CODE OF PRACTICE RELATING TO

INFECTION CONTROL

IN DENTISTRY

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Contents

INTRODUCTION

The control of cross-infection and cross-contamination in dental practice is the focus of continuing discussion and debate and, as a result, recommendations and guidelines are regularly reviewed in the light of available information. This booklet updates previously published advice on the practical measures needed to control cross-infection in the dental practice. Current evidence indicates that, if recommended infection control procedures are followed and accidental inoculation by sharps is avoided, there is minimum risk of transmission of serious infectious diseases during dental treatment. The implementation of an infection control policy and standard operating procedures requires a thorough knowledge of the risks and the practical measures to be taken using best practice guidelines and recommendations.

Dentists have a duty to take appropriate precautions to protect their patients and their staff from the risk of cross-infection. Failure to provide and use adequate decontamination, disinfection and sterilisation facilities may lead to proceedings for professional misconduct before the Fitness to Practise Committee of the Dental Council.

To minimise the risk of transmission of infection between patients and between patients and Health Care Workers (HCW's) a sensible and practical routine for the prevention of cross-contamination and cross-infection should be followed. Clinical dental and auxiliary staff should additionally protect themselves by ensuring up-to-date immunisation against hepatitis B and other infectious diseases including tuberculosis, poliomyelitis, rubella, tetanus, diphtheria and varicella zoster. It is the responsibility of the dentist/employer to make all staff aware of standards of infection control required in the workplace.

INFECTION CONTROL PRECAUTIONS

In 1996 CDC (Centre for Disease Control, USA) and the Hospital Infection Control Practise Advisory Committee (HICPAC) introduced Standard Precautions.

There are two levels of infection control precautions:

1. Standard precautions which are applied to all patients.

2. Additional precautions which are additional to standard precautions for certain 'at risk' patient groups. These consist of transmission based precautions and protective isolation guidelines.

1. Standard Precautions

Standard precautions are designed to reduce the risk of transmission of microorganisms from known and unknown sources of infection (blood, body fluids, excretions, secretions etc). These precautions apply to the care of all patients regardless of their diagnosis or presumed infection status. The principles of standard precautions include:

(a) ***Handwashing***

(b) ***Protective barriers*** i.e. the use, of personal protective clothing, e.g. gloves, surgical masks, eye protection.

(c) ***Management of healthcare waste*** (refer to segregation, packaging and storage guidelines for Health Care Risk Waste. 3rd Edition, 2004; available as a pdf document on; *http://www.dohc.ie/publications/segregation_packaging.html*

(d) ***Correct handling and disposal of needles and sharps***.

(e) ***Effective cleaning, decontamination and sterilisation of equipment, instruments and environment*** (including blood spillages).

(f) ***Use of appropriate disinfectants*** at the correct working dilution and for the appropriate disinfection time on clinical contact surfaces, non-sterilisable instruments and equipment.

2. Transmission Based Precautions

Transmission based precautions, are for "at risk" assessed patient groups known or suspected to be infected or colonised with highly transmissible microorganisms (airborne, droplet and contact) that need additional precautions to the standard precautions or when the eradication of the infectious agent by sterilisation is not possible.

There are four types of transmission based precautions:

(a) Airborne precautions: e.g. for active TB, influenza and varicella. This may involve the use of appropriate respiratory masks by immunized HCW's preferably in negative pressure rooms.

(b) Droplet precautions: e.g. for meningococcal disease or whooping cough. This involves the use of respiratory masks and eye protection by HCW's.

(c) Contact precautions: e.g. for Impetigo, Shingles or MRSA. This involves the use of gloves and plastic aprons by HCW's when performing clinical procedures.

