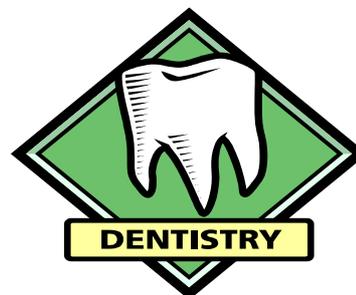


# ESSEX HEALTH PROTECTION UNIT

## DENTAL INFECTION CONTROL GUIDELINES



Issued January 2005  
Revised July 2005 and October 2006



<b>SECTION A – INTRODUCTION AND CONTACTS .....</b>	<b>1</b>
1. Introduction .....	1
2. Scope .....	1
3. Responsibility.....	1
4. Contacts.....	2
<b>SECTION B – INFECTION, ITS CAUSES AND SPREAD.....</b>	<b>3</b>
1. The Causes of Infection.....	3
2. The Spread of Infection .....	4
<b>SECTION C – STANDARD PRINCIPLES OF INFECTION CONTROL</b>	
<b>.....</b>	<b>5</b>
1. Standard Principles of Infection Control (Universal Precautions).....	5
2. Hand Hygiene and Skin Care .....	6
3. Standard Principles of Infection Control.....	10
(Universal Precautions) .....	10
4. Safe Handling of Sharps.....	12
5. Spillage Management.....	13
<b>SECTION D – MANAGEMENT OF SHARPS and SPLASH</b>	
<b>INJURIES .....</b>	<b>16</b>
1. Occupational Injuries.....	16
2. Control Measures .....	18
<b>SECTION E – MANAGEMENT OF INFECTIOUS DISEASES .....</b>	<b>22</b>
1. Introduction .....	22
2. Personal Protection – Immunisation .....	22
3. The Infected Healthcare Worker .....	22
4. Information Sheets.....	23
5. Transmissible Spongiform Encephalopathies .....	24
6. Meticillin Resistant <i>Staphylococcus aureus</i> (MRSA).....	24

<b>SECTION F – CLINICAL PRACTICE .....</b>	<b>26</b>
1. Training in Infection Control .....	27
2. Aseptic Technique .....	27
3. Minor Surgery .....	27
4. Surgery Design.....	29
5. Purchase of New Equipment.....	30
6. Single-use (Disposable) Items .....	31
7. Decontamination .....	32
8. Air, Water and Suction Lines .....	49
9. Healthcare Worker’s Surgery Clothing.....	49
10. Safe Handling of Specimens .....	50
11. Waste Management .....	51
12. Infection Control Checklist .....	53
<b>SECTION G – REFERENCES .....</b>	<b>58</b>
<b>Appendix .....</b>	<b>61</b>
<b>Protocol for the Local Decontamination of Surgical Instruments .....</b>	<b>62</b>

# ESSEX HEALTH PROTECTION UNIT DENTAL INFECTION CONTROL GUIDELINES

## SECTION A – INTRODUCTION AND CONTACTS

### 1. Introduction

These guidelines have been written for healthcare workers in dental practice in Essex, whether working for the National Health Service or private practice.

Infection control is an important part of an effective risk management programme to improve the quality of patient care and the Occupational Health (OH) of staff.

### 2. Scope

These guidelines give information on infection control specific to care given in the Dental Practice.

### 3. Responsibility

The purpose of this manual is to encourage individual responsibility by **every** member of staff. **All** should participate in the prevention and control of infection within the dental practice.

All dentists have a duty of care to their patients to ensure that infection control procedures are followed. "Failure to employ adequate methods to prevent cross-infection would almost certainly render a dentist liable to a charge of serious misconduct". (GDC. Maintaining Standards. November 1997, as amended May 2001).

The Practice is responsible for ensuring that there are effective arrangements in place for the control of infections.

## 4. Contacts

**For NHS dental practices**, Infection Control advice should be sought from the Infection Control Nurse of the Primary Care Organisation (PCO) within the area where the dental practice is located.

A list of contact telephone numbers for PCOs in Essex follows:

PCO	Contact Number
Basildon PCT	01268 705000
Billericay, Brentwood & Wickford PCT	01277 302516
Castle Point & Rochford PCG	01268 464500
Chelmsford PCT	01245 398770
Colchester PCT	01206 288500
Epping Forest PCT	01992 902010
Harlow PCT	01279 694747
Maldon & South Chelmsford PCT	01621 727300
Southend PCT	01702 224600
Tendring PCT	01255 206060
Thurrock PCT	01375 406400
Uttlesford PCT	01371 767007
Witham, Braintree & Halstead CT	01376 331549

**For private dental practices.** Communicable Disease and Infection Control advice can be obtained from the Essex Health Protection Unit, 8 Collingwood Road, Witham, Essex CM8 2TT.

**The main office telephone number is: 0845 1550069. Please note that this is a new telephone number.** The Consultants in Communicable Disease Control (CCDCs) and Communicable Disease Control Nurses are contactable via this number.

Advice is also available on the Essex Health Protection Unit website:  
[www.essexhpa.org.uk](http://www.essexhpa.org.uk).

Users are encouraged to ensure they have access to this site as it has advice and information on a wide range of communicable disease and infection control issues, and during incidents will be updated at least daily with the current state of affairs.

**Out of working hours** – for **URGENT** communicable disease enquiries:

Contact 01245 444417, and ask them to page the on-call Public Health Person.

# ESSEX HEALTH PROTECTION UNIT

## DENTAL INFECTION CONTROL GUIDELINES

### SECTION B – INFECTION, ITS CAUSES AND SPREAD

#### 1. The Causes of Infection

Micro-organisms are integral to infections, and a basic insight into the characteristics of commonly encountered micro-organisms is essential for good infection control practice. Micro-organisms that cause disease are referred to as pathogenic organisms. They may be classified as follows:

**Bacteria** are minute organisms about one-thousandth to five-thousandth of a millimetre in diameter. They are susceptible to a greater or lesser extent to antibiotics.

**Viruses** are much smaller than bacteria and although they may survive outside the body for a time they can only grow inside cells of the body. Viruses are not susceptible to antibiotics, but there are a few anti-viral drugs available which are active against a limited number of viruses.

**Pathogenic Fungi** can be either moulds or yeasts. For example, a mould which causes infections in humans is *Trichophyton rubrum* which is one cause of ringworm and which can also infect nails. A common yeast infection is thrush caused by *Candida albicans*.

**Protozoa** are microscopic organisms, but larger than bacteria. Free-living and non-pathogenic protozoa include amoebae and paramecium. Examples of medical importance include *Giardia lamblia* which causes an enteritis (symptoms of diarrhoea).

**Worms** are not always microscopic in size but pathogenic worms do cause infection and some can spread from person to person. Examples include threadworm and tapeworm.

**Prions** are infectious protein particles. Example: the prion causing (New) Variant Creutzfeldt-Jakob Disease.

## 2. The Spread of Infection

There are various means by which micro-organisms can be transferred from their place of reservoir to susceptible individuals. These are:

**Direct Contact.** Direct spread of infection occurs when one person infects the next by direct person-to-person contact (e.g. chickenpox, tuberculosis, sexually transmitted infections etc.).

**Indirect.** Indirect spread of infection is said to occur when an intermediate carrier is involved in the spread of pathogens e.g. fomite or vector.

A fomite is defined as an object, which becomes contaminated with infected organisms and which subsequently transmits those organisms to another person. Examples of potential fomites are instruments, impression trays and suction tips or practically any inanimate article.

Crawling and flying insects are obvious examples of vectors and need to be controlled. Insect bites may cause infections such as malaria in areas where malaria carrying mosquitoes live.

**Hands.** The hands of healthcare workers are probably the most important vehicles of cross-infection. The hands of patients can also carry microbes to other body sites, equipment and staff.

**Inhalation.** Inhalation spread occurs when pathogens exhaled or discharged into the atmosphere by an infected person are inhaled by and infect another person. The common cold and influenza are often cited as examples, but it is likely that hands and fomites (inanimate objects) are also important in the spread of respiratory viruses.

**Ingestion.** Infection can occur when organisms capable of infecting the gastrointestinal tract are ingested. When these organisms are excreted faecally by an infected person, faecal-oral spread is said to occur. Organisms may be carried on fomites, hands or in food and drink e.g. Hepatitis A, *Salmonella*, *Campylobacter*.

**Inoculation.** Inoculation infection can occur following a “sharps” injury when blood contaminated with, for example, Hepatitis B virus is directly inoculated into the blood stream of the victim, thereby causing an infection. Bites from humans can also spread infection by the inoculation mode.

