

GUIDELINES ON

INFECTION CONTROL PRACTICE

IN DENTISTRY

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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 Worker (HCW) 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 (Centres for Disease Control USA) and the Hospital Infection Control Practice 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 Precaution

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 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 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.

(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 encephalopathies. 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 minimising the risk of transmission of Transmissible Spongiform Encephalopathies in Healthcare Settings in Ireland". Sept 2004. This can be accessed at

<http://www.ndsc.ie/Publications/CJDGuidelines/>

Instruments used on these patients should be sterilised with 20,000ppm available sodium hypochlorite for 1 hour or 2M sodium hypochlorite for 1 hour. Using a porous load steam steriliser, 134-137⁰C for a single cycle of 18 minutes or six successive cycles of 3 minutes each may be used. The instruments should be quarantined and incinerated if the disease later develops.

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, that is, whether an individual dentist believes he or she has need of a colleague's skills, knowledge or experience and whether the dentist believes, after consultation with the patient's physician, if appropriate, that the patient's health status would be significantly compromised by the provision of routine dental treatment.

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.

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. A practitioner is responsible to the patient for the security and confidentiality of the information given to him by the patient. The duty of confidentiality 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 dentists/hygienists/ dental nurses who believe that they themselves may have been infected with HIV or other 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 best 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 open body cavity, wound or confined anatomical space (e.g. 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 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)

Dentists who are HIV positive should not carry out exposure prone procedures.

A member of the clinical team who believes that he or she has become infected with HIV has an ethical responsibility to seek appropriate medical advice and, if found to be infected, to submit to regular specialist medical supervision and act upon the advice given. Appropriate medical supervision will include counselling, particularly in relation to any changes in the clinician's practices, which might be necessary to protect patients. A dentist with HIV infection should not continue in clinical practice merely on his/her own assessment of the risk to patients. Dentists who fail to obtain appropriate medical advice or who fail to act upon advice given to them, when they know they are, or believe they may be, HIV infected, may be charged with professional misconduct. Other clinical staff should follow these guidelines.

Hepatitis C

A member of the clinical team who believes that he/she has become infected with hepatitis C has an ethical responsibility to seek appropriate medical advice and, if found to be infected, to submit to regular specialist medical supervision and act upon the advice given. Appropriate medical supervision may include counselling, particularly in relation to any changes in the clinician's practices, which might be necessary to protect patients. A dentist with hepatitis C infection should not continue in clinical practice merely on his/her own assessment of the risk to patients. Dentists who fail to obtain appropriate medical advice or who fail to act upon advice given to them, when they know they are, or believe they may be infected with hepatitis C, may be charged with professional misconduct. Other clinical staff should follow these guidelines.

LAW RELATING TO CROSS-INFECTION PREVENTION

Safety, Health and Welfare at Work Act 1989.

Under the Safety, Health and Welfare at Work Act 1989, employers have a legal responsibility to ensure that all their employees are appropriately trained and are proficient in the procedures necessary for working safely (**Appendix 1**). All practices are required to display a Safety Statement and all staff should be familiar with this statement. They also have a responsibility to protect staff, patients and others attending the practice. Whilst at work, employees are also 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 infection so as to protect their patients, themselves, their families and others. Body fluids and tissues may be contaminated with a variety of different pathogens. Most carriers of latent infections, including blood borne viruses, are unaware of their condition and therefore it is important that at a minimum, standard infection control is adopted for all patients. Standard infection control procedures implemented rigorously not only safeguard patients, especially those who may be immunocompromised, but also protect 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's, health care centres and hospital dental departments.

The following recommendations for procedures in routine dental practice 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. 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.

Staff must be aware of:

- (a) the proper use of protective clothing and equipment and their removal, handling and decontamination, the safe disposal of waste and the transport of dangerous goods.
- (b) the importance of general and environmental hygiene within the practice
- (c) the importance of up-to-date immunisation of HCW's.

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.

Operating procedures

Practices should have documented standard operating procedures to take, in the event of 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.

Contaminated Instrument Processing

All instruments and equipment should be appropriately decontaminated after use. 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

All instruments and equipment should 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).

1. Transportation

Minimal handling
Carry instruments in a covered container
One way flow

2. 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. The least efficient method is manual scrubbing with soap or detergent. However, if this latter method is utilized the HCW should wear puncture resistant and/or chemical resistant 'utility' gloves together with a mask, eyewear and apron and great care should be taken to avoid accidental inoculation.