(d) Sterilisation precautions: e.g. for transmissible spongiform encaphalopathies. This involves incineration, *even of non-disposable instruments*, following treatment of a patient known to have a transmissible spongiform encephalopathy, such as vCJD.
The following document should be referred to for further details:
"Guidelines on minimizing the risk of transmission of Transmissible Spongiform Encephalopathies in Healthcare Settings in Ireland". Sept 2004. This can be accessed at the web site of the *Health Protection Surveillance Centre.*

ACCEPTANCE OF PATIENTS

Whilst a health professional has the right to accept or to refuse to treat a patient, it is important that the dental profession accepts the responsibility of providing dental treatment for all members of the community.

A dentist/dental hygienist has an obligation to provide care to those in need. A decision not to provide treatment to an individual because the individual has AIDS or is HIV seropositive or is HBV or HCV seropositive, based solely on that fact is unethical.

Decisions on the type of treatment to be provided or referrals made or suggested in such instances, should be made on the same basis as those made for all patients

Refusing treatment to those patients whose infective status is definitely known is not only unethical but also illogical since undiagnosed carriers of infectious diseases pass undetected through practices and clinics every day. Once a patient has been accepted, for other than occasional treatment, the dentist must be prepared to carry out or arrange for all treatment necessary to secure and maintain oral health.

Patient Confidentiality

All information disclosed by a patient in the course of consultation and treatment, including information about infection risk, is confidential. No part of the information obtained may be disclosed to a third party without the patient's consent except, when required by law, when directed by a court of law, or when necessary to protect the interest of the patient or the welfare of society. A practitioner is responsible to the patient for the security and confidentiality of the information given to him/her by the patient. The duty of confidentially is equally binding on all members of the dental team and practitioners should ensure that their staff are aware of this and behave accordingly. It is recommended that contracts of employment include a statement of the duty to maintain confidentiality

INFECTED HEALTH CARE WORKERS

It is the ethical responsibility of HCW's who believe that they themselves may have been infected with a blood-borne virus to obtain medical advice, including any necessary testing, and if found to be infected, to place themselves under specialist medical care. Their medical supervision will include counselling, in particular, in respect of any changes in the HCW's practice, which might be considered appropriate in the interest of protecting their patients.

It is the duty of such dentists/dental hygienists/dental nurses to act upon the medical advice they have been given, which may include the necessity to modify their practice or to cease the practice of dentistry altogether. The exclusion of exposure prone procedures may be warranted.

Exposure Prone Procedures;

Exposure prone procedures are invasive procedures where there is a risk that injury to the HCW may result in exposure of the patient's open tissues to the blood of the HCW. Such procedures include where the HCW's gloved hand may be in contact with sharp instruments or sharp tissues (e.g. bony spicules or teeth) inside a patient's mouth where the hands or fingertips of the HCW may not be visible at all times.

Hepatitis B

It is important that all workers are vaccinated.

If a HCW is diagnosed with hepatitis B he/she may be required on medical advice to:

1. Undergo annual monitoring to determine his/her viral load. Eligibility to carry out exposure prone procedures will depend on this viral load and the accepted national recommendations for exposure prone procedures at that date.

2. Discontinue exposure prone procedures.

Human Immunodeficiency Virus-Infection (HIV)
and Hepatitis C
Eligibility to carry out exposure prone procedures will depend on the viral load and the accepted national recommendations for exposure prone procedures at that date.

LAW RELATING TO INFECTION CONTROL

Safety, Health and Welfare at Work Act 2005.

Under the Safety, Health and Welfare at Work Act 2005, employers have a legal responsibility to ensure that all their employees are appropriately trained and are proficient in the procedures necessary for working safely. All practices are required to display a Safety Statement and all staff should be familiar with this statement. Employers also have a responsibility to protect staff, patients and others attending their practices. While at work, employees are required by the Act to take reasonable care for their own and others health and safety and to comply with the health and safety requirements of their employer.

Members of the dental team should adopt appropriate infection control precautions to prevent the spread of infection to themselves or to their patients. Most carriers of latent infections, including blood borne viruses, are unaware of their condition and therefore it is important that appropriate infection control procedures are adopted for all patients. Infection control procedures implemented rigorously not only safeguard patients, especially those who may be immunocompromised, but also protect members of the dental team.