# ESSEX HEALTH PROTECTION UNIT DENTAL INFECTION CONTROL GUIDELINES

## SECTION C – STANDARD PRINCIPLES OF INFECTION CONTROL

### 1. Standard Principles of Infection Control (Universal Precautions)

It is not always possible to identify people who may spread infection to others, therefore precautions to prevent the spread of infection must be followed at all times. These routine procedures are called **Standard Principles of Infection Control (or Universal Precautions)**.

Standard Principles of Infection Control/Universal Precautions include:

- Hand Hygiene and Skin Care
- Protective Clothing
- Safe Handling of Sharps (including Sharps Injury Management)
- Spillage Management.

All blood and body fluids are potentially infectious and precautions are necessary to prevent exposure to them. A disposable apron and latex or vinyl gloves should always be worn when dealing with excreta, blood and body fluids.

Everyone involved in providing care in dental practice should know and apply the standard principles of hand decontamination, the use of protective clothing, the safe disposal of sharps and body fluid spillages. Each member of staff is accountable for his/her actions and must follow safe practices.

## **2. Hand Hygiene and Skin Care**

Hand washing is recognised as the single most effective method of controlling infection.

Hands must be washed:

- Before and after each work shift or work break. Remove jewellery (rings)
- Before and after physical contact with each client
- After handling contaminated items such as dressings, impression materials and prosthetic and orthodontic appliances
- Before putting on, and after removing, protective clothing including gloves
- After using the toilet, blowing your nose or covering a sneeze
- Whenever hands become visibly soiled
- Before preparing or serving food
- Before eating, drinking or handling food and before and after smoking.

### **How to Wash Your Hands**

Hands that are visibly soiled, or potentially grossly contaminated with dirt or organic material, must be washed with liquid soap and water. Bars of soap must not be used. The preferred method for hand hygiene depends on the type of procedure, the degree of contamination and the desired persistence of anti-microbial action on the skin. (See table below).

Before starting a clinical session a dentist or dental hygienist should decontaminate his or her hands using the surgical scrub method followed by drying hands with non-sterile towels. Sterile towels for drying are required for hand decontamination prior to invasive dental surgical procedures which involve incision, excision or reflection of tissue that exposes normally sterile areas of the oral cavity. Hands must be washed prior to donning and after removing gloves.

For routine dental examinations and non-surgical procedures, handwashing and hand hygiene disinfection is achieved by using either plain or antiseptic soap, and water. If hands are not visibly soiled, an alcohol-based handrub is adequate.

The purpose of surgical hand scrub is to eliminate transient flora and reduce resident flora for the duration of the procedure to prevent introduction of micro-organisms in the operative wound.

**TABLE 2. Hand hygiene methods and indications**

Method	Agent	Purpose	Duration (minimum)	Indication
Routine social handwash	Water and non-antimicrobial soap (e.g. plain soap)	Remove soil and transient micro-organisms	15 seconds	Before and after treating each patient (e.g. before glove placement and after glove removal). After barehanded touching of inanimate objects likely to be contaminated by blood or saliva. Before leaving the dental surgery. When visibly soiled. Before re-gloving after removing gloves that are torn, cut, or punctured
Hand hygiene disinfection	Water and antimicrobial soap (e.g. chlorhexidine, iodine and iodophors, chloroxylenol [PCMX], triclosan)	Remove or destroy transient micro-organisms and reduce resident flora	15-30 seconds	
Antiseptic hand rub	Water and soap followed by alcohol-based handrub	Remove or destroy transient micro-organisms and reduce resident flora	Rub hands until the agent is dry	
Surgical antisepsis	Water and antimicrobial soap (e.g. chlorhexidine, povidone-iodine)  Water and non-antimicrobial soap (e.g., plain soap) followed by an alcohol-based surgical hand-scrub product	Remove or destroy transient micro-organisms and reduce resident flora	2–6 minutes	Before donning sterile surgeon's gloves for surgical procedures

An effective hand washing technique involves three stages:

## 1. Preparation

Before washing hands, all wrist and, ideally, hand jewellery should be removed. Cuts and abrasions must be covered with waterproof dressings. Fingernails should be kept short, clear and free from nail polish. Hands should be wet under tepid running water before applying liquid soap or an antimicrobial preparation.

## 2. Washing and Rinsing

Wet the hands under running water. Apply the hand wash solution ensuring that it comes into contact with all of the surfaces of the hand. The hands must be rubbed together vigorously for a minimum of 10-15 seconds, paying particular attention to the tips of the fingers, the thumbs and the areas between the fingers. Hands should be rinsed thoroughly. When decontaminating hands use an alcohol handrub, hands should be free from dirt and organic material. The handrub solution must come into contact with all surfaces of the hand. The hands must be rubbed together vigorously, paying particular attention to the tips of the fingers, the thumbs and the areas between the fingers, until the solution has evaporated and the hands are dry.



1. Palm to palm.



2. Right palm over left dorsum and left palm over right dorsum.



3. Palm to palm fingers interlaced.



4. Backs of fingers to opposing palms with fingers interlocked.



5. Rotational rubbing of right thumb clasped in left palm and vice versa.



6. Rotational rubbing, backwards and forwards, with clasped fingers of right hand in left palm, and vice versa.

*Handwashing technique. (Ayliffe et al. 1978; Lawrence 1985)*

## 3. Drying

This is an essential part of hand hygiene. Dry hands thoroughly using good quality paper towels. In clinical settings, disposable paper towels are the method of choice because communal towels are a source of cross-contamination. Store paper towels in a wall-mounted dispenser next to the washbasin, and throw them away in a pedal operated domestic waste bin. Do not use your hands to lift the lid or they will become re-contaminated.

Hot air dryers are not recommended in clinical settings. However if they are used in other areas, they must be regularly serviced and users must dry hands completely before moving away.

## **Surgical Scrub**

Surgical hand washing destroys transient organisms and reduces resident flora before surgical or invasive procedures. Oral surgical procedures are those that involve the incision, excision or reflection of tissue that exposes sterile areas of the oral cavity. At the start of a session, an aqueous antiseptic detergent solution is applied to moistened hands and forearms for approximately 2 minutes. The nails are scrubbed and a manicure stick can be used to remove dirt from beneath the nail. The disinfection process must be thorough and systematic, covering all aspects of the hands and forearms. The procedure should take 3 to 5 minutes. Preparations currently available are 4% chlorhexidine and 7.5% povidone-iodine solution. (Ayliffe et al, 2000) The hands must be thoroughly dried with a sterile towel prior to donning sterile gloves. Hands may be socially washed prior to donning sterile gloves thereafter. An alternative to social handwash is the use of alcoholic handrub prior to donning sterile gloves for subsequent cases in the same session.

## **Hand Creams**

An emollient hand cream should be applied regularly to protect skin from the drying effects of regular hand decontamination. If a particular soap, antimicrobial hand wash or alcohol product causes skin irritation, an OH team or general practitioner (GP) (who may refer to a dermatologist) should be consulted.

## **Hand Washing Facilities**

Facilities should be adequate and conveniently located. Hand washbasins must be placed in areas where needed and where client consultations take place. They should have elbow- or foot-operated mixer taps. Separate sinks should be available for other cleaning and rinsing purposes - such as cleaning and rinsing of instruments:

- Use wall-mounted liquid soap dispensers with disposable soap cartridges - keep them clean and replenished
- Place disposable paper towels next to the basins - soft towels will help to avoid skin abrasions
- Position foot-operated pedal bins near the hand washbasin - make sure they are the right size.

## **For Dental Procedures that are performed in Individuals' Homes**

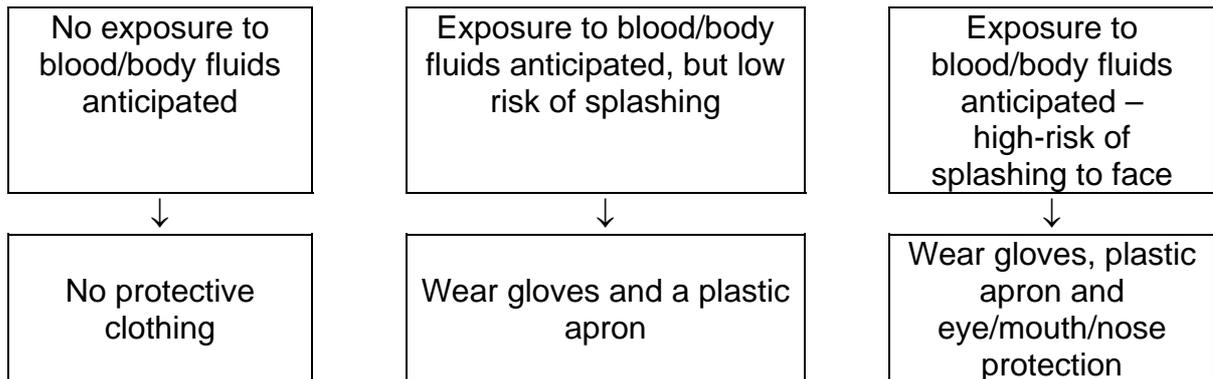
Hands should be washed prior to any procedure in the patient's home and before departure. If hand-washing facilities are inadequate (e.g. no warm water, no soap, no hand towel), the healthcare worker should carry liquid soap, paper hand towels and alcohol handrub. However alcohol handrub should only be used if the hands are visibly clean. Alternatively arrangements should be made for the patient to be seen in a surgery.

