

SECTION 8

Prevention of Infection in Hospital Dentistry



8.1 INTRODUCTION

Dental personnel may be exposed to a wide variety of microorganisms, which are present in the blood, and saliva of patients. These include Hepatitis B virus, Hepatitis C virus, Human Immunodeficiency Virus, *Herpes simplex*, Mumps virus, *Mycobacterium tuberculosis* and a number of other organisms, which infect the upper respiratory tract.

These key guidelines are designed to give an outline to good dental practise which will minimise the risks of cross infection by blood borne viruses and other potentially pathogenic organisms. They incorporate the principle of reasonable universal precautions appropriate to the level of risk.

The reader is also referred to the British Dental Association's Advice Sheet A12 'Infection Control in Dentistry', January 2000.

8.2 PERSONAL PROTECTION

8.2.1 Immunisation

The UK Health Departments have issued 'Guidance for Clinical Health Care Workers: Protection Against Infection with Blood Borne Viruses' (HSS(MD)7/98). These guidelines apply to all new and existing staff who perform exposure-prone procedures as well as medical, dental, nursing and midwifery students.

All clinical staff must be vaccinated against Hepatitis B and have their immune status confirmed. Other recommended vaccinations for dental staff are shown below in Table 1.

Illness	Route	Length of Protection
Diphtheria	IM	Probably lifelong if immunised as an infant with reinforcing dose given before school entry. Diphtheria booster at 15-19 years is also given combined with a tetanus booster.
Hepatitis B	IM	Five years.
Pertussis	IM	Probably life-long.
Poliomyelitis	Oral	Probably life-long if immunised as an infant with reinforcing dose given before school entry and at 15-19 years.
Rubella	IM	Probably life-long.
Tetanus	IM	Probably life-long if immunised as an infant with reinforcing dose given before school entry and at 15-19 years.
Tuberculosis	IM	Protection lasts at least 15 years but is incomplete.

High risk body fluids and tissues other than blood, include: amniotic fluid, vaginal secretions, semen, human breast milk, cerebro-spinal fluid, peritoneal fluid, pleural fluid, pericardial fluid, synovial fluid, saliva contaminated with blood and unfixed tissues and organs.

Low risk materials include urine, vomit, saliva and faeces, unless they are visibly blood stained.

To avoid a sharps injury needles should not be resheathed unless a recommended safe method is used.

FIRST AID

- Take immediate action to deal with the effects of the accident, i.e. if surface contamination of the *SKIN*; soap and water should be used liberally but no scrubbing should occur.
- If the *EYE* or mucous membrane is contaminated: use sterile water or saline and irrigate copiously.
- If a needle stick or other penetrating wound occurs, the wound should be encouraged to bleed freely, thereafter wash the area with soap and water.
- Inform your line manager and the Occupational Health Department immediately.
- A risk assessment must be carried out and an Incident Report (IR1) form completed.

8.2.8 Training

All staff must be familiar with guidelines adopted to prevent cross infection. The Infection Control Team are available for advice and to undertake training were required. (DrWil Coulter Ext 4539, Irene Thompson Ext 4126)

8.3 INFECTION CONTROL MEASURES IN THE DENTAL CLINIC

8.3.1 Medical History

Medical history should be recorded from each patient, dated, signed by a qualified staff member and regularly updated, preferably annually.

NOTE: Student Operators -when a new patient is being examined by a student or a member of junior staff and there is a clinical suspicion that the patient is possibly an infective risk e.g. HIV, HBV, HCV, TB or CJD, a qualified member of dental staff should be asked to see the patient **BEFORE** any clinical treatment is commenced.

After sterilization unwrapped instruments must be stored dry in sterile covered trays and used as soon as possible after sterilization. If they are not used within 3-4 hours then they should be re-sterilized.

Hand-pieces, drills or any equipment with a lumen must be sterilized between patients in vacuum sterilizer. They must not be sterilized in a non-vacuum sterilizer.

8.3.5 Syringes and needles

Single use needles should always be used. The TRH Sharps Disposal Policy states that 'used needles must not be resheathed unless there is a safe means of doing so.' A number of proprietary safe resheathing devices are available for use in dentistry and, if employed, they must be operated strictly in accordance with the manufacturers recommendations. Great care must be exercised at all times to avoid a sharps injury.

Sharps bins conforming to BS7320 and UN3291 must be conveniently available in each operating area for the safe disposal of needles, vials and cartridges. All sharps must be discarded by the user without delay into the sharps box. This should be sealed when three-quarters full by the last user. A correctly assembled new box must be left for the next user. (See Section 4.7.4 of the Infection Control Manual)

8.3.6 Clinical Waste

There is a statutory duty of care on all producers of waste to take all reasonable steps to ensure that all wastes are disposed of properly. All items of waste, however small, which have been in contact with the patients' tissues and/or secretions, e.g. cotton wool balls, gloves, disposable gowns etc. must be treated as clinical waste.