Careful medical history taking is essential and may assist in identifying immunocompromised patients requiring particular care. The use of medical history sheets and questionnaires is recommended but they must be supported by direct questioning and discussion between patient and dentist. The medical history must be revised at subsequent appointments. It is important that discussions are conducted in an environment which permits the disclosure of sensitive personal information. Confidentiality must be preserved. Provided the appropriate infection control precautions are taken routinely, known carriers of HBV, HCV or HIV who are otherwise well, may be treated as a matter of course in general dental practice, health care centres and hospital dental departments.

The following recommendations for procedures in routine dental practise are made in the light of current knowledge and may be subject to revision as further information becomes available.

TRAINING IN INFECTION CONTROL

All dental staff engaged in any aspect of the care of patients should receive thorough training and understand the policies adopted in the practice for the prevention of cross-infection and cross-contamination. Adequate training should be given to new staff taking into account the different levels of training required for those who are qualified and those who are unqualified (training details should be documented). Training should be updated annually and appropriate records kept.
The dentist should ensure that the immunisation status of all staff is up-to-date at the commencement of employment and is maintained during employment.

The following aspects of infection control should be included:

Risk assessment on transmission of infections.

Staff should be trained to assess the level of risks and possible sequelae to allow them to recognise situations where exposure might be likely and to know how to avoid or minimise risks to patients, staff and others.

Practices should have documented standard operating procedures. These should cover accidental spillage, personal injury or exposure to body fluids or tissues, particularly inoculation injuries. Appropriate reporting procedures should be in place as well as details of how to obtain information on the recommended medical management.

All procedures should be reviewed twice yearly in light of best practice and new evidence to ensure that they are being carried out correctly.

Medical Devices Directive

The Medical Devices Directive is one of three directives which together cover all medical equipment. It was enacted to try to ensure a harmonised regulatory environment for all medical devices sold within the European Economic Area. All products which fall within the scope of the Directive must meet certain essential safety and administrative requirements and must be CE marked to show that they comply.

Contaminated Instrument Processing

All instruments and equipment must be cleaned and sterilised after use. Sterilisation destroys all forms of microorganisms, including viruses, bacteria, fungi and spores. Disinfection eliminates most microorganisms but not necessarily all microbial forms (for example, bacterial endospores and some viruses).

Decontamination of equipment or instruments is a multi-step sequential process.

Step 1	Transportation
Step 2	Cleaning and decontamination
Step 3	Preparation and packaging
Step 4	Sterilization (or disinfection of equipment not suitable for sterilization)
Step 5	Storage

a) Transportation

Handling should be kept to a minimum.

Instruments should be carried in a covered container and procedures should be in place to ensure that there is no contact between contaminated and sterilized instruments.

b) Cleaning and decontamination of instruments and equipment

All instruments must be cleaned thoroughly to remove visible deposits preferably by using washer/disinfectors which are more efficient at pre-sterilization cleaning than ultrasonic cleaners.

c) Preparation and packing

Instruments should be dried and checked for debris, function and damage before packing.

d) Sterilisation of instruments

All instruments likely to be contaminated must be sterilised after use. Any instruments or equipment being sent for repair must be decontaminated before dispatch. Sterilisation procedures must be effective against all known pathogens. The method of choice for most instruments is an autoclave using one of the following time-temperature combinations;

Option	Temperature (ºC)	Minimum Hold time (minutes)
A	134-138	3
B	126-129	10
C	121-124	15

The highest temperature compatible with the equipment to be sterilised should be used.
Packs should be dry when removed from the autoclave.