### 3. Standard Principles of Infection Control (Universal Precautions)

Selection of protective equipment must be based on an assessment of the risk of transmission of infection between the patient and dental clinical staff.

#### Assessment of Risk

#### WHAT TO WEAR WHEN



#### Types of Protective Clothing

##### Disposable Gloves

Gloves must be worn for invasive procedures, contact with sterile sites and non-intact skin or mucous membranes, and all activities that have been assessed as carrying a risk of exposure to blood, body fluids, secretions or excretions, or to sharp or contaminated instruments.

Gloves that are acceptable to healthcare personnel and that conform to European Community (CE) standards must be available.

**DO NOT USE** powdered latex gloves as it exacerbates the risk of latex allergy through increased exposure to the allergens present in the powder. Polythene gloves do not provide any barrier protection, and do not have a place in the clinical setting.

Gloves must be worn as single-use items. They must be put on immediately before an episode of patient contact or treatment and removed as soon as the activity is completed. Gloves must be changed between caring for different patients, and between different care or treatment activities for the same patient, and do not substitute for hand washing.

Gloves must be disposed of as clinical waste and hands decontaminated after the gloves have been removed.

Sensitivity to natural rubber latex in patients, carers and healthcare personnel must be documented. Alternatives to natural rubber latex gloves must be available eg. nitrile.

To prevent transmission of infection, gloves must be discarded after each procedure. Gloves should **not** be washed between patients as the gloves may be damaged by the soap solution and, if punctured unknowingly, may cause body fluid to remain in direct contact with skin for prolonged periods.

**1. Non Sterile Gloves**

Should be used when hands may come into contact with body fluids or equipment contaminated with body fluids.

**2. Sterile Gloves**

Should be used when the hand is likely to come into contact with normally sterile areas or during any surgical procedure.

**3. General-purpose Utility Gloves**

General-purpose utility gloves, e.g. rubber household gloves, can be used for cleaning instruments prior to sterilisation, or when coming into contact with possible contaminated surfaces or items. Ideally, colour coding of such gloves should be used e.g. blue for the kitchen, yellow for general environmental cleaning, and red for 'dirty' clinical duties. This will help prevent cross-infection from one area of work to another. The gloves should be washed with general-purpose detergent and hot water, and dried between uses. They should be discarded weekly, or more frequently if the gloves become damaged.

**4. Polyurethane/polythene Gloves (Non Sterile and Sterile)**

Polyurethane/polythene gloves do not act as a barrier to infection. They do not meet the Health and Safety Commission regulations and they do not have a place in clinical practice. **DO NOT USE.**

**Disposable Plastic Aprons**

Should be worn when there is a risk that clothing may be exposed to blood, body fluids, secretions or excretions, with the exception of sweat.

Plastic aprons should be worn as single-use items, for one procedure or episode of patient care, and then discarded and disposed of as clinical waste.

**Visors or Face Masks and Goggles**

Must be worn where there is a risk of blood, body fluids, secretions or excretions splashing into the face or eyes.

#### 4. Safe Handling of Sharps

Sharps include needles, scalpels, root canal reamers, stitch cutters, glass ampoules, sharp instruments and broken crockery and glass. Sharps must be handled and disposed of safely to reduce the risk of needle stick injury and possible exposure to blood-borne viruses. Always take extreme care when using and disposing of sharps. Avoid using sharps whenever possible:

- Clinical sharps should be single-use only
- Do not re-sheath a used needle - if this is necessary a safe method - for example, a re-sheathing device - must be used
- Discard sharps directly into a sharps container immediately after use and at the point of use
- Sharps containers should be available at each location where sharps are used
- Sharps containers must comply with UN 3921 and BS7320 standards
- Close the aperture to the sharps container when carrying or if left unsupervised to prevent spillage or tampering
- Place sharps containers on a level stable surface
- Do not place sharps containers on the floor, window sills or above shoulder height - use wall or trolley brackets
- Assemble sharps containers by following the manufacturers' instructions
- Carry sharps containers by the handle - do not hold them close to the body
- Never leave sharps lying around
- Do not try to retrieve items from a sharps container
- Do not try to press sharps down to make more room
- Lock the container when it reaches the fill-line, using the closure mechanism
- Label sharps containers with the source details when assembled and check it is still legible prior to disposal
- Place damaged sharps containers inside a larger sharps container - lock and label prior to disposal. Do **not** place inside yellow clinical waste bag.

All staff should be vaccinated against common illnesses. In addition, all those involved in clinical procedures must be vaccinated against Hepatitis B. A record of Hepatitis B antibody response should be kept in the practice, or by the OH service, for all clinical staff involved in 'exposure prone procedures' or where regular exposure to blood/blood-stained body fluids occurs:

### **Giving Injections**

Always wash hands thoroughly prior to giving an injection.

If visibly dirty, the patient's/client's skin should be cleaned with an individually packed swab soaked in 70% isopropyl alcohol and left to dry. If skin is clean, this step is not necessary.

Venepuncture and injections should be carried out only by staff who are adequately trained and experienced.

**For occupationally acquired sharps injuries see section D.**

## **5. Spillage Management**

Deal with blood and body fluid spills quickly and effectively.

A blood spillage kit should be readily available to deal with a spillage of blood.

Commercial blood spillage kits can be purchased or the practice can put together a kit as described below. The kit should be kept in a designated place (depending on the size of the establishment there may be more than one kit).

The kit should comprise:

- 'Nappy' type bucket with a lid
- Non-sterile, unpowdered latex gloves or vinyl gloves
- Disposable plastic apron
- Disposable paper towels
- Disposable cloths
- Clinical waste bag
- Small container of general-purpose detergent
- Hypochlorite solution (e.g. Household bleach or Milton) or sodium dichloroisocyanurate compound (e.g. Presept, Sanichlor) – to comply with COSHH 1988 – this compound should be stored in a lockable cupboard.

The kit should be immediately replenished after use.

For spillage of high-risk body fluids such as blood, method 1 (below) is recommended. For spillage of low-risk body fluids (non-blood containing excreta) such as excreta, vomit etc use method 2.

**1. Hypochlorite / Sodium Dichloroisocyanurates (NaDCC) Method**  
(for blood spillages on hard surface)

- Prevent access to the area containing the spillage until it has been safely dealt with
- Open the windows to ventilate the room if possible
- Wear protective clothing
- Soak up excess fluid using disposable paper towels and/or absorbent powder e.g. vernagel
- Cover area with NaDCC granules (e.g. Presept, Sanichlor).

Or

- Cover area with towels soaked in 10,000 parts per million of available chlorine (1% hypochlorite solution = 1 part household bleach to 10 parts water) e.g. household bleach, Milton, and leave for at least two minutes
- Remove organic matter using the towels and discard as clinical waste
- Clean area with detergent and hot water, and dry thoroughly
- Clean the bucket/bowl in fresh soapy water and dry
- Discard protective clothing as clinical waste
- Wash hands.

## **2. Detergent and Water Method**

(for all other body fluids and blood on carpeted areas)

- Prevent access to the area until spillage has been safely dealt with
- Wear protective clothing
- Mop up organic matter with paper towels or disposable cloths and/or absorbent powder e.g. vernagel
- Clean surface thoroughly using a solution of detergent and hot water and paper towels or disposable cloths
- Rinse the surface and dry thoroughly
- Dispose of materials as clinical waste
- Clean the bucket/bowl in fresh hot, soapy water and dry
- Discard protective clothing as clinical waste
- Wash hands
- Ideally, once dry go over area with a mechanical suction cleaner.

For staff working in a private household the above guidance should be adhered to as closely as possible.