3. Preparation and packing

Dry instruments
Check for debris, function and damage
Packing materials

4. Sterilisation and disinfection of instruments not suitable for sterilisation

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 (°C)	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 not 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 should 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 inadequate for sterilization and should not be used in dental practice for such purposes.

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. Wear appropriate eye protection when manually oiling handpieces. 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 care 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.

5. Storage of sterile instruments and equipment

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.

A system based on sterilisable trays is recommended

All instruments which may perforate the mucosa including burs, matrix bands and all surgical instruments must be sterile at the time of use.

Ensure wrapping has not be damaged or torn and prevent packs from falling.

Stored material should also be dated.

REDUCING WATER SUPPLY CONTAMINATION

Dental chair unit water quality

In recent years, microbiological contamination of dental chair unit waterlines (DUWs) has been recognised as a significant 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 syringes and patient rinse-cup fillers. 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 are 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 health-care 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.

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 50°C and cold water should be circulated at <20°C 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

Dentist are responsible for ensuring impressions and appliances are cleaned and disinfected prior to sending to the laboratory. All impressions should be rinsed in running water (protective clothing and avoid splatter or aerosol) 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. Technicians should wear gloves when handling impressions and pouring models. Prosthetic work returned 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/O 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)

The general use of disposable items, including burs, scalpels, aspirator tips, saliva ejectors, matrix bands, impression trays and beakers, is recommended whenever possible. Single use equipment as specified by manufacturers should be discarded after use within one treatment session and never reused. 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 i.e

Waste should be carefully labelled, secured and stored safely.
Protective clothing should always be worn when handling waste, e.g. apron, overalls, gloves and safety shoes (if necessary)

Dispose of in appropriate coloured bags

Hepatitis B and tetanus vaccinations are up to date

Do not compress bags

Do not put hands inside bags/ containers

Do not throw or drop bags/ containers

Do not clasp bags against the body

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 (see below). 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 dental nurses, chairside assistants, dental hygienists and students. Protection is also advised against diseases such as tuberculosis, varicella, poliomyelitis, measles, mumps, diphtheria 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

Handwashing is the primary disease prevention procedure for HCW's. Hands must be washed (and dried) thoroughly with a proprietary disinfectant liquid soap (designated sink) and dried prior to donning 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 (approx 5 strokes backwards & forwards for each area). 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. You should avoid rings with ridges / stones. Rings also interfere with thorough handwashing and may cause difficulty donning 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 discourage 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. It is recommended by the CDC that sterile surgical gloves should be worn for all surgical procedures including tooth extraction.

Used gloves should be disposed as Healthcare risk waste. Appropriate donning and removal methods should be used so as to avoid hand contamination from and to the glove. Handwashing after glove removal is essential and also before sterile glove use.

Gloves must be changed between clean and dirty tasks & between patients. Gloves must be worn when handling/cleaning items or surfaces contaminated with body fluids e.g. laundry, waste, tissue, containers.

Non powdered and not powdered gloves should be used. If latex gloves are used they should have a low extractable latex protein content. Ensure that latex free equipment and non latex gloves are used on patients who have a latex-allergy. Barrier creams if used should be compatible with latex. All staff reporting skin problems particularly if related to glove use should be assessed appropriately.

Gloves however offer no protection against sharps injuries.

Eye Protection

Operators and close support dental nurse 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. Contaminated glasses should be washed in soapy water and disinfected with a product that does not cause irritation to the eyes.

Face Masks

A well-fitting surgical facemask should be worn by HCW, particularly when using an ultrasonic scaler or high speed rotating instruments, or when undertaking surgical procedures. The theatre or dome type facemask is preferable to the paper type which rapidly become permeable and inefficient. Masks should be changed regularly, and normally between patients, since their efficiency decreases after the period of use. Wet masks should be replaced. Masks should not be worn as a necklace and do not handle by filter. Special respirators are required when dealing with particular patients e.g. open case of TB. Such masks must be fit tested prior to use.
(Deleted N95) from this)

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 (chest, forearms, lap). The material should be able to withstand the relatively high temperatures required for disinfection. Surgery clothing should be removed before entering eating areas or leaving the premises. Disinfection can be achieved by a complete cycle of an automatic washing machine set on the hottest wash (95°C) (this is ideal but most materials will not withstand this temperature for a long time and will need regular replacing)

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 aspirations 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 manufacturers instructions using appropriate infection precautions. All removable components of the suction hoses should also be removed, washed and disinfected, or sterilised, if possible.