In the light of present knowledge, steam sterilisers without a vacuum phase, in which air is removed from the chamber by steam displacement (i.e. downward displacement autoclaves), are <u>not</u> to be used for wrapped instruments. They should only be used for solid unwrapped instruments for immediate use only if items are transported aseptically to point of use. Storage is **not allowed** (not suitable for lumened devices including suction tips, handpieces etc)

Vacuum Autoclaves (air is sucked out of the chamber pre commencing the sterilizing process) are suitable for sterilizing:

- Wrapped solid instruments and utensils
- Porous loads.
- Hollow instruments and utensils (wrapped or unwrapped)

All dental autoclaves must be regularly serviced and maintained to ensure they are achieving appropriate sterilisation conditions. This would include:

- A validation process at commissioning.
- Regular performance monitoring by periodic testing (daily, weekly user tests)
- Documented periodic maintenance according to manufacturer's instructions including safety checks.
- Documentation of in-use operational readings.

Disinfection of equipment not suitable for sterilisation

Equipment should be cleaned and disinfected (see manufacturer's instructions and refer to effectiveness claim by the manufacturer)
Note chemical hazards and material safety data sheets.

Hot air ovens, chemical solutions, boiling water, UV light and hot bead sterilisers are all <u>inadequate</u> for sterilization and should not be used in dental practice for such purposes.

e) Sterilisation of Handpieces

Sterilisation of handpieces is mandatory. Autoclavable handpieces are available and must be first cleaned and then sterilised after each patient. Cleaning is preferable using a pre-sterilization cleaning machine. However, if manual cleaning is employed use water and detergent. Lubricate the handpiece prior to sterilisation in accordance with the manufacturer's recommendations. If it is a requirement to lubricate the handpieces after sterilisation, keep lubricant separate to that which is used when handpieces are contaminated.

Because water retraction valves within the dental units may aspirate infective materials back into the handpiece and water line, check valves should be installed to reduce the risk of transfer of infective material. While the magnitude of this risk is not known, it is prudent for water- cooled handpieces to be run and to discharge water into a sink or container for 20-30 seconds after completing treatment on each patient. This is intended to physically flush out patient material that may have been aspirated into the handpiece or water line. Additionally, there is some evidence that overnight bacterial accumulation can be significantly reduced by allowing water-cooled handpieces to run and to discharge water into a sink or container for several minutes at the beginning of the clinic day.

f) Storage of sterile instruments and equipment

Wrapped sterilised instruments should be stored in covered or closed areas, not under or near a sink where they can become wet.
All sterilised instruments should be stored in dry, covered conditions so as to minimise re-contamination.
Stored material should also be dated.
A system based on sterilisable trays is recommended.
Storage is not recommended for unwrapped instruments.

REDUCING WATER SUPPLY CONTAMINATION

Dental chair unit water quality

In recent years, microbiological contamination of dental chair unit waterlines (DUWs) has been recognised as an important problem. This contamination is due to the formation of bacterial biofilm on the inside of the waterlines. This biofilm provides a reservoir for ongoing contamination of dental unit output water delivered to handpieces, three-way syringe and patient rinse cup filler. Most of the bacterial populations found in DUWs are aerobic heterotrophic bacteria that also exist in mains water, where they are present in lower numbers. The presence of large numbers of microorganisms in dental unit water presents a risk of infection for dental patients and staff and is incompatible with good hygiene and cross-infection control practices. DUW contamination is of particular concern in the treatment of medically compromised and immunocompromised individuals. Some of the bacteria found in dental unit water are known to cause disease in humans; of particular concern are Pseudomonas, Legionella and non-tuberculosis Mycobacterium species. In addition a range of toxic microbial by-products (e.g.endotoxin) could potentially also have clinical consequences. Occupational exposure to aerosols of waterborne bacteria, generated by dental unit handpieces, can also lead to colonisation of dental staff. Currently there is no microbial quality standards imposed for dental unit output water within Ireland or the European Union (EU). However, it is not unreasonable to expect that the quality of dental unit output water should fall within
the potable drinking water standards. The potable water standards set for the EU, the USA and Japan are 100 cfu/ml, 500 cfu/ml and 100 cfu/ml, respectively, of aerobic heterotrophic bacteria. The current CDC guidelines for infection control in dental healthcare settings recommend that dental unit output water should =500 CFU/ml of aerobic heterotrophic bacteria. The American Dental Association has set a standard for dental unit output water of =200 CFU/ml of aerobic heterotrophic bacteria.