# ESSEX HEALTH PROTECTION UNIT DENTAL INFECTION CONTROL GUIDELINES

## SECTION D – MANAGEMENT OF SHARPS and SPLASH INJURIES

### 1. Occupational Injuries

All dental practices should have arrangements with an OH department for the management of OH matters including sharps injuries. The dental practice should contact the Primary Care Organisation for advice on the provision of OH services. In the absence of such arrangements, medical advice may be obtained from the recipients GP.

In the event of a sharps injury/contamination incident during working hours, these guidelines should be followed:

A sharps injury/contamination incident includes:

- Inoculation of blood by a needle or other 'sharp'
- Contamination of broken skin with blood
- Blood splashes to mucous membrane e.g. eyes or mouth
- Swallowing a person's blood e.g. after mouth-to-mouth resuscitation
- Contamination where clothes have been soaked by blood
- Bites.

When a sharps injury/contamination incident occurs:

- Encourage bleeding from the wound
- Wash the wound in soap and warm running water (do not scrub)
- Cover the wound with a dressing
- Skin, eyes or mouth, wash in plenty of water
- Ensure the sharp is disposed of safely i.e. using a non-touch method into a sharps container
- Report the incident to immediate supervisor. An incident form should be completed as soon as the recipient of the injury is able
- The incident should be reported to the recipient's General Practitioner/OH department
- Attempt to identify source of the needle/sharp. Depending on the degree of exposure and the knowledge of the source patient/client it may be necessary to take further immediate action (**see Section 2: Post-exposure Prophylaxis for the Recipient**).

## **2. Control Measures**

Any staff working in a healthcare facility who handle sharps or clinical waste should receive a full course of Hepatitis B vaccine and have their antibody level checked.

New staff or any existing staff who know they are not already protected require an occupational risk assessment for Hepatitis B immunisation by their employer, or their OH department.

Staff in dental practices are one of the few groups of staff in the community that do perform Exposure Prone Procedures (EPPs) (**see Section E-3 The Infected Healthcare Worker – Definition of Exposure-Prone Procedures (EPPS)**). As such, Hepatitis B immunisation is highly recommended. This is usually done by the OH Department, or some GPs may agree to perform this role. Staff who do perform EPPs need to be aware of their obligations\* to declare it if they know themselves to have been at risk of exposure to a blood-borne virus infection (Hepatitis B, C or HIV).

Staff who perform EPPs who have not acquired immunity following immunisation should seek OH advice prior to performing clinical procedures.

\*(See statements by the General Medical Council in Serious Communicable Diseases, 1997; General Dental Council in Maintaining Standards Guidance 1997; United Kingdom Central Council for Nursing, Midwifery and Health Visiting Registrar's letter 4/1994 Annex 1.)

### **POST-EXPOSURE PROPHYLAXIS FOR THE RECIPIENT**

#### **Testing the Source Patient**

In some instances it will not be possible to identify the source patient. However, if the source is identifiable and available for testing, a blood specimen should be obtained (with consent) and sent to the microbiology laboratory. This can be done on an urgent basis, in consultation with the laboratory. All donors should be tested for Hepatitis B and C, and HIV if appropriate.

Before testing a source patient, the senior members of the practice must consider who will counsel the source to obtain informed consent and who will counsel the source patient on receiving the results of the blood test. All dental practices should have arrangements in place with an OH department for this eventuality. Where this arrangement is not in place it may only be practical to obtain verbal information from the source regarding his or her health status of blood-borne infection

Additional advice on risk assessment can be obtained from your OH department.

## **Investigation of the Person Receiving the Injury**

Baseline serum should be obtained from the exposed person and stored in a secure archive at 20°C or below for at least two years.

### **HEPATITIS B PROPHYLAXIS**

Additional Hepatitis B immunisation may be required depending on the immunisation status of the recipient and the infectivity status, if known, of the donor. Advice on further immunisation, if required, should be sought from the recipient's general practitioner or practice OH department.

### **HEPATITIS C VIRUS**

There is no post exposure prophylaxis for Hepatitis C. In the event that the source patient cannot be tested, management of the healthcare worker should be based upon a risk assessment. Clinical information about the incident and/or the source patient should be reviewed. If the source patient is considered to be 'high risk' then the healthcare worker may be managed by their general practitioner, as if exposed to a source known to be positive. (Such exposures would normally be limited to sharps injuries contaminated with fresh blood from a known high-risk population such as intravenous drug users).

**This summary of Investigation and Follow-up of Healthcare Workers is for information only. It will be the responsibility of the doctor managing the injury to decide the appropriate blood tests.**

#### **Known HCV infected source**

- Obtain serum/EDTA for genome detection at 6 and 12 weeks
- Obtain serum for anti-HCV at 12 and 24 weeks.

#### **Source not known to be infected with HCV**

- Obtain follow up serum if symptoms or signs of liver disease develop.

#### **HCV status of source unknown**

- Perform risk assessment.

#### **Source Considered High Risk**

- Manage as known infected source.

#### **Source Considered Low Risk**

- Obtain serum for anti-HCV at 24 weeks.

Genotyping of source and healthcare worker will help to confirm whether transmission from patient to the worker has occurred.

## HUMAN IMMUNODEFICIENCY VIRUS

The risk of acquiring HIV from a single percutaneous exposure is small and on average is estimated to be 0.3%.

The risk of acquiring HIV through mucous membranes exposure is less than 0.1%.

### WHEN TO CONSIDER POST-EXPOSURE PROPHYLAXIS (PEP)

Post exposure prophylaxis\* should be considered **only** when there has been exposure to blood or other high-risk body fluids **known to be** or **strongly suspected** to be infected with HIV. (These fluids include: saliva in association with dentistry, unfixed organs and tissues.)

“Strongly suspected” includes individuals **with clinical symptoms** highly suggestive of HIV disease or individuals from countries where HIV is highly prevalent who may not yet have had a blood test.

Strongly suspected does not include an injury from an unknown source i.e. an inappropriately discarded needle in the healthcare setting or in a public place, nor an individual with a single lifestyle factor e.g. intravenous drug abuser.

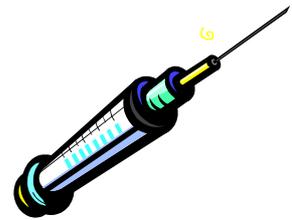
Post-exposure prophylaxis should **not** be considered following contact through any route with **low risk** materials e.g. urine, vomit, saliva, faeces, unless they are visibly blood stained.

If post-exposure prophylaxis is indicated it should be started **as soon as possible** after the incident and ideally **within the hour**. (However Department of Health recommends it may be worth considering PEP even if 1-2 weeks have elapsed since the incident.)

The individual should attend the nearest A&E department without delay.

(\* DoH HIV Post-exposure Prophylaxis, 2004)

# SHARPS INJURY



**Directions for the management of needle-sticks,  
and cuts and penetrating wounds, contaminated with blood or  
blood-stained body fluids**



Wash cuts thoroughly with soap and warm water,  
then gently encourage to bleed.  
Apply a dressing if necessary.



Splashes to the eyes or mouth  
should be thoroughly rinsed with running water



Report incident to your manager immediately.

Your medical advisor should: -

- a) Take a history and make a risk assessment
- b) Review your Hepatitis B vaccine status
- c) Take 10ml clotted blood from you and,  
if possible, the 'source' (with informed consent)
- d) Send the samples to the microbiology department marked  
'Needle-stick Injury'.

Complete an accident form.

Insert your local arrangements.

---

## Please Note

If the source is known or at risk of having HIV the injured person should contact  
Accident & Emergency, and attend within the hour.

---

## Remember

Be prepared – If you are at risk of exposure to BBVs –  
get immunised against the Hepatitis B Virus



---

Tel: In hours:- Your GP or OH Dept

Tel: Out of Hours:- Your local A&E Department



# ESSEX HEALTH PROTECTION UNIT DENTAL INFECTION CONTROL GUIDELINES

## SECTION E – MANAGEMENT OF INFECTIOUS DISEASES

### 1. Introduction

This section gives information on immunisation to prevent infectious diseases, actions required in the event of infection with blood-borne viruses and general information on individual infectious diseases that are available on information sheets.

The information sheets include information on incubation periods, method of spread, period of infectivity, exclusion periods and where appropriate the management of contacts.

In addition, there is extended text on Transmissible Spongiform Encephalopathies and MRSA.

### 2. Personal Protection – Immunisation

All clinical staff should have completed the recommended course of childhood vaccinations e.g. polio, tetanus and tuberculosis etc., and in addition a full course of Hepatitis B vaccine. A record of all vaccination and immunity acquired from Hepatitis B should be kept in the Practice. Clinical staff who do not acquire immunity from Hepatitis B vaccination should seek OH advice to investigate why immunity has not been acquired and the implications for clinical practice. Details of the UK routine vaccination schedule can be accessed via [www.dh.gov.uk](http://www.dh.gov.uk). Enter 'greenbook' into the search link.