Studies demonstrate that liquid from low volume suction hoses can enter the patient's mouth during use when a seal around the saliva ejector is created.

Central type suction which discharges directly to sewers should be used, 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. Manufacturers 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 1989 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 (Bayonette Technique) should be practiced.
- Never handle sharp instruments by the working end
- Safe disposal of sharps is essential

- Consider use of a proprietary system to minimise the handling of sharps.
- Dispose of sharps at the point of use
- 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 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

- 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. (~~Apply antiseptic~~ delete this- no evidence base.)
- Cover the wound with a water-impermeable sticking plaster and consider double gloving any hand injury if continuing to work.
- 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 analysed to determine the staff members 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.

Appendix 1

An example of a structure for a
practice safety statement

SAFETY STATEMENT

OF

Date

BASIC LEGAL REQUIREMENTS UNDER THE SAFETY, HEALTH & WELFARE AT WORK ACT 1989

The Safety Health and Welfare at Work Act 1989 specifies that all employers including the self-employed are primarily responsible for creating and maintaining a safe and healthy workplace. Duties of care are specified for the employer, employee and the self-employed. In particular employers have a legal responsibility for the prevention of accidents and ill health at their place of work.

The employer is required to identify the hazards and assess the risks in their place of work and to draw up a written Safety Statement setting out the arrangements in place to safeguard the safety, health, and welfare of people in the business. There are also specific duties concerning consultation, information, and training of staff. In addition there are duties on designers, manufacturers and suppliers.

The Safety Statement sets out:

- the *full scope* of workplace safety
- the *organisation and systems* necessary to achieve health and safety objectives.
- the *responsibilities and roles* of employers, the self-employed and employees
- the *enforcement procedures* where the laws are not followed.

The employer is responsible for creating and maintaining a safe and healthy workplace:

A written Safety Statement, identifying hazards and outlining measures to protect employees, must be prepared. Risks must be evaluated periodically and a written record of risk assessment kept as part of the Safety Statement.

Responsibilities also include providing a safe place of work, safe access and exits, safe systems, safe plant and machinery, information, instruction, training and supervision.

Necessary emergency evacuation plans and contacts with local emergency services must be arranged.

The employer must ensure appropriate and adequate first aid arrangements; welfare facilities; provision of appropriate protective clothing; record keeping; arrangements for the safe transport, handling and storage of hazardous materials, specimens and substances; safe disposal of hazardous waste; use of notices signs and labels; procedures and plans for dealing with emergencies, including measures to prevent fire and explosions.

Where a place of work is shared, all of the different employers must co-operate in safety and health matters.

Note: This is not a comprehensive legal interpretation of the Act.

GENERAL POLICY

THE PRACTICE OF _____

(hereafter referred to as the practice) will so far as is reasonably practicable ensure the safety, health and welfare of all of its employees.

The practice will also ensure so far as is reasonably practicable the safety and health of persons who come in contact with the work activities of the practice.

The organisation and responsibilities for health, safety and welfare are set out in this Safety Statement.

Copies of this Safety Statement will be brought to the attention of all employees.

Successful management of health, safety and welfare depends on employee co-operation.

The practice is committed to the provision of a safe, healthy place of work, safe equipment, safe procedures and work practices and safe and healthy staff.

This Statement will be kept available for the use of employees and contractors. It may be required for inspection by an Inspector of the Health and Safety Authority.