Approaches to improve dental unit output water quality.

Flushing dental unit waterlines at the start of the clinical day to reduce the microbial density in output water does not affect waterline biofilm or reliably improve the quality of the output water used during dental treatment. Using tap water, distilled water or sterile water in a self-contained bottle reservoir system will not eliminate bacterial contamination in output water if waterline biofilms are not effectively controlled.
Elimination or inactivation of waterline biofilm requires the regular use of chemical biocides. A wide variety of commercial waterline cleaning products and systems are available. Dental practitioners should consult the dental chair unit manual or contact the manufacturer for advice on products and procedures for waterline disinfection. In dental units supplied with a bottle reservoir, approved biocides can be added to the bottle, aspirated into the waterlines and left for an appropriate time to disinfect. Following disinfection, all of the waterlines should be thoroughly flushed to eliminate biocide. In dental chair units supplied with mains water, the dental practitioners should contact the manufacturer for advice on biocide delivery. Some brands of dental chair unit

are supplied with an integrated waterline cleaning system. When choosing a biocide, users should ensure that the efficacy of biocides for dental unit waterline disinfection have been determined independently and the results published in international peer-review journals. Manufacturers will be happy to provide this information.
Dental health-care personnel should be educated regarding water quality, biofilm formation, water treatment procedures and adherence to maintenance protocols. Dental practitioners should seek advice from the manufacturer of their dental unit or water delivery system to determine the most appropriate method for maintaining acceptable output water quality. In general, waterlines should be disinfected at least once a week with an approved biocide. Microorganisms, blood and saliva from the oral cavity can enter the dental unit waterline system during patient treatment. Thus handpieces, ultrasonic scalers and air/water syringes should be operated for a minimum of 20 to 30 seconds after each patient to flush out retracted material. Even for devices fitted with antiretraction valves, flushing devices for a minimum of 20 to 30 seconds after each patient is appropriate.

Control of Legionella

Legionella species (L. pneumophila and about 30 other species) are often found in piped water systems in buildings and cause Legionnaire's disease (pneumonia resulting from inhalation) in healthy individuals. A number of studies have reported the presence of Legionella in DUWs. A recent consultation document on Legionnaire's disease by the Irish National Disease Surveillance Centre (NDSC) has outlined a code of practice for control of Legionella for Ireland. Regular disinfection of dental chair unit waterlines with an approved treatment regimen and biocide should also effectively control the levels of Legionella in DUWs. **There is no need for additional disinfection protocols.** Dental health-care personnel should be familiar with the NDSC code of practice for control of Legionella and each practice should undertake a formal Legionella risk assessment as outlined. All water systems (water tanks etc.) should be maintained as outlined and periodically inspected. In relation to the water distribution system supplying the dental clinic, hot water should be circulated at a temperature of at least 50ºC and cold water should be circulated at <20ºC to minimise growth of Legionella. All redundant or seldom used sanitaryware (i.e. showers, washand basins, toilets) should be removed along with their supply pipes to prevent dead legs (areas where water can stagnate).

SURFACE CLEANING AND DISINFECTION

The surfaces of dental units may accumulate infective material and should be impervious. When selecting equipment, consideration should be given to the ease with which it can be cleaned and disinfected.

During use all surfaces liable to become contaminated with body fluids or infected matter should be covered with impervious disposable coverings. Between patients, the coverings must be changed and the underlying surface cleaned. Where it is necessary for the operator's hands to touch light and chair controls they should be protected with impervious disposable coverings which also should be changed between patients. Effective infection control is greatly aided and simplified by a strict system of zoning and the use of sterilisable or disposable (instrument and equipment) trays. Zoning involves defining the area within the surgery which will become contaminated during clinical procedures. Only this defined area needs to be cleaned and disinfected between patients. A separate area should be used for writing charts etc., Cabinets, drawers and inserts should be cleanable.
Easily cleaned seam free floor covering should be used and the area should have good ventilation.
Procedures should be adopted which limit the areas touched and contaminated each time a patient is treated.