### 3. The Infected Healthcare Worker

All healthcare workers have an ethical and legal responsibility to protect the health and safety of their patients. Failure to obtain and act upon medical advice given could lead to a charge of serious misconduct (GDC. Maintaining Standards. November 1997, as amended May 2001). Healthcare workers performing EPPs should have been tested to establish if s/he has been infected with Hepatitis B.

Current guidance (Health service circulars 1998/226, 2000/020 and 2002/010) on the infected healthcare worker with Hepatitis B, Hepatitis C and HIV is summarised on the following page.

## Definition of Exposure-Prone Procedures (EPPs)

'Exposure prone procedures are those where there is a risk that injury to the worker may result in the exposure of the patient's open tissues to the blood of the worker. These include procedures where the worker's gloved hands may be in contact with sharp instruments, needle tips and sharp tissues (spicules of bone or teeth) inside a patient's open cavity, wound or confined anatomical space where the hands or fingertips may not be completely visible at all times'.

Hepatitis B infected healthcare workers should not perform EPPs until infectivity status and the required viral load levels have been established. OH advice must be sought.

Hepatitis C infected healthcare workers should not perform EPPs until 6 months after successful anti-viral treatment has been completed and he/she remains Hepatitis C virus RNA negative. A further check to ensure he/she remains Hepatitis C virus RNA negative is also required. OH advice must be sought.

The risk of transmission of HIV infection from a practitioner is remote, however it is the responsibility of the infected practitioner to ensure that he/she is assessed regularly by his /her medical advisers. OH advice must be sought.

## 4. Information Sheets

Printable Information Sheets on the following are available from the website, [www.essexhpa.org.uk](http://www.essexhpa.org.uk).

The information sheets can be photocopied and passed to members of the public: Examples are:

- Blood-borne viruses
- Diarrhoea and vomiting
- Hepatitis A
- Hepatitis B
- Hepatitis C
- Herpes
- MRSA
- Toxoplasmosis
- Tuberculosis

## 5. Transmissible Spongiform Encephalopathies

The risk of transmission of infection from dental instruments is thought to be low **provided** optimal standards of infection control and decontamination are maintained.

Recent guidance\* advises that “there is no reason why any symptomatic or asymptomatic patient ‘at risk’ should be refused routine dental treatment. Such people can be treated in the same way as any member of the general public”.

\*(Revised TSE guidance Part 4, June 2003, Risk assessment for vCJD and Dentistry, July 2003).

## 6. Meticillin Resistant *Staphylococcus aureus* (MRSA)

General information on this organism is available on the information sheet available at [www.essexhpa.org.uk](http://www.essexhpa.org.uk).

The standard principle precautions are required when a patient is colonised or infected with MRSA.

### Information on MRSA in the Community

#### What is MRSA?

MRSA stands for Meticillin Resistant *Staphylococcus aureus*.

It occurs when the common bacterium of *Staphylococcus aureus* becomes resistant to treatment with meticillin. This is not used for treatment but a very similar antibiotic, flucloxacillin, may be prescribed.

Generally the worst scenario for an individual with MRSA in the community environment is that they have an infection in a wound, which is then slow to heal.

#### Why is it known as a Hospital Acquired Disease?

MRSA will spread more readily in the acute hospital setting, owing to the increased vulnerability that patients with an acute illness will have to infection.

When an individual suffers an acute illness, their immunity may be greatly reduced (making them vulnerable to infection). As that individual recovers, so will their immunity.

If an individual goes on to develop a chronic illness, their immune system may not make a complete recovery. However this deficit in their immune system will be far less than if they were still suffering from an acute illness.

This is why patients who were hospitalised with an acute illness, and then acquire MRSA, are discharged as soon as they have recovered from their acute episode - meaning they do not stay in a vulnerable environment for longer than necessary.

### **What is the difference between Colonisation and Infection?**

**Colonisation** means that MRSA is living on the skin (usually nose, throat, axilla or groin), causing no problem to the individual.

**Infection** means that the MRSA is causing an active infection i.e. the wound is red, hot, inflamed, there may be a discharge and pain.

### **Why is the Management of MRSA different in the Community?**

In the community, there are far fewer acutely ill patients with increased vulnerability than in the acute hospital.

### **What Precautions do you need to Take?**

**No special precautions** are necessary.

Standard/universal precautions (especially hand washing) are all that are necessary.

However MRSA does act as a reminder to reinforce the good practices that should **already** be in place.

### **Further Advice**

Please seek further advice from the PCO infection control nurse or HPA Communicable Disease Control Nurse if required.

# ESSEX HEALTH PROTECTION UNIT DENTAL INFECTION CONTROL GUIDELINES

## SECTION F – CLINICAL PRACTICE

The Clinical Practices included in the section are:

1. Training in Infection Control
2. Aseptic Technique
3. Surgery Design
4. Minor Surgery
5. Purchasing of New Equipment
6. Single-use (Disposable) Items
7. Decontamination
  - a) The Environment
  - b) Surgical Instruments
  - c) Disinfection and Impression Materials and Prosthetic and Orthodontic Appliances
  - d) Decontamination of Equipment prior to Inspection, Service and Repair
8. Air, Water and Suction Lines
9. Healthcare Worker's Surgery Clothing
10. Safe Handling of Specimens
11. Waste Management
12. Infection Control Checklist

## **1. Training in Infection Control**

All staff should receive training and regular updates in infection control practice. Appropriate hand decontamination facilities and personal protective clothing should be readily available. Staff employed to perform specialist tasks such as the decontamination of instruments should receive specific training and be assessed to be competent to perform the tasks.

## **2. Aseptic Technique**

Aseptic technique is the term used to describe the methods used to prevent contamination of wounds and other susceptible sites by organisms that could cause infection (Marsden Manual of Clinical Nursing Procedures).

The oral cavity hosts an abundance of organisms, most of these organisms are harmless but there is the potential for opportunistic infection. The aims of aseptic technique are:

- To prevent the introduction of pathogens to the site
- To prevent the transfer of pathogens from one patient to another.

An aseptic technique should be implemented during any invasive procedure that bypasses the body's natural defences, such as the mucosal surfaces of the mouth.

The procedure can be performed using sterile gloved hands. Hands should be washed before and after the technique.

Many aseptic techniques include a ritualistic practice of cleaning trolleys with alcohol between patients. It is now felt that this serves no useful purpose, and that an area cleaned by detergent and hot water is sufficient.

## **3. Minor Surgery**

Certain invasive procedures previously carried out in hospitals are being carried out in dental surgeries. Although the venue for the procedure may have changed, the risk of transmission of infection remains high in procedures such as raising skin flaps and drilling into bone. These procedures should be performed in an environment that has been prepared to replicate those of an operating theatre, where the surgeon and assistant follow hand hygiene scrubbing-up procedure and don theatre gowns and sterile surgical gloves. Caution should be taken in surgeries with climatic control systems to avoid direct airflow on to the sterile area. A sterile field is created with draping of the patient and surgical field, for example the bracket table, control set and drilling equipment. Cables that enter the sterile field must be covered in sterile tubing covers. The scrubbed-up clinician needs to maintain a sterile aseptic technique through out the procedure. It is recommended that all clinicians receive training in preparing a sterile field, hand hygiene and gowning up. Beneath the theatre gowns it is recommended that staff do not wear their usual surgery uniform but change into clean theatre trousers and tops.

The following general advice in conjunction with notes on surgery design (Refer Section F- 4) should be followed to prepare the dental surgery.

### **The environment/clinical room**

The room should comply with the following:

1. Ceiling and walls should have intact and washable surfaces that are visibly clean. A suitable covering should be used i.e. tiles or washable emulsion paint
2. Flooring should be intact, impervious, washable and visibly clean (no carpeted areas)
3. Windows should be in good condition and be visibly clean
4. Cupboards and work surfaces must be structurally sound, intact, seamless and washable
5. The dental chair and dental surgeon's stool material should be intact and impervious to body fluids
6. There should be a designated hand wash basin with elbow-operated taps, which is not used for the decontamination of equipment. Access should be clear and sinks should be visibly clean
7. The room should be large enough to ensure that the dentist and assisting nurse have sufficient room to move without contaminating their surgical gowns
8. Ideally a dirty utility area/room should be available for the decontamination of equipment and it should be within easy access of the procedure room. In addition mechanical methods i.e. washer disinfector is recommended for the cleaning of instruments. In the absence of such facilities, there should be a designated area, with a designated sink for the pre-cleaning of contaminated equipment, within the room itself. The work load should be managed in such a way to ensure that decontamination of equipment, including the autoclave working, does not occur whilst the patient is in the room.