ORGANISATION FOR HEALTH AND SAFETY AT THE PRACTICE

NAME	POSITION	RESPONSIBILITY

CONSULTATION

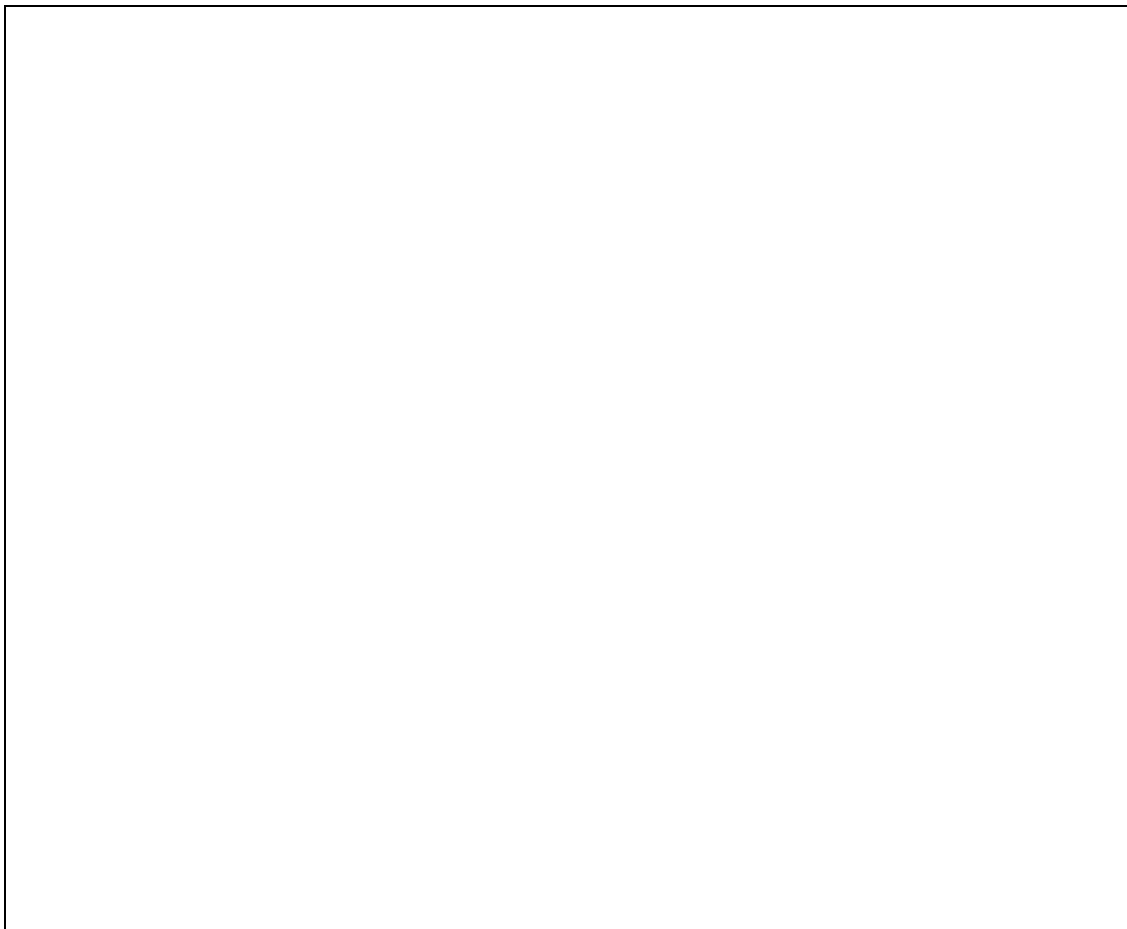
This section outlines the procedures and protocols for consultation with employees on health and safety matters.

The practice recognises that consultation is an essential part of good health and safety management. This consultation takes place for the purpose of making and maintaining arrangements which will enable the practice to develop measures to ensure the safety, health and welfare at work of its employees.

Employees have a right under the Safety Health and Welfare at Work Act to make representations to and consult their employer on matters of safety, health and welfare at their place of work.

The employees of the practice may select from among their number a representative (referred to as the safety representative) to represent them in consultations.

The practice recognises that the safety representative has specific rights under the Safety Health and Welfare at Work Act. These are detailed in Section 13 of the Act.



EMPLOYEE GENERAL DUTIES

Section 9 of the Safety, Health and Welfare at Work Act 1989 places a number of obligations on employees.