Between clinical sessions all work surfaces including those apparently uncontaminated (outside zoned area), should be thoroughly cleaned and decontaminated with detergent and a suitable viricidal disinfectant. Fresh solutions of disinfectant should be made up and used according to the manufacturer's instructions.
Glutaraldehyde should not be used to disinfect surfaces in dental practice because of its toxicological profile.

Decontamination of impressions and prosthetic appliances

All impressions should be rinsed in running water to remove all visible signs of contamination and be disinfected with an appropriate disinfecting agent before being sent to a dental laboratory (see manufacturer's recommendations). The single use of disposable impression trays is recommended.
Impressions and prosthetic appliances should be suitably packaged when sending by post to the laboratory.
Technicians should wear gloves when handling impressions and pouring models.
Prosthetic appliances received from a laboratory should be disinfected prior to insertion into the patient's mouth.

DENTAL RADIOLOGY

When taking radiographs for patients, ensure that;

- Protective plastic covered I/0 films (barrier pouches) are used
- Prevent contamination of the processing equipment
- Film is released onto clean area
- Gloves are used to position film, holder and tube
- Gloves are used prior to selecting and taking exposure
- Tubehead and surfaces are disinfected
- Biteblocks and holders are sterilisable

DISPOSABLES AND DISPOSAL OF WASTE

Disposables (Single use items)

Single use equipment, such as scalpels, aspirators and salivary ejectors should be discarded after use within one treatment session and never re-used. Disposable local anaesthetic cartridges may contain blood or fluids aspirated from the patient and they must never be used for a second patient.

Disposal of Waste

Health care waste is defined as the solid or liquid waste arising from health care or health related facilities. Categories include;

1. Health Care Non-Risk Waste: (waste not contaminated with body fluids)

2. Health Care Risk Waste: (waste contaminated with body fluids and hazardous to others). Any human tissue and disposable items and materials that have been used on patients and which may be contaminated with bodily fluids, e.g. dressings, swabs, wipes, gloves, aprons and paper tissues"

All waste generated in dental practice must be segregated into one or other of these categories and disposed of appropriately. All producers of waste have a duty to ensure that the necessary precautions are taken when disposing of health care waste. Therefore:

a. Waste should be carefully labelled, secured and stored safely.
b. Protective clothing should always be worn when handling waste, e.g. apron, overalls and gloves.
c. Waste should be disposed of in appropriate coloured bags
d. Persons involved in the disposal of waste should have hepatitis B and tetanus vaccinations and should be trained in proper waste management techniques.
e. Do not put hands inside bags/containers
f. Do not throw or drop bags/containers
g. Do not clasp bags against the body
h. Re-bag split/leaking bags

- **Black bags** are used for Health Care Non-Risk waste and can be disposed of to a landfill site
- **Yellow bags** are used for Health Care Risk Waste, and must be disposed of in compliance with the law and the regulations/policies of the Department of Health and Children and the Department of the Environment.

Health Care Risk Waste

Sharp items, including syringes, needles and suture needles, scalpels, small amounts of broken glass and local anaesthetic cartridges, should be placed in a rigid "safe" container or specifically designed puncture resistant bin which should not be filled to more than two-thirds of its capacity. Great care must be taken to avoid inoculation injuries.

The container should be kept as close as is practicable to the work station and ideally should be wall mounted or on a trolley and should not be stored on the floor or in areas accessible to children etc.

Non-sharp Healthcare risk waste contaminated with blood or saliva should be placed in sealed, sturdy, impervious yellow bags to prevent leakage and clearly labelled as infective waste.

Dentists should make their own arrangements for the disposal of Health Care Risk Waste either with a licensed private contractor or with a local authority.

