removal of sheets without contamination cannot be guaranteed.
- 3 Additional precaution to be taken with known/suspected carriers of Blood Borne Viruses**
- 3.1 The patient should be planned to be LAST on the list, wherever possible, to enable post operative cleaning and decontamination.

- 3.2 All staff who need to take protective measures must be informed. Unless there is danger for body fluid contact it is not necessary for the theatre porter/orderly to wear gloves and apron.
- 3.3 Non essential equipment should be removed. See Appendix one for essential equipment.
- 3.4 Avoid the use of equipment that cannot easily be decontaminated.
- 3.5 The operating team should be limited to minimal experienced essential staff. A 'runner' must be available outside in the preparation room.
- 3.6 Use disposable equipment and fluid repellent disposable drapes/gowns where possible.
- 3.7 During the procedure ALL personnel should ideally wear gloves and it is recommended that the operating team double glove. Double gloving when scrubbed reduces the risk of microbial contamination from glove perforation and further protects the member of staff. A water impermeable gown, filter mask, suitable eye/face protection and wellington boots must be worn and removed before leaving theatre.
- 3.8 Sterile sodium chloride 0.9% must be available for eye irrigation.
- 3.9 Great care when dealing with sharp instruments must be exercised.
- 3.10 Use a close drainage system where possible.
- 3.11 Following the procedure all linen and theatre clothing should be sealed in a soluble bag and then placed in a blue linen bag (green bag at FH) for transportation. This is in accordance with Trust policy for infected linen. (Refer to local agreement for laundry service provided for 'Sunlight Theatre Wraps')
- 3.12 The patient may be anaesthetised and recovered in the operating room in accordance with local policy. If Recovery is used the nurse should wear gloves and a plastic apron.
- 3.13 All used instruments should be treated as potentially hazardous for Blood Borne Viruses whether the patient is known to be infected with a Blood Borne Virus or not. All used instruments, therefore, should be sent to the Sterile Services Department in the same way. Standard precautions should be adopted by SSD personnel at all times, when collecting or handling used instruments.
- 3.14 Specimens and forms must be labelled 'biohazard'. Ensure the lid is secure and the outside container is not contaminated. Seal in a polythene bag and inform the receiving laboratory. Samples must be dispatched in a secure container.
- 3.15 If the patient is transferred back to the ward on a theatre trolley this must be disinfected if contaminated.
- 3.16 Clinical waste should be placed in yellow clinical waste bags with yellow cable ties. Refer to Trust 'Waste Management Policy'.
- 3.17 Staff accompanying patients back to the ward should wear gloves and an apron if there is a risk of exposure to blood or body fluids.

- 3.18 Nursing staff should continue to wear protective clothing including eye protection during decontamination of equipment and cleaning procedures.
- 3.19 Definite blood spillages must be inactivated using a solution of 10,000 parts per million (ppm) of available chlorine (leave for 30 minutes) or with chlorine releasing granules (according to manufacturers instructions) and then cleaned with hot water and detergent thereafter. Floors and surfaces within the theatre contamination area, but not visibly contaminated with blood, should be cleaned with a solution of 1,000ppm available chlorine. Refer to Trust Disinfection Policy for management of other body fluids and excreta.
- 3.20 Mop heads should be laundered as infected linen.
- 3.21 In the event of any problems/difficulties the Infection Control Nurse or on call medical microbiologist should be contacted.

#### **4 Specific precautions for patient with known or suspected Methicillin Resistant Staphylococcus Aureus (MRSA).**

- 4.1 The major mode of spread of MRSA is usually hand contact but may be contaminated equipment. It is important that equipment can be readily decontaminated.
- 4.2 The patient should be planned to be last on the list, whenever possible, to enable post operative cleaning.
- 4.3 Standard precautions should be adhered to and theatre doors kept closed, with minimal numbers of staff entering the theatre, so that the ventilation system can function efficiently and effectively.
- 4.4 Theatre personnel collecting/receiving a patient, and not in direct contact with the patient, need not wear protective clothing. Theatre personnel in contact with the patient should wear a plastic apron and gloves.
- 4.5 Bed/trolley linen should be changed outside the theatre and bagged accordingly. See Trust "Laundry policy".
- 4.6 The trolley should be cleaned with water and detergent, or a detergent wipe, dried and wiped with 70% alcohol wipes.
- 4.7 Soft materials eg BP cuffs and tourniquets must be thoroughly washed and dried.
- 4.8 Theatre environment/equipment (unless contraindicated) should be cleaned and decontaminated in a one step procedure using a 'Chlor-Clean' solution (One Chlor-Clean tablet for every litre of cold water). Alternatively, if Chlor-Clean is not available, the Theatre environment and equipment should be cleaned with detergent and warm water, dried and decontaminated with a solution of sodium hypochlorite **1,000ppm** available chlorine.
- 4.9 Refer to Trust 'Policy for the Control of MRSA in Newcastle Hospitals'.

