Operating theatre guidelines for care of high risk patients

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Location of Policy

Infection Control Manual, all wards and departments.
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INTRODUCTION

The Consultant in charge of the patient is responsible for ensuring that all members of the surgical team are aware of the infection hazards and the infection control measures to be taken.

Advice may be sought at any time from the Infection Control Team (see end of document for contact numbers).

Hepatitis B Vaccination

Hepatitis B vaccination is essential for all surgeons and members of the surgical team who have regular contact with blood.

HIGH RISK PATIENTS

Patients at high risk of blood borne infections include:

1. Patients who are  
   a) HIV Ab positive (with or without AIDS)  
   b) Hep BsAg positive  
   c) Hep C Ab positive (especially those with viraemia i.e. HCV RNA PCR positive)

2. Male homosexuals and bisexuals.

3. Injecting drug abusers.

4. Prostitutes.

5. Sexual partners of high risk patients.

6. Babies of high risk patients.

7. Patients who have had hospital treatment or sexual contact with the indigenous population in endemic areas e.g. sub-Saharan Africa, the Caribbean, Brazil.

8. Haemophiliac patients who have received untreated blood products.
UNIVERSAL/STANDARD PRECAUTIONS FOR THE CONTROL OF INFECTION

All staff working within theatre must use standard precautions at all times.

Healthcare workers who may come into contact with blood, secretions and excreta may be exposed to pathogens including blood borne viruses such as HIV, Hepatitis B and C. It is impossible to identify all those with infection, blood borne or otherwise. Therefore it is recommended that all body fluids are regarded as potentially infections and that standard precautions are used.

The most common means of transmission is direct contact, particularly via hands. Blood borne infections are most likely to be transmitted by direct percutaneous inoculation of infected blood via a sharps injury. Blood contact with broken skin or mucous membranes also provides a route of transmission whenever contact with blood or other body fluids is anticipated.

The precautions aim to prevent transmission of blood borne viruses and minimise the transmission of other pathogens.

The aim is to:

- Prevent sharps injuries
- Prevent contaminated items being used between patients

Universal/standard precautions apply to:

- Invasive procedures
- Care or procedures involving the handling of blood and body fluids
- Handling and cleaning of contaminated equipment
- Disposal of clinical waste materials and sharps.

Staff should ensure that they are familiar with local infection control policies which will provide explicit guidance.

Handwashing

Handwashing must be carried out after removal of protective clothing, between patient contacts, after contact with blood and body fluids, before invasive procedures and before handling food.

Skin

Cuts and abrasions in any area of exposed skin should be covered with a dressing which is waterproof, breathable and is an effective viral and bacterial barrier.
Gloves
Seamless, non-powdered gloves should be worn whenever contact with body fluids is anticipated. Sterile gloves are required for invasive procedures.

Aprons
Disposable plastic aprons or water-impermeable gowns should be worn whenever splashing with body fluids is anticipated.

Eye protection
Visors, goggles or, safety spectacles should be worn whenever splashing with body fluids or flying contaminated debris/tissue is anticipated.

Masks
Water-repellent masks are worn when there is a risk of blood splash to the face. For the care of patients with smear positive respiratory TB, high efficiency filter masks are worn during cough induction, bronchoscopy and for prolonged contact.

Sharps
Take care during the use and disposal of sharps. Do not resheath sharps. Dispose of all sharps at the point of use into an approved sharps container. Do not overfill container.

Needlestick injury
In the event of a sharps or needlestick injury:
1. Encourage bleeding from the wound. Do not suck or rub.
2. Wash area thoroughly with soap and water
3. Cover with a waterproof dressing
4. If known, note the name of the patient
5. Report to Occupational Health
6. Notify line manager and document incident
7. If the patient is thought to be HIV positive Post Exposure Prophylaxis (PEP) may be required. This should be given as soon as possible after injury. Staff must be familiar with local PEP guidance (Chapter 11E, Infection Control Manual).

Conjunctivae/mucous membranes
If splashed with blood/bloodstained body fluids irrigate with copious amounts of saline and follow steps 4-7 above.

Spillages
Wear apron and vinyl gloves. Absorb liquid using paper towels. For blood spills either apply sprinkle with NaDCC granules and leave for several minutes. Clean area with detergent and water and dry. In the absence of disinfectants, and for spillage of all other body fluids, clean area thoroughly with detergent and water wearing protective clothing. Discard all equipment into yellow clinical waste bags.