PROTECTION OF STAFF

Immunisation

Vaccination against hepatitis B virus (HBV) is strongly recommended for all clinical dental personnel including dentists, dental nurses, chairside assistants, dental hygienists and students. Protection is also advised against diseases such as tuberculosis, varicella, poliomyelitis, measles, mumps, diptheria and tetanus. Non-pregnant women of childbearing age should be also immunised against rubella if they are not immune. Vaccination against rubella should be avoided during pregnancy.

Hand Protection

(See web site of the Health Protection Surveillance Centre)
Handwashing is a primary disease prevention measure for HCW's.
Hands must be washed thoroughly with a proprietary disinfectant liquid soap and dried prior to putting on and after removing gloves. Any cuts or abrasions to the hands or wrists should be covered with adhesive waterproof dressing. Liquid soap disinfectant combinations have been shown to be more than twice as effective as bar soap at removing bacteria from the hands. Water control taps should be wrist, elbow or foot operated. Disposable paper towels are recommended.

Technique for handwashing

Remove all jewellery and roll back sleeves. Wet hands under running water.
Apply soap to all areas of hands.
Rub hands together vigorously, thoroughly cleansing all surfaces for 10-15 seconds.
Avoid contaminating arms, splashing clothing or floor. Do not touch equipment e.g. taps
Rinse hands thoroughly under running water. Dry hands thoroughly using paper towels. Turn off tap using paper towel.

Total bacteria counts are higher when rings are worn. Rings also interfere with thorough handwashing and may cause difficulty when putting on gloves – the gloves may tear. The area underneath nails harbours the largest number of microorganisms – nails should be kept short. Artificial nails increase microbial load and are a disincentive to vigorous hand-washing.

All persons with direct patient contact must wear non sterile gloves routinely. They must be worn for all dental procedures including extra and intra-oral examination and not only for those procedures where there is a possibility of bleeding. A new pair of gloves should be used for each patient and may need to be changed during a procedure if exposed to contamination.

Used gloves should be disposed as Healthcare risk waste.

Non powdered gloves should be used. When latex gloves are used they should have a low extractable latex protein content. All staff reporting skin problems, particularly if related to glove use, should be assessed appropriately.
Non-latex gloves are available for patients with a latex allergy.

Eye Protection

Operators and close support dental nurses should protect their eyes against foreign bodies, splatter and aerosols which may arise during operative dentistry, especially during scaling (manual and ultrasonic), the use of rotary instruments, use of the air/water syringe, adjusting and cutting of orthodontic wires and the cleaning of instruments and equipment.
Patient's eyes should always be protected against possible injury. Protective glasses with top and side shields are strongly recommended and should be disinfected between patients.

Face Masks

A well-fitting surgical facemask should be worn by HCW's.
The theatre or dome type facemask is preferable to the paper type which rapidly becomes permeable and inefficient.

Rubber Dam Isolation

Rubber dam offers substantial advantages and should be used whenever practicable. In addition to enhancing the quality of operative care, the use of rubber dam virtually abolishes saliva/blood splatter and aerosol. Non-latex rubber-dam is available.

Protective Clothing

Protective clothing which covers areas likely to be contaminated should be worn. Surgery clothing should be retained for use within the surgery only.

Aspiration and Ventilation

Good surgery ventilation which exhaust externally from the premises will reduce most of the risk of cross-infection and cross-contamination from aerosols. (Splatter and droplet may remain a potential source of cross-contamination). Efficient high-speed aspiration is essential. Aspirators and tubing (suction hose) should be cleaned regularly in accordance with the manufacturer's instructions and the system should be flushed through twice-daily with the recommended non-foaming disinfecting agent. Aspirator tips should be discarded or sterilised, if non-disposable tips are used. Filters should be removed and disinfected at the end of each day as per the manufacturer's instructions. All removable components of the suction hoses should also be removed, washed and disinfected, or sterilised, if possible.