#### **5 Specific precautions for patient with known or suspected Tuberculosis.**

- 5.1 Patients posing a risk to others are those known to have smear positive active pulmonary TB or those in whom multi-drug resistant TB is known or suspected. Refer to Trust policy for Prevention and Control of Tuberculosis in Newcastle Hospitals.
- 5.2 Infectious TB patients on transfer to theatre must wear a non-valved FFP2 mask. In the operating department and recovery, on removal of the mask, staff must wear protective high efficiency masks (FFP3) during aerosol generating procedures.
- For patients known or suspected to have infectious MDRTB a FFP3 mask must be worn on transfer. (Refer to Trust Policy for Prevention and control of tuberculosis in Newcastle Hospitals.)
- 5.3 Staff who do not have a proven immunity to TB should not be involved in these cases. Refer to Immunisation policy for Trust staff and Protection against Infectious Disease.
- 5.4 Pleural drainage systems should be of a 'closed' type.
- 5.5 The theatre should be cleaned and decontaminated with a Chlor-Clean solution, as for MRSA. (See 4.8).
- 5.6 Advice may be sought from the Infection Control Team or duty medical microbiologist.
- 5.7 Refer to Trust policy 'Prevention and Control of Tuberculosis in Newcastle Hospitals'.
- 6. Specific precautions for patients with know or suspected Creutzfeldt-Jacob Disease (CJD) or related disorders (transmissible Spongiform Encephalopathies)**
- 6.1 The Infection Control Team or duty medical microbiologist **MUST** be contacted **prior** to undertaking surgery.
- 6.2 Refer to Trust policy 'Guidelines for the Control of Transmissible Spongiform Encephalopathies in Hospital Patients'.

## **7. Monitoring**

Compliance will be monitored by the Deputy Lead Nurse Manager of Occupational Health and Infection Prevention and Control. Occupational Health Services will produce monthly reports on staff immunisations. These reports will be presented to Directorate Managers who identify any non compliance issues and develop action plans. These will be monitored in conjunction with the Occupational Health Department until resolved.

These reports will then be presented to the Trust Board

Author: Deputy Nurse Consultant Infection Prevention and Control

## EQUIPMENT FOR USE IN THE OPERATING DEPARTMENT ON HIGH RISK PATIENTS

- Powder free gloves – sterile and non-sterile
- Plastic aprons
- Sterile disposable and/or non disposable fluid repellent gowns
- Sterile disposable fluid repellent drapes
- Wellington boots
- Face visors, visimasks and goggles
- Medium clinical waste bags, plastic cable ties and identification labels
- Water soluble bags and blue/green linen bags
- Sharps containers
- Disposable suction receptacles with solidifying gel/granules
- Sterile saline 0.9% for eye irrigation
- Detergent
- Alcohol wipes (70% alcohol)
- Sodium hypochlorite solution. 1%, tablets or granules (10,000 parts per million available chlorine) Spill kit
- Absorbent paper towels

In addition for known or suspected infected cases:-

- Biohazard labels
- Disposable anaesthetic face masks and circuits
- Polythene sheets

**Newcastle Upon Tyne Hospitals NHS Foundation Trust  
Infection Prevention and Control Committee  
Guidelines for Infection Control Practice in the Operating Department**

**Summary**

- Blood and body fluids of all patients must be considered potentially hazardous for blood borne viruses.
- Healthcare workers carrying out exposure prone procedures should be non-infectious for HIV, Hepatitis B and Hepatitis C.
- Theatre attire must be worn correctly and appropriately.
- Hands must be decontaminated before and after every patient contact, as soon as patient safety permits. Gloves must be worn whenever contamination of the hands is expected.
- Protection of the mucous membranes of the eyes, mouth and nose from procedures that involve splashing or spraying of blood, body fluids or bone chips is essential.
- In the event of a blood spillage a solution of sodium hypochloride 10,000 ppm available chlorine must be used, followed by thorough rinsing.
- When collecting/transferring patients there is usually no need for theatre orderlies/porters to wear protective clothing unless the patient is losing blood/body fluids.
- Patients with blood borne viruses or MRSA should be planned to be LAST on the list, whenever possible, to enable post-operative cleaning and decontamination.
- The major mode of spread of MRSA is usually hand contact but may be contaminated equipment. It is important that equipment can be readily decontaminated.
- Following a procedure on a patient with MRSA, theatre environment/equipment should be cleaned and decontaminated with a solution of sodium hypochlorite 1,000 ppm available chlorine.
- Infectious TB patients on transfer to theatre must wear a non-valved FFP2 mask. In the operating department and recovery staff must wear protective high efficiency masks (FFP3) during aerosol generating procedures.
- The Infection Control Team **MUST** be contacted prior to undertaking surgery on known or suspected CJD or vCJD patients.