Waste
All waste contaminated with blood or body fluids must be discarded into yellow clinical waste sacks, labelled and sent for incineration according to local policy.
TRANSPORTATION OF THE HIGH RISK PATIENT

To theatre from ward

Where clinically appropriate, the patient may walk to theatre. If required, transport the patient to and from theatre in his own bed or trolley, made up completely with fresh linen. When transferred onto the operating table the theatre trolley should be inspected and if it is visibly dirty or blood/body fluid stained it should be cleaned with 1% hypochlorite solution (use HazTabs).

On return to ward

Recovery

High-risk patients should be recovered in the recovery area following universal/standard precautions.

All used linen should be placed in a red water soluble laundry bag and then an outer red linen bag. Disposable linen must be discarded into yellow clinical waste bag. The trolley should be returned to theatre for cleaning using:

1. A detergent wipe if not visibly dirty.
2. 1% hypochlorite solution (10,000 p.p.m. available chlorine, use HazTabs) if contaminated with blood. Obvious spillages must be cleaned immediately using this solution.

GENERAL PRECAUTIONS

1. Whenever possible surgery on high risk patients should be carried out in the ‘ultra clean’ Theatres (see appendix A).
2. Whenever possible the Consultant/operating surgeon must ensure that the high risk patient is put last on the list, in order to allow time for adequate decontamination of the theatre afterwards.
3. Unnecessary equipment should be removed from the theatre, in order to reduce the amount of decontamination required after the operation. If it is envisaged that the operation will cause blood or body fluid loss which could splash or contaminate any surfaces then any movable equipment must be pushed away from the operating field and/or covered with a plastic sheet.
4. The operating team should be limited to essential staff only.
5. Disposable drapes should be used. Always check that the mattress cover is intact.
6. Pre-op shaving should be avoided. Clippers or depilatory cream may be used for essential hair removal. Hair removal should not be carried out in the theatre department.
7. Closed rather than open wound drainage is recommended.

CONSULTANT RESPONSIBILITIES

The consultant in charge of the patient has ultimate responsibility for ensuring that all members of the surgical team are aware of any infection hazards and any infection
control measures to be taken. In emergency situations or out of hours the operating surgeon will be responsible

**PROTECTIVE CLOTHING**

**SURGICAL TEAM:** cap, mask, eye protection e.g. Visimask/ spectacles/ goggles, one/two pairs of gloves, trouser suit, plastic apron (under a water-impermeable gown) clogs (provided in theatre) or boots.

**OTHER PERSONNEL:** cap, mask (if required), trouser suit, plastic apron, non-sterile gloves, eye protection (if required) boots/clogs.

Double gloving does not prevent sharps injury but has been shown to effect up to a 6-fold decrease in inner glove puncture. In the event of percutaneous injury the volume of blood transmitted may also be reduced due to the enhanced wiping effect of 2 layers of glove.

Male health care workers should consider wearing hoods rather than caps to protect freshly shaven cheeks and necks.

**Glove puncture**

1. If a glove puncture is suspected or recognised, rescrub if possible and re-glove as soon as safety permits.
2. Gloves can become porous during prolonged procedures. Change gloves regularly if performing or assisting with a prolonged surgical procedure even if no glove puncture is suspected or recognised.
3. If a surgeon receives a needlestick injury in theatre, he/she must follow the needlestick policy. In addition, if the surgeon knows him/herself to be Hepatitis B surface antigen positive, the incident must be reported immediately to the Consultant Microbiologist so that the patient can be started on an accelerated course of Hepatitis B vaccine, if appropriate.

Biogel “Reveal” gloves have a puncture indication system i.e. each glove has 2 skins and if the first is punctured the second skin may remain intact but a stain appears to indicate the puncture.

Disposable protective clothing i.e. gowns, aprons, gloves, caps, masks should be removed and placed into yellow plastic bags prior to staff leaving the operating theatre.

Theatre suits and dresses should be removed in the changing rooms and placed into a red water soluble bag and then into a green laundry bag.
PREPARATION OF THEATRE/EQUIPMENT

1. Clear rooms of all non-essential equipment.
2. Strip the anaesthetic machine of non-essential items. Autoclavable or disposable breathing circuits should be used.
3. Use disposable suction bottles (e.g. Receptal) and tubing. Always make sure that the tubing is connected correctly, to avoid contamination of suction equipment.
4. Use yellow bags for rubbish.
5. A circulating nurse should be available outside the theatre to avoid the necessity of a member of the operating team leaving the theatre.