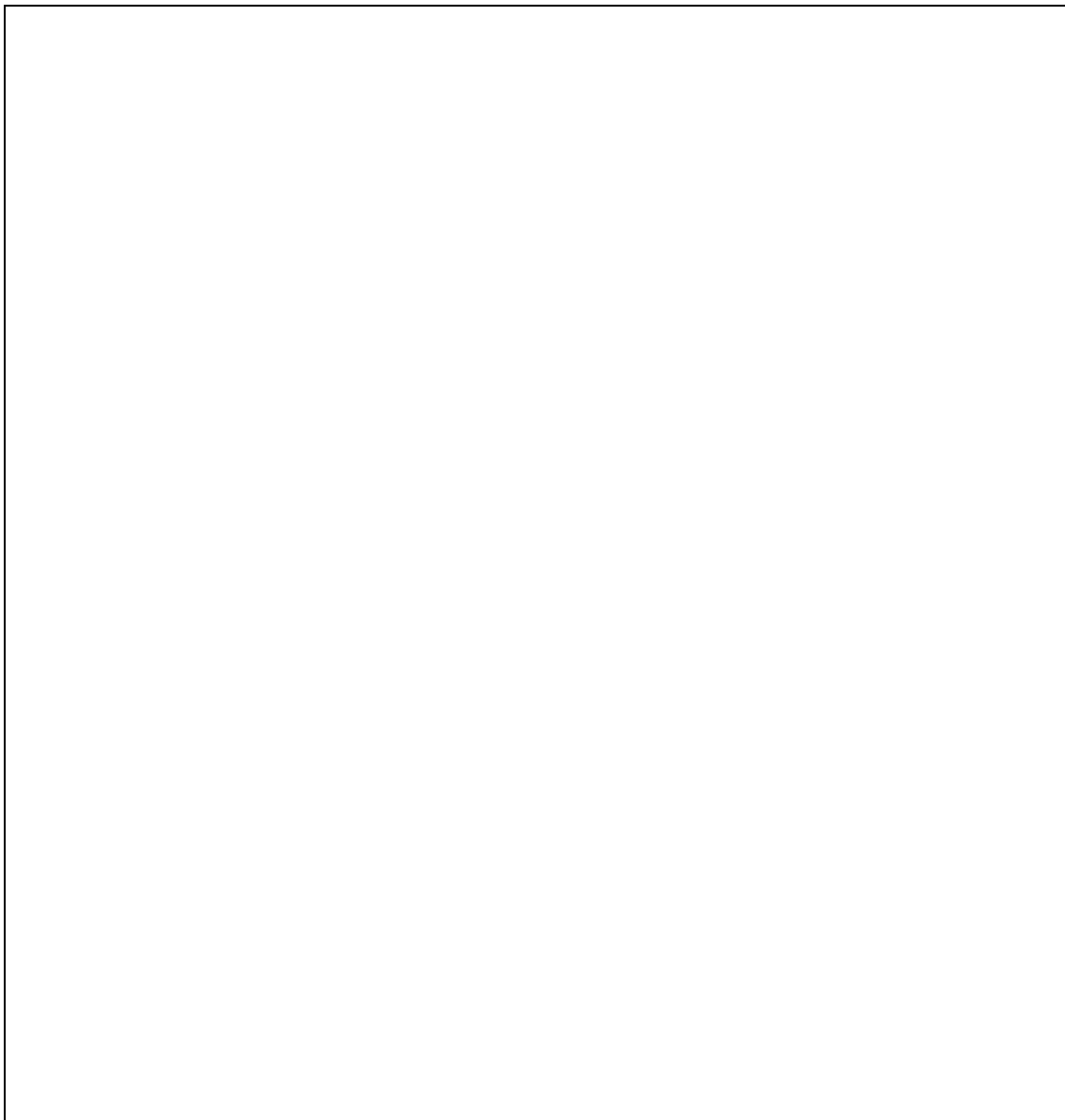
1. To take reasonable care of his/her own health and safety and the health and safety of any other person who may be affected by his/her acts or omissions while at work.
2. To co-operate with the employer and any other person to such extent as will enable the employer or the other person to comply with any of the relevant statutory provisions.
3. To use in such manner so as to provide the protection intended, any suitable appliance, protective clothing, convenience, or equipment or other means or thing provided (whether for his/her use alone or for use by him/her in common with others) for securing his/her safety, health or welfare while at work; and
4. To report to the employer or immediate supervisor, without reasonable delay, any defects in plant, equipment, place of work or system of work which might endanger the safety, health or welfare, of which s/he becomes aware.

No person shall intentionally or recklessly interfere with or misuse any appliance, protective clothing, convenience, equipment or other means or thing provided in pursuance of any of the relevant statutory provisions or otherwise, for securing the safety, health or welfare of persons arising out of work activities.

TRAINING PROVISIONS FOR STAFF AT THE PRACTICE

A programme of training is an essential part of health and safety management.