Sterile Technologies Ireland Ltd. now have the contract for the Transportation, Treatment and Disposal of Clinical/Healthcare Risk Waste throughout the island of Ireland. Health and Safety and Waste Disposal Regulations govern the handling and disposal of healthcare waste. Every employee must ensure they comply with these regulations to avoid prosecution. The Trust Waste Disposal Policy is currently being updated, but information can be obtained from the Waste Manager, Ms Lucia Smith, Ext. 4599.

General Rules

- Always use the correct clinical waste bags, bins or sharps containers.
- Waste should always be sealed securely and tagged to identify the source.
- Bags or sharps bins should never be filled more than $\frac{3}{4}$'s full.
- All sharps must be discarded, without delay, by the user into the approved sharps box that complies with national/international standards. (BS7320 and UN3291). These boxes must be signed and dated by the person assembling them and signed again when sealed for disposal.

8.4 DISINFECTION OF SURFACES

8.4.1 Routine Procedures

At the beginning of the session and between patients all work surfaces, including X-ray units, should be wiped clean and disinfected with sodium hypochlorite 1000ppms (use Haz-Tabs available from pharmacy) or a 70% alcohol wipe. Sodium hypochlorite must be made up fresh with each use and as it may degrade some surfaces (i.e. metal or plastic) it should be rinsed off with a damp disposable cloth. Special attention should be given to surfaces that come in contact with the hands of the operator e.g. light handle, chair and chair switches. Gloves and aprons should be worn during disinfectant use.

Difficult to clean items such as tubing or leads may be covered with a suitable disposable cover and changed after each session.

The surgery areas requiring disinfection may be more clearly defined if a 'zoned' system of work is adopted by the operator and Dental Nurses.

8.4.2 Spillages

Since a totally reliable, universal screening system is not currently possible, *ALL* spilled blood should be regarded as potentially infected, and should be treated according to the extent of the spillage.

DRIPS OR SPLASHES

Drips or splashes of blood on inanimate surfaces should be wiped up using a paper towel soaked with Sodium Hypochlorite 10,000ppm (1%) solution. Impervious rubber or plastic gloves (not necessarily sterile) should be worn, and the gloves and towels should be discarded into a yellow clinical waste bag. Since hypochlorite solutions can be corrosive, the treated surface should be rinsed with clean water and dried after using the hypochlorite solution.

MAJOR SPILLS

- * Before treating a spill, staff should don impervious gloves, a plastic apron and eye/face protection. NaDCC chlorine-releasing granules are applied to the spill. Once the spill has been absorbed, the granules may be scooped up and placed in a yellow clinical waste bag.
- * Alternatively, place paper towels over the spill then pour Sodium Hypochlorite 10,000ppm carefully and evenly over the spill until the whole surface is covered. Leave undisturbed for 2-5 minutes. If any areas of liquid blood remain after this period, more hypochlorite should be applied and left for a further 2-5 minutes, to ensure complete disinfection. The spill should then be cleaned up using more paper towels as necessary. All paper towels should also be discarded into the yellow bag, along with the gloves and apron. Finally the surface and/or equipment should be rinsed with clean water and detergent and dried.
- * Broken glass or 'sharps' that may be present in a spill must be picked up with forceps and *NOT* with fingers.
- * Gloves should be worn during disinfectant use.
- * The surgery areas requiring disinfection may be more clearly defined if a 'zoned' system of work is adopted by the operator and Dental Assistant.

8.5.3 Procedures in Laboratory

Dental technicians should treat all impressions and appliances sent for adjustment or repair to be potentially infected and so gloves should be worn when handling these items and pouring models. A completed request form indicating that the impression has been disinfected in the clinic must accompany all impressions.

8.6 DESIGNATED INFECTIVE RISK PATIENTS

Patients Harboured Blood Borne Viruses

(In cases of suspected or known CJD please see 8.6.8 below)

Universal precautions enable all patients to be treated safely throughout the dental school. However, because of the varying levels of clinical expertise of students and to facilitate effective treatment of patients and confidentiality the following additional measures should be taken when treating known infective patients.

A risk assessment should be carried out on all patient to determine their infection risk to others or if they are at risk of infection. On this evidence it should then be decided if a single room is required.

NO UNQUALIFIED STAFF OR UNDERGRADUATE STUDENT WILL BE INVOLVED IN THE TREATMENT OF KNOWN INFECTIVE RISK PATIENTS.