OPERATIVE TECHNIQUE

1. Have no more than 1 person working in an open wound/body cavity at any time (unless essential to the safe and successful outcome of an operation).
2. Direct sharp needles and instruments away from own non-dominant or assistant’s hand.
3. Use non-touch approach wherever possible. Use instruments rather than fingers for retraction, holding tissues while suturing, removing scalpel blades. Tie suture with instruments rather than fingers.
4. Do not pass sharp instruments directly from hand to hand.
5. Used suture needles and scalpel blades should be kept on an appropriate sterile self-adhesive pad (e.g. Discard-a-Pad) or tray (neutral zone) during the surgical procedure prior to counting or disposal into the sharps box. Ensure that used scalpels and needles are not left exposed in the operative field but always removed promptly by the scrub nurse having been deposited on the Discard-a-Pad on "neutral zone" tray by the operator or assistant.
6. Do not re-sheathe needles.
7. Scalpel blades must only be removed with forceps or blade remover, (never fingers). Blood soiled swabs must be handled only with forceps. After counting, place in a yellow bag for incineration. Blood loss should only be assessed by weighing the swabs.
8. At the end of the operation all blood should be cleaned off the patient’s skin and the wound covered with a wound dressing that will contain exudate within an impervious outer covering. If possible use hypoallergenic adhesive tape. Do not use excessive amounts of adhesive tape as its removal may excessively traumatis the skin.

ALTERNATIVE PROCEDURES SHOULD BE CONSIDERED WHERE PRACTICABLE

1. Eliminate any unnecessary use of sharp instruments and needles eg. by appropriate substitution of electrocautery, blunt-tipped needles and stapling devices.
2. Opt for less invasive surgical procedures where practicable and effective.
3. Avoid the use of sharp clips for surgical drapes, blunt clips are available.
4. Most sharps injuries in theatres are caused by sharp suture needles. The use of blunt-tipped needles can reduce the incidence of glove puncture and sharps injury. Although unsuitable for suturing skin and bowel they can be used
effectively for all other components of abdominal closure. For skin and bowel closure, stapling devices are a safer alternative to sharp suture needles.

**INSTRUMENT DECONTAMINATION**

Please note that utmost care must be taken when handling used instruments. Instruments should not be pre-soaked in disinfectant before cleaning as this will not be fully effective in the presence of organic material and may give staff a false sense of security.

**Autoclavable instruments**

Used instruments must be wrapped in original packaging and returned to HSDU where all sets and instruments are treated as contaminated. Plastic aprons and gloves (domestic quality rubber) must be worn when handling used equipment.

**Non-autoclavable instruments**

Wear apron and domestic quality gloves. Wash instruments thoroughly, rinse and sterilise by immersion in appropriate disinfectant (according to manufacturers recommendations).

**SPILLAGES**:

**Blood:** Wear gloves. Sprinkle Hypochlorite (Haztab) granules over spillage. Wait for 2 minutes. Wipe clean using a disposable cloth. Rinse disinfected area thoroughly. Wipe dry.

**Faeces/vomit:** Wear gloves. Clean with disposable cloth and 10,000ppm Hypochlorite solution (Haztab). Repeat a second time. Rinse disinfected area thoroughly and wipe dry.

**Urine:** Do not use chlorine granules. Put on plastic apron and gloves and mop up excess urine using paper towels. Clean area thoroughly using 10,000 ppm Hypochlorite solution (Haztab). Rinse disinfected area with a fresh cloth and wipe dry.

**DISPOSAL OF WASTE**

All waste/disposable items must be placed into a yellow plastic bag for incineration. Bags must not be filled more than ¾ full. The top must be securely tied. The outside of the bag must not contaminated with any blood. All bags should be identified using identification tape or tag.

Used disposable wound suction bottles must be properly capped, then placed inside a yellow plastic bag which is sealed prior to placing inside a second yellow plastic bag as above. Disposable suction bottles e.g. Receptal should be discarded into designated disposal box, where possible using a gelling agent for the contents of each container.
LINEN AND THEATRE CLOTHING: BAGGING OF

As with all theatre laundry, linen must be placed inside a red alignate bag (not more than ¾ full). This is tied and then placed inside a green laundry bag.

Ensure that no items other than laundry are placed in the bag.

FOOTWEAR DECONTAMINATION

Boots/clogs must be removed on leaving the contaminated area since blood is readily disseminated unwittingly from footwear. It is the responsibility of every individual to ensure that their own footwear is cleaned/decontaminated after every case.

There is a limited supply of autoclavable footwear which should be sent to HSDU for decontamination.

Decontamination procedure: Wear gloves and plastic apron. Wipe outer surface of boots or clogs with disposable cloth soaked in 1% hypochlorite (10,000 p.p.m.) available chlorine) (use HazTabs). Wipe off with disposable cloth soaked in water. Repeat. Allow to dry. Discard cloths, gloves and aprons.

DOMESTIC MANAGEMENT

Domestic quality gloves and aprons must be worn.