This section outlines the training provisions for employees of the practice. This includes induction training for all staff, ongoing periodic training, and also specific training requirements e.g. hepatitis B, infection control, manual handling, use of equipment, use of protective equipment, first aid, fire etc. All new staff will receive a copy of the Safety Statement at induction. Staff may be required to demonstrate their immunity to hepatitis B or other infectious agents as appropriate. All staff will be instructed in the immediate management of sharps injuries and blood or body fluid exposures.



ACCIDENT REPORTING.

A specific set of procedures is to be followed in the event of an accident occurring. These are set out below. All staff should familiarise themselves with these procedures.

All accidents must be reported to:

Accidents are recorded in an accident report book located at:

All accidents and near misses must be recorded and investigated.

In certain circumstances accidents must be reported to the Health and Safety Authority, Hogan Place, Dublin 2.

Form IR 1 must be used:

1. Where the accident causes loss of life.
2. Where as a result of the accident the employee is absent from work for 3 calendar days (exclusive of the day the accident occurred).
3. An accident not at work but in connection with a work activity, which causes an employee's loss of life or an accident, which requires medical attention.

In certain circumstances Dangerous Occurrences may also have to be reported to the HSA on Form IR 3.

FIRE SAFETY

The practice recognises that fire safety deserves special emphasis. A specific fire plan has been established and is documented separately.

Fire drills are held regularly.

DISCIPLINARY PROCEDURES IN THE PRACTICE

The following section outlines the disciplinary procedures for breaching health and safety procedures in the practice.

The successful implementation of this policy requires the full support and active co-operation of all employees and it may be a disciplinary matter for an employee not to conform to the duties as specified in the Safety Statement.



MONITORING AND REVIEW

This Safety Statement is reviewed annually. Representations made will be considered in the review.

Revisions may also be required between the annual reviews because of changes in personnel, work practices, equipment, new information etc., or at the request of the Health and Safety Authority (National Disease Surveillance Centre). All changes will be brought to the attention of staff.

The hazard audit sheets will be reviewed whenever there are changes in personnel, work practices, equipment, new information etc., or at the request of the Health and Safety Authority.

A review of all safety procedures will be carried out following all accidents, incidents or near misses.

DATE FOR REVIEW OF SAFETY STATEMENT:

SIGNED

RISK MANAGEMENT

A hazard is anything that can have the potential to cause harm. The first step in safeguarding safety and health is to systematically examine the premises and work practices and identify existing hazards. The safety audit is a systematic examination of the workplace with the purpose of identifying hazards, addressing the risks and recommending control mechanisms. It may be necessary to obtain specialist advice in particular circumstances.

Risk Assessment involves determining the likelihood of accident, injury or illness occurring from a hazard. Risk will depend on many, often related circumstances:

- is anyone exposed to the hazard and if so how many?
- is the hazard likely to cause injury and if so how serious would the injury be?
- what sort of control mechanisms are in place to reduce the likelihood and/or severity of the risk and are these mechanisms working ?

Following the risk assessment each hazard will be assigned a risk rating of high (H), medium (M) or low (L). Hazards identified as high (H) risk should be dealt with as a priority to ensure that the risk is minimised. In the case of medium (M) risk a plan should be put in place to reduce the risk to low (L).

Where changes in working practices, equipment or technology occur, there must be a new assessment of the risks and the safety statement updated accordingly.

Hazards should be identified under four headings:

- 1. Physical Hazards**
- 2. Chemical Hazards**
- 3. Biological Agents**
- 4. Psychosocial Factors**

PHYSICAL HAZARDS:

Date of assessment:

Area assessed:

HAZARD IDENTIFIED	POSSIBLE Consequences	RISK L/M/H	CONTROL MECHANISMS	DATE FOR CORRECTION

CHEMICAL HAZARDS:

Date of assessment:

Area assessed:

HAZARD IDENTIFIED	POSSIBLE Consequences	RISK L/M/H	CONTROL MECHANISMS	DATE FOR CORRECTION

BIOLOGICAL HAZARDS:

Date of assessment:

Area assessed:

HAZARD IDENTIFIED	POSSIBLE Consequences	RISK L/M/H	CONTROL MECHANISMS	DATE FOR CORRECTION

PSYCHOSOCIAL HAZARDS:

Date of assessment:

Area assessed:

HAZARD IDENTIFIED	POSSIBLE Consequences	RISK L/M/H	CONTROL MECHANISMS	DATE FOR CORRECTION