### **Preparing the surgery**

1. All surfaces should be free from clutter and equipment removed or placed in a cupboard. Do not forget to remove cups and plants
2. Wipe down all horizontal surfaces, cupboard doors and walls up to 120cm from the floor with a detergent solution and single-use disposable cloth
3. Ideally the floor should have been washed prior to the surgical session. Any spillages that have occurred since cleaning should be effectively removed and cleaned

4. Sterile gown and drape packs, sterile gloves and specialised equipment should be taken into the surgery
5. The surgical instruments for the procedure should have been sterilised by either a Sterile Services Department, placed in a pouch and sterilised in a vacuum autoclave or unwrapped and sterilised in a displacement autoclave. Unwrapped instruments should be sterilised during the preparation of the surgery and the door of the autoclave left closed until the instruments are required by the sterile nurse. All instruments should have been prepared for sterile use by following the recommended decontamination advice of the manufacturer
6. Ideally, there should be 2 nurses to assist the dental surgeon - one to act as the sterile nurse while the other is the non-sterile or circulating nurse.

Guidance from the Eastman Dental Hospital recommends that the patient use a 0.2% Chlorhexidine mouthrinse immediately prior to surgery. There is no strong evidence to recommend or discourage prophylactic antibiotics (Esposito et al 2006). Therefore, surgeries should follow their local guidelines for antimicrobial prophylaxis

### **Post procedure**

Once the patient has left the surgery, the dental assistant will clear away the equipment and decontaminate the equipment and clinical surfaces in the usual way. The aspirator filter will require cleaning as per the manufacturer's instruction and a detergent disinfectant should be run through the suction unit.

## **4. Surgery Design**

- The surgery layout should be such that there are areas for the operator and for the assistant
- The operator's area to have access to the turbines, 3 in1 syringe, slow handpiece, bracket table, operating light and an elbow- or foot-operated hand washing sink
- The nurse's area to contain the suction lines and perhaps the 3 in 1 syringe, curing light and the cabinetry containing the dental materials. In addition an elbow- or foot- operated sink
- A designated area for clinical waste
- Within these areas the design should facilitate a workflow from clean to dirty
- The work surfaces should be seamless, with covered ends that prevent the accumulation of contaminated material and facilitate cleaning
- The surfaces should remain clutter free

- Ideally the decontamination of surgical instruments should be in a designated room within the practice. Where this is not possible a recognised separate area that is away from the operator's clean area of the surgery is required. The decontamination room/area should include 2 deep sinks, ultrasonic cleaner and/or washer disinfectant, autoclave and mechanical handpiece maintenance system. A further hand washing sink is required in the designated decontamination room
- Flooring to be washable, impervious, non-slip, seamless or sealed seams. The flooring must continue up the wall to cover the junction between the floor and the wall. The floor should not allow pooling of liquids and be impervious to fluids. Carpets are not recommended
- During dental procedures aerosol and environmental contamination can be limited by ensuring that the surgery is well ventilated, preferably by mechanical means. Ventilation systems require regular maintenance and cleaning as advised by the manufacturer and a record of maintenance and repairs should be kept.

## **5. Purchase of New Equipment**

### **Considerations when purchasing equipment:**

- It is CE marked, this is the Medical and Healthcare products Regulations Agency (MHRA) approved standard
- It is appropriate for the task that it will be used for
- It is easy to clean/decontaminate and maintain
- It is compatible with the decontamination methods used in the surgery
- It can be easily identified to be reusable or if not it is clearly marked as for single-use.

### **Considerations when purchasing a ventilation system:**

- The exhaust should be positioned on the outside where there is no risk of re-circulation of exhaust air to another building
- The design of the outlet should prohibit the entry of animals
- The fresh air supply of the system should not fall below 5-8litres per second per occupant.

### Considerations when purchasing a dental unit:

- Controls that are membrane covered
- Non-retraction valves and easy-clean filters are in place
- Dental chairs must have seamless surfaces.

### Considerations when purchasing a benchtop autoclave:

- Consult the guidance of the Medical Devices Agency Benchtop Steam Sterilizers - Purchase, Operation and Maintenance (MDA DB2002(06) October 2002. Available from the MHRA website [www.mhra.gov.uk](http://www.mhra.gov.uk).
- HTM 2010 provides details of information to be obtained from manufacturers prior to purchasing new sterilisers. This advice includes the standards (BS or EN) to which the steriliser should be designed and constructed
- Benchtop autoclaves have to be commissioned and monitored in accordance with HTM2030.

## 6. Single-use (Disposable) Items

Many intra-oral items are available for single-use, for example dams, some burs, hypodermic needles, scalpel blades, matrix bands, impression trays. After use these items should be disposed of as clinical waste. Where there is the choice of single-use or reusable items, the single-use item is recommended. Certain items are classified as single-use only, that is 'use once, then dispose of', as opposed to individual patient use, that allows an item to be used on the same patient several times. The single-use logo is usually displayed on the item.



SINGLE-USE ONLY  
DO NOT RE-USE

These items must **never** be re-used. If in doubt, refer to the manufacturers' recommendations.

## **7. Decontamination**

The aim of decontaminating equipment and the environment is to prevent potentially pathogenic organisms reaching a susceptible host in sufficient numbers to cause infection.

### **A The Environment**

The environment plays a relatively minor role in transmitting infection, but dust, dirt and liquid residues will increase the risk. They should be kept to a minimum by regular cleaning.

A written cleaning schedule should be devised specifying the persons responsible for cleaning, the frequency of cleaning and methods to be used and the expected outcomes:

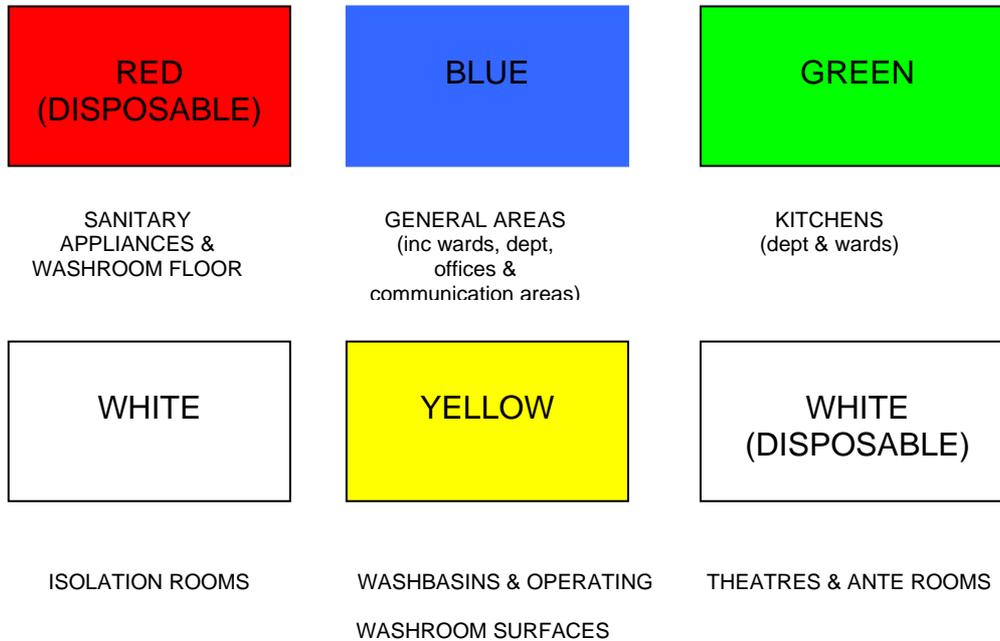
- Provide single-use, non-shedding cloths or paper roll for cleaning
- Use general-purpose detergent (GPD) for all environmental cleaning - follow the manufacturers' instructions
- Keep equipment and materials used for general cleaning separate from those used for cleaning up body fluids
- Keep mops and buckets clean and dry, and store mops head up and buckets inverted
- Mop head should be removable for frequent laundering, or single-use if this is not possible
- Colour code-cleaning equipment, such as mop heads, gloves and cloths for toilets, kitchens and clinical areas. Use different colours for each area
- Carpets are not recommended in treatment areas where procedures will take place because of the risk of body fluid spills. Where carpets are in place, there should be procedures or contracts for regular steam cleaning and dealing with spills.

### **Colour Code for Hygiene**

The following table is from the NHS Healthcare Cleaning Manual, and make recommendations for the colour coding for cleaning equipment. These recommendations should be followed.