All equipment, surfaces and floor must be thoroughly cleaned with hot water and detergent. All surfaces should then be wiped over with a 0.1% solution of Sodium hypochlorite and allowed to dry. Mops after use should be thoroughly washed in hot water and detergent in mop bucket wrung out. They should then be placed in a red water soluble bag and then in an orange bag and sent to the laundry. Mop buckets must be emptied, washed out with hot soapy water and stored dry.

Disposable cleaning cloths should be used and disposed of immediately after use into yellow bag.

The theatre can be reused after the surfaces have all dried and sufficient air changes have occurred (see Appendix B).

ACCIDENTAL INJURIES TO STAFF

See Chapter 13A for full details.

1. Inoculation injury

   The victim should:

   a. Immediately encourage bleeding and wash with plenty of soap and water.
   b. Take blood from donor for baseline storage. Test for HepBsAg if victim’s hepatitis B immune status is not known or non-immune. Test
for HIV Ab ONLY if high risk and after full counselling and consent. Request Hepatitis C Ab if intravenous drug abuser.

c. Take blood from victim for baseline storage (or HepBsAb if history of immunisation but Ab levels never checked).

d. Start Hepatitis B vaccination if not immunised (accelerated course 0, 1, 2 and 12 months). Otherwise check if booster needed.

e. Report the incident to the Head of Department. Complete an accident form.

f. Report the incident to the Occupational Health Department as soon as possible.

g. The Microbiologist will advise on additional treatment and follow-up according to test results. If the donor is known to be Hep BsAg or HIV Ab positive, contact the Microbiologist immediately for advice. Where the donor is HIV Ab positive refer the victim immediately to Emergency Department. See Chapter 11E of this manual for further information.

2. Splashes to mouth or eyes:

Wash with copious amounts of sterile water then follow the procedure from 1(b) above. Remove contact lenses prior to eyewashing.

3. Splashes to skin:

Wash off immediately. If skin is intact, likelihood of transmission of blood borne viruses is low. Always ensure that cuts or abrasions are covered with waterproof dressing. If gross contamination occurs or if fresh cuts are contaminated with blood wash off immediately and then follow steps 1(b) onwards. If in doubt, contact the Microbiologist for advice.

SPECIMENS

All specimens and laboratory request cards from high risk patients must have Danger of Infection labels affixed. Lids on specimen containers must be securely fastened. There must be no external contamination. The specimen container must be sealed in an individual plastic bag without the use of clips or staples.

OTHER INFECTION RISK PATIENTS

AIRBORNE INFECTIONS

Organisms

MRSA, Group A streptococcus

Follow precautions as above including:

1. All non-essential equipment must be removed from the Theatre/Anaesthetic Room.
2. Disposable drapes and gowns will be used.
3. At the end of the case the patient will be recovered in the theatre not the recovery room.

**NB** No need for danger of infection labels on specimen containers/request cards.

Ensure that all linen is bagged and removed as soon as possible after the operation.

See MRSA guidelines (Chapter 14) for further information.

**Further advice and guidance**

Service Manager Infection Control  
Ext. 4568 or bleep 0020

Clinical Nurse Specialist, Infection Control  
Ext. 2452 or bleep 2452

Clinical Nurse Specialist, Infection Control  
Ext. 1384 or bleep 1384

Consultant Microbiologist/DIPC  
Ext. 1834 or duty microbiologist via switchboard out of hours

Consultant Microbiologist  
Ext. 1836 or duty microbiologist via switchboard out of hours
APPENDIX A

ULTRA CLEAN THEATRES

At Whiston Hospital

- Main Theatres, Theatres 1, 2 and 3 are ‘Ultra clean’ (air cycle 5 minutes) therefore they do not have to be left empty for 15 minutes after the patient has left, and the theatre is cleaned, but all surfaces including floors must be dry.

- Theatres 4 and 5 are not ultra-clean and MUST be left empty for a minimum of 15 minutes after the patient has left.

- Burns and Plastics Theatres are not ‘Ultra clean’ and MUST be left for a minimum of 15 minutes.

- Maternity Theatres are not ‘Ultra clean’ and MUST be left for a minimum of 15 minutes.

At St. Helens Hospital

Until November 2008

- Theatres 3, 4 and 5 are ‘Ultra clean’ (air cycle 5 minutes) therefore they do not have to be left empty for 15 minutes after the patient has left.

- Theatres 1 and 2 are not and MUST be left empty for a minimum of 15 minutes after the patient has left and the Theatre is cleaned, but all surfaces including floors must be dry.

From November 2008 St Helens DTC will be in operation

- There will be 6 theatres, of which 2 will be ultraclean. The ultraclean theatres (3 & 4) do not have to be left empty for 15 minutes after the patient has left.