If a portable aspirator is used, at the end of each clinical session the contents of the container which collects the waste liquid should be emptied directly into a sluice or toilet and never into the surgery sink.
Care should be taken to avoid splashing the surrounding surfaces, which should be washed down and disinfected afterwards. At the end of the day, the container should be scrubbed down and disinfected with a suitable non-foaming disinfectant. A disinfectant solution recommended by the manufacturer should be sucked through the tubes to clean them, left overnight in the bottle and emptied the next morning. Many new dental units have cleansing programmes to disinfect the tubing and help to remove biofilm. Manufacturer's recommendations should be followed.

Needlestick Injury Policy

Avoiding occupational blood and body fluid exposure is the primary way of preventing transmission of hepatitis B virus (HBV), hepatitis C virus (HCV) and human immunodeficiency virus (HIV) in health care settings. However, hepatitis B immunisation and post exposure management are integral components of a complete program to prevent infection following blood borne pathogen exposure and are important elements of workplace safety.

The Safety, Health and Welfare at Work Act 2005 places a responsibility on employers to provide staff with information, instruction and training. This is applicable to the risks of acquiring HBV, HCV and HIV and procedures for their prevention. In addition, employers are required to make a suitable and sufficient assessment, and to ensure that appropriate health surveillance, as identified by the assessment, is provided.

An exposure that might place health care staff at risk for HBV, HCV, or HIV infection may be-:
a percutaneous injury (e.g., a needle stick or cut with a sharp object) or contact of mucous membrane or non intact skin e.g., (exposed skin that is chapped, abraded, or afflicted with dermatitis) with blood, tissue, or other body fluids that are potentially infectious.
The risk of sero-conversion post sharps injury, blood or body fluid exposure from a source will depend on 1) the status of the source 2) type of injury and 3) the status of the victim.

All dental practices should have standard operating procedures to:

1. Prevent needlestick injuries
2. Manage needlestick injuries, if they occur.

1. Measures to prevent needlestick injuries:

- Resheathing needles represents a significant hazard and should be avoided, if possible, by using safe needle systems.
- If resheathing is used, single-hand resheathing of needles (Bayonet Technique) should be practised.
- Never handle sharp instruments by the working end**.**
- Safe disposal of sharps is essential and they should be disposed of at point of use.
- Consider the use of a proprietary system to minimise the handling of sharps.
- Ensure you take responsibility for your own sharps.
- Needles must not be bent, sheared, broken, recapped, removed from disposable syringes, or otherwise manipulated by hand before disposal

2. Management of needlestick injuries

The practice Safety Statement should outline in detail the appropriate protocol to be followed in the event of a sharps injury, blood or body fluid exposure. This protocol should include reference to the following:

The staff member affected (the victim) should:

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- Report the incident immediately.
- Wash the area immediately under running water or use an eye-washing bottle as appropriate
- Make the wound bleed for three to four minutes whilst continuing to wash the area. Dry area with paper towel.
- Cover the wound with a water-impermeable sticking plaster and consider double gloving any hand injury, if continuing to work.
- Seek appropriate medical advice.
- The source patient should be identified and arrangements made for a blood sample to be obtained, with informed consent. This should be tested for the presence of the blood borne viruses hepatitis B, hepatitis C and HIV.
- Arrangements should be made for blood samples to be taken from the staff member (victim) with informed consent. One sample is marked "for storage" and is retained in the relevant laboratory. The other is analyzed to determine the staff member's hepatitis B antibody level.
- Further assessment, treatment and follow up of the staff member are performed in accordance with current best practice. Arrangements should be in place for speedy assessment and treatment.
- Counseling, reassurance and information may be required and arrangements for accessing this should be in place as appropriate.
  Appropriate records must be kept.

Protocol for HCW recipients of an inoculation injury from known HIV positive source patients.

1. Implement all the above action points.
2. In addition, note, if possible the degree of HIV progression of the patient (CDC status) and the antiviral drugs that the patient is taking.
3. Have arrangements in place for accessing appropriate specialist medical care urgently (within an hour). Post exposure prophylaxis (PEP) may be recommended to health care workers who sustain injuries with the highest risk of HIV transmission.