## Colour Code for Hygiene

Based on the National Colour-coding System for the British Institute of Cleaning Science.



**THE GOLDEN RULE: WORK FROM THE CLEANEST AREA TOWARD THE DIRTIEST AREA. THIS GREATLY REDUCES THE RISK OF CROSS-CONTAMINATION.**

1. The aim of a colour-coding system is to prevent cross-contamination
2. It is vital that such a system forms part of any employee induction or continuous training programme
3. A minority of people are colour blind in one or more colours. Some individuals may not know this and colour identification testing should form part of any induction training
4. Always use two colours within the washroom/sanitary area
5. The colour-coding system must relate to all cleaning equipment, cloths and gloves.

Monitoring of the system and control of colour-coded disposable items against new stock release is extremely important.

<b>DOMESTIC</b>	<b>CLEANING</b>
Bucket (plastic)	Empty contents down toilet or slop hopper. Rinse and clean with detergent solution then dry. If body fluids have been in contact with the bucket, after cleaning, rinse with a 0.1% (1000 ppm available Cl) hypochlorite solution
Mop (wet)	Use disposable. Dispose of the mop weekly or sooner if heavily soiled or contaminated with body fluids. After use rinse, dry and store head up
Mop (dry)	Vacuum after each use
Lavatory brushes	Rinse in flushing water and store dry
Suggested colour-coding of cleaning equipment	See Colour Code for Hygiene table
Floors	Dust control – vacuum or dry mop Wet cleaning - wet mop, wash with hot water and General-purpose Detergent (GPD) If known contamination - follow with 0.1% (1000 ppm available Cl) hypochlorite solution
Furniture and fittings	Damp dust with hot water and detergent. If known contamination - follow with 0.1% (1000 ppm available Cl) hypochlorite solution
Walls and ceilings	Not an infection problem. When visibly soiled use hot water and GPD. Splashes of blood, or known contaminated material, should be cleaned promptly with 0.1% (1000 ppm available Cl) hypochlorite solution

Surfaces such as clinical worktops that have been contaminated with blood and or body fluids should be wiped clean with hot water and detergent, then wiped with a 0.1% (1000 ppm available Cl) hypochlorite disinfectant solution. An alcohol-based hard surface cleaner is not recommended on contaminated surfaces.

The dental suite should be kept clean and surfaces clutter free.

## **B Surgical Instruments**

All medical devices and equipment used in dental practices may become contaminated with biological, chemical or radioactive material and thus present a risk to those handling or using them.

A medical device is any instrument, apparatus, appliance, material or other articles, whether used alone or in combination, intended by the manufacturer to be used for human beings for the purpose of:

- Control of conception
- Diagnosis, prevention, monitoring, treatment or alteration of disease
- Diagnosis, monitoring, treatment, alteration of, or compensation for, an injury or handicap
- Investigation, replacement or modification of the anatomy or physiological process. Surgical instruments are medical devices.

For methods of decontamination necessary to remove chemical and radioactive material, you should seek advice from the device manufacturer. Devices designed for re-use will only be safe following reprocessing or decontamination.

Decontamination of equipment and the environment is of crucial importance for the prevention and control of infection. This process aims to remove or destroy contaminating micro-organisms, and also the nutritive material on which they survive, e.g. moisture, dust or dirt, hence destroying them totally or reducing their numbers to a safe level. If carried out correctly, decontamination can prevent micro-organisms of other contaminants reaching susceptible sites in sufficient quantities to initiate infection or other harmful response.

Cleaning is an essential prerequisite to achieving effective decontamination. It is important as a method of decontamination in its own right and as preparation before disinfection or sterilisation. Cleaning facilitates the physical removal of organic soiling, such as blood/body fluids. In the presence of organic soiling, disinfection and sterilisation is not optimal.

No methods of sterilisation or disinfection in routine use are effective in completely inactivating prions, such as the causative agents of Creutzfeldt Jakob Disease (CJD), scrapie or Bovine Spongiform Encephalopathy (BSE). The revised TSE Guidance (2003) reports that the risk of transmission of prions from dental procedures is low provided that robust procedures for the decontamination of instruments are followed. Therefore, physical cleaning of the instruments is therefore vital to limit transmission of these agents.

In all areas of dental practice where re-usable equipment is used appropriate decontamination processes must be employed in order to prevent cross-infection and to provide safe instruments for the patient.

## Objectives

- Re-useable equipment that requires sterilisation must be adequately decontaminated between patients. Guidance from NHS Estates and the Medical and Healthcare Regulations Agency strongly recommend that surgical instruments are single-use. If re-usable, decontamination is best achieved centrally in a Sterile Supplies Department (SSD) where sterilisation processes can be standardised and controlled
- Pre-cleaning of equipment prior to sterilisation is vitally important for achieving adequate levels of decontamination. This is best achieved in automated washer-disinfectors, as found in a SSD, rather than by hand washing of equipment
- Decontamination processes must not themselves pose cross-contamination/infection risk to those staff undertaking the decontamination or to the environment in which the process is carried out
- The decontamination method will be based upon a risk assessment, whereby the greater the level of risk involved the greater the level of decontamination undertaken. See Table 1(below) for levels of decontamination and Table 2 (next page) for categories of risk
- Decontamination of equipment will only be undertaken by staff who have received appropriate training, including infection control.

**Table 1: Levels of Decontamination**

<b>Method</b>	<b>Process</b>
Cleaning	Physical removal of organic contamination (blood, faeces, etc.), soilage and significant number of micro-organisms by use of hot water and detergent
Disinfection	A reduction in the number of micro-organisms to a level at which they are not harmful. Bacterial spores, however, are not usually destroyed. Disinfection may be achieved by the use of heat or chemical disinfectants
Sterilisation	Total removal or destruction of all micro-organisms, including bacterial spores. Sterilisation may be achieved by the use of steam under pressure or dry heat

**Table 2: Categories of Risk**

<b>Category</b>	<b>Indication</b>	<b>Level of Decontamination</b>	<b>Method</b>
High Risk	Items that penetrate skin or mucous membranes, or that enter sterile body areas	Sterilise	Autoclave and use sterile  Single-use - disposable
Medium Risk	Items that have contact with mucous membranes or are contaminated by microbes that are easily transmitted	Disinfect or sterilise	
Low Risk	Items used on intact skin	Clean	Wash with hot water and detergent and dry thoroughly

## CLEANING METHODS

Cleaning is the first step in the decontamination process. It must be carried out before disinfection and sterilisation to make these processes effective. Thorough cleaning is extremely important in reducing the possible transmission of all micro-organisms, including the abnormal prion protein that causes vCJD.

**Mechanical cleaning** using a washer/disinfector or ultrasonic bath is the **recommended method of cleaning**. Mechanical cleaning reduces the risk of infection to the healthcare worker.

When mechanical cleaning is not possible (e.g. instruments not compatible with Automated Washer Disinfector or Ultrasonic cleaners) items that are contaminated with blood and blood stained body substances should be rinsed with cold water prior to thorough cleaning with detergent and warm water - maximum temperature 35°C. This will remove many micro-organisms. Hot water should not be used as it will coagulate protein making it more difficult to remove from the item of equipment. Refer to NHS Estates - A Protocol for the local decontamination of surgical instruments (Appendix 1).

Manual cleaning must be undertaken in designated sinks. Two sinks are required, one sink for rinsing prior to manual washing. The second sink is for rinsing the items after washing. The sinks should be deep enough to completely immerse the items to be rinsed and cleaned. Scrubbing can generate aerosols that may convey infective agents. Therefore if scrubbing is necessary it must be carried out with the brush and item beneath the surface of the water.

Personal protective equipment, including aprons, gloves and goggles or visors, must be readily available for staff.

Cleaning equipment - such as brushes, cloths and ultrasonic washers - must be stored clean and dry between uses. Use single-use, non-shedding cloths rather than re-usable cloths. Use single-use brushes rather than re-usable brushes. Do not store brushes in disinfectant solutions.

After cleaning and thorough rinsing, the items should be dried using a disposable non-shedding absorbent cloth.

### **Ultrasonic cleaning baths:**

- Use a detergent solution as recommended by the manufacturer
- Inspect instruments for residual debris after cleaning, and repeat if necessary
- Rinse instruments in distilled water and dry
- Empty at least twice daily, or before the solution becomes heavily contaminated, depending on work load

- Empty, clean and dry at the end of the session/day
- Staff must perform and record the results of periodic testing in accordance with HTM2030 and manufacturers' instructions
- Service regularly as per manufacturers' instructions - include checking the power output of the transducer in accordance with HTM 2030
- Document all servicing and repairs.