8.6.1 General Organisation of Treatment

1. Each department should organise facilities for the treatment of high-risk patients, dependent on availability of facilities and workload. The level of risk evaluated should be carried out through a risk assessment procedure.
2. These patients may be treated in a side room containing a single dental unit, although it is not necessary for the side room to be reserved exclusively for treating high-risk patients.
3. Where side room facilities are unavailable Room 134 on the first floor, should be used. It is the responsibility of those staff wishing to use this room to make suitable arrangements for nursing assistance and to ensure that the room is left in a clean and tidy condition and safe for the next procedure.
4. Wherever possible infective patients may be treated at the end of a session to facilitate clinical management.
5. Only staff clinical and technical staff who are directly involved in dental procedures on these patients need be informed in advance that the patient is HIV positive, *special precautions are not required for those patients in the waiting room.*
6. Charts of all known infective risk patients must carry the RHT 'Risk Disc' sticker on the ***OUTSIDE*** of the front green cover and on the front of the Royal chart.

8.6.7 CREUTZFELDT- JAKOB DISEASE (CJD)

Information and guidance is available separately from this Manual in the document produced by the Advisory Committee on Dangerous Pathogens and the Spongiform Encephalopathy Advisory Committee, (1998) 'Transmissible Spongiform Encephalopathy Agents: Safe Working and the Prevention of Infection'. The Stationary Office. A copy of this document and advice is available from The Royal Hospitals Trust Microbiology and Virology staff.

General Guidelines

- All known or patients suspected of having CJD, (see Table below) should be nursed using blood and body fluid precautions i.e. a plastic apron, gloves and a fluid-shield mask and visor or goggles should be worn if splashing is likely.
- Instruments used to carry out invasive procedures on these patients should be disposable as far as possible.
- A Yellow Rigid Burn Bin with a Black Lid should be at hand for ready disposal of all waste except 'sharps' which should be put into an identified 'sharps' bin.
- In theatre these patients should be last on the list to allow for cleaning before the next session.
- Involve the minimum number of healthcare personnel.
- Non disposable instruments may have to be quarantined or incinerated after use.

Patient Risk Groups	
<i>Known or Suspected Patients</i>	<i>At Risk Patients</i>
<p>Patients diagnosed as having CJD or a related disorder *</p> <p>Patients suspected of having CJD or a related disorder * i.e. those whose symptoms are suggestive of CJD but where the diagnosis has not yet been confirmed</p>	<p>Asymptomatic patients who are potentially at risk of developing CJD or a related disorder *:</p> <ul style="list-style-type: none"> - recipients of hormone derived from human pituitary glands, e.g. growth hormone, gonadotrophin; - recipients of human <i>dura mater</i> grafts; - people with a family history of CJD; i.e. close bloodline relatives (parents, brothers, sisters, children, grandparents and grandchildren).
* i.e. classical sporadic CJD, nvCJD, GSS, FFI and kuru	

This group includes patients who require emergency dental treatment and whose past history suggest infective risk status. These additional recommendations are without prejudice to the general guidelines given above, which are intended to ensure the safety of all patients.

APPENDIX 1

Hand Disinfection Guidelines

FORM OF HAND DISINFECTION	MAIN CLINICAL APPLICATION	ACTION	PRODUCTS AVAILABLE
☞ Social Handwash- Handwashing with liquid soap and water (no antiseptic added). Bar soaps not recommended.	☐ Routine cleansing of hands before and after patient contact. ☒ Time of handwash - 15-20 seconds	☐ Removal of soil. Reduction/removal of transient organisms, little effect on the normal flora of the skin (commensals)	✓ Contract liquid soap.
☞ Hygienic hand disinfection- Antiseptic hand wash preparation	☐ Before & after touching wounds, urethral or IV catheters. ☐ Before & after an invasive procedures. ☐ Frequently in high-risk areas e.g. ICU, Haematology, SCBU. ☐ Before & after glove use. ☒ Time of hand disinfection - 15-20 seconds	☐ Removes and kills most transient microorganisms.	✓ Hibiscrub. Betadine Surgical Scrub.
☞ Waterless hand disinfection- Alcohol based hand rub.	☐ Cleansing of hands in specific situations before and after patient contact, when use of soap and water is not practical. ☐ Should not be used when hands are visibly soiled ☒ Rub all parts of hands until dry i.e. 15 seconds	☐ Does not remove soil. Reduction/removal of transient organisms. Little long term effect on the normal flora of the skin.	✓ 70% Alcohol Gel.
☞ Surgical hand disinfection.	☐ Prior to operations. Use disposable brush. ☐ Before attending to Special Care Patients. ☐ Before employing aseptic technique. ☐ After handling infectious materials ☒ Time of Surgical hand disinfection - 2-3 minutes	☐ Removal of soil. Reduction/removal of transient organisms. Reduction of normal skin flora.	✓ Hibiscrub/ Betadine Surgical Scrub.