#### **Washer disinfectors:**

- Use a detergent solution as recommended by the manufacturer
- Operate and load as recommended by the manufacturer
- Inspect instruments for residual debris after cleaning, and repeat cleaning if necessary
- Staff must record the results of periodic testing in accordance with HTM2030 and manufacturers' instructions
- Inspect and retain the printout of each cycle
- Service regularly
- Document all servicing and repairs.

#### **Note:**

The compatibility of all materials and items with the decontamination process should be established by reference to the manufacturers' instructions. For example, plastics and other similar materials which absorb ultrasonic energy are not successfully cleaned by this method. Certain cements and glass ionomers are not removed by washer disinfectors. Follow manufacturers' guidance on removing the excess immediately after use.

Cannulated instruments must be flushed with the cleaning solution in addition to ultrasonication.

Dental handpieces should be held by specific furniture in washer disinfectors.

#### **Inspection and Lubrication**

Before sterilisation, items should be checked for both cleanliness and operation i.e. that forceps align, the handle grip is firm, joints move freely – but are not loose - instruments are not rusted, etc.

Some instruments will require lubrication. Seek advice from the manufacturer and check compatibility of the recommended oil with the sterilisation process. If handpieces are lubricated, a mechanical maintenance system is recommended.

## STERILISATION METHODS

You can obtain sterile instruments by:

- **Purchasing pre-sterilised single-use items**  
These avoid the need for re-sterilisation and are a practical and safe method. You must store items using a stock rotation system according to manufacturers' instructions
- **Using a sterile supplies department (SSD)**  
SSDs may provide a cost-effective and efficient service. There should be a contract specifying the responsibilities of both parties. Since June 1998 SSDs have been bound by the Medical Devices Directive 93/42/EEC, which requires the department to have a quality system of audit and to have been assessed and validated as CE compliant. The PCO or dental practice should seek legal and risk management advice if the contracted SSD has not been assessed as being CE compliant.

When the above options are not possible, instruments may be sterilised by using a benchtop steam autoclave/vacuum steam autoclave.

It is important to use the correct autoclave for the task required. Consult the manufacturer for the correct autoclave for the purpose required.

There are two types of Benchtop vacuum autoclave, type B for porous loads, and type S for loads specified by the manufacturer. Vacuum autoclaves are required for the sterilisation of wrapped instruments, and instruments with lumens such as trochars and dental handpieces. Unwrapped instruments can also be sterilised in vacuum autoclaves.

Displacement autoclaves are appropriate for unwrapped, solid instruments.

### **Sterilisation of Instruments – Responsibilities**

Increasingly healthcare providers are required to comply with a number of quality assurance standards, outlined in the following pages of this document.

If sterilisation is to be carried out, then management and other personnel are required to ensure that the autoclaves are operated safely and effectively and in compliance with legislation and standards. This is dependant on training and a sound general knowledge of the principles of sterilisation.

The key responsibilities of management can be summarised as follows:

- To ensure that sterilisation is carried out in compliance with the law and with the policy of the UK health departments
- To ensure all personnel connected with sterilisation, including any contractors, are suitably qualified and trained for their responsibilities

- To ensure that purchased autoclaves conform to legal requirements, the minimum specifications set out in British and European standards and any additional requirements of the UK health departments
- To ensure that autoclaves are installed correctly and safely with regard to proper function, safety of personnel and environmental protection
- To ensure that newly installed autoclaves are subject to a documented scheme of validation comprising installation checks and tests, commissioning and performance qualification tests before they are put into service
- To ensure that autoclaves are subject to a documented scheme of prevention maintenance
- To ensure that autoclaves are subject to a documented scheme of periodic tests at daily, weekly, quarterly and yearly intervals
- To ensure that procedures for production, quality control and safe working are documented and adhered to in the light of statutory requirements and accepted best practice
- To ensure that procedures for dealing with malfunctions, accidents and dangerous occurrences are documented and adhered to
- To ensure that there is a procedure for the de-commissioning of unsafe units and their removal from service.

The 'user', that is the healthcare person doing the decontamination process, is responsible for ensuring that s/he performs the process as outlined in this document. Both the 'user' and the management are liable according to The Consumer Protection Act (1987-6).

### **Installation and Validation**

HTM 2010 contains detailed DoH advice on installation, maintenance and operation. After installation, the autoclave must be validated prior to use.

\*Validation is a documented procedure for gathering and interpreting data to show that the autoclave complies with the manufacturers' specifications and that it is capable of sterilising a product consistently when used according to the manufacturers' instructions. It consists of commissioning checks and tests to show that it is working correctly, and other (performance qualification) checks and tests to make sure the load(as defined by the manufacturer) will be sterilised. All records of the validation process should be retained by the owners for inspection. (MDA DB2002(06).)

Following validation, a schedule for periodic testing and planned preventative maintenance should be drawn up.

Validation of the autoclave should be carried out by an appropriately qualified person. This will probably be the person who also conducts the required periodic testing and maintenance. The manufacturer's programme of planned maintenance should be used. If no manufacturer's programme is available then advice should be sought from an appropriately qualified maintenance engineer.

### **Periodic Testing of Benchtop High Temperature Steam Autoclaves**

**Note: Failure to carry out periodic tests and maintenance tasks could compromise safety and may have legal and insurance implications for the user or owner of the autoclave.**

Sterilisation is a process whose efficiency cannot be verified retrospectively by inspection or testing of the product. Routine monitoring of the process, combined with periodic testing of the autoclaves performance is therefore needed to give assurance that sterilising conditions are consistently being achieved.

A daily, weekly, quarterly and yearly testing schedule is required.

Each autoclave should have a logbook in which details of maintenance, tests, faults and modifications are recorded. The logbook should be kept for 11 years.

### **Daily Testing**

The owner/user is responsible for daily testing. These tests are designed to show that the operating cycle of the instruments fitted to the autoclave is working correctly.

### **Procedures for Daily Testing**

1. A normal cycle is operated with the chamber empty except for the usual chamber "furniture" (e.g. trays, shelves, etc.). Vacuum autoclaves require a steam penetration indicator i.e. Bowie Dick Test, or similar, check with the manufacturer.
2. A record should be made in the log book of the elapsed time and indicated temperature and pressure (the values shown on the dials or other visual displays fitted to the autoclave) at all significant points of the operating cycle – the beginning and end of each stage or sub-stage, and the maximum temperature and pressure values attained during the holding time.
3. If the autoclave is fitted with a temperature and pressure recorder, the printout should be compared with the records in the autoclave logbook and retained for future inspection.

The test can be considered satisfactory if all the following apply:

- A visual display of "cycle complete" is indicated
- The value of the cycle variables are within the limits established by the manufacturer as giving satisfactory results

- The autoclave hold time is not less than that specified in Table 1
- The temperatures during the hold time are within the appropriate temperature range specified in Table 1
- The door cannot be opened until the cycle is complete
- No mechanical or other anomaly is observed
- If the autoclave is fitted with a temperature and pressure recorder, then during the plateau period:
  - the indicated and recorded chamber temperatures are within the appropriate sterilisation temperature range
  - the difference between the indicated and recorded temperatures does not exceed 2°C
  - The difference between the indicated and recorded pressure does not exceed 0.1 bar.
- Penetration indicator test satisfactory (Vacuum only e.g. Bowie Dick, Helix)

**Table 1 - Sterilisation temperature ranges, holding times and pressure for autoclaves with high temperature steam**

Option	Sterilisation Temperature Range (°C)			Approx. Pressure (bar)	Minimum Hold (min)
	Normal	Minimum	Maximum		
A	136	134	137	2.25	3
B	127.5	126	129	1.50	10
C	122.5	121	124	1.15	15

### Weekly Testing

- Examine the door seal, check security and performance of door safety devices
- Check that safety valves, or other pressure limiting devices, are free to operate.

### Quarterly and Annual Checks

These tests should be conducted by a suitably qualified person as they require the use of specialised equipment and will probably be conducted by the person who undertakes the maintenance. Guidance on these tests are contained in HTM 2010.

Examples of logbook pages and Daily, Weekly test sheets are available in MDA (2002) Benchtop Steam Sterilizers – Guidance on Purchase, Operation and Maintenance. (MDA DB 2002(06).)

These records should be kept for 11 years.  
In the event of a malfunction notify the engineer at once.

### **Technical Aspects and Safety Considerations**

1. Steam sterilisation is dependant on direct contact between the load material and saturated steam under pressure, at one of the temperatures shown in Table 1, in the absence of air.
2. Benchtop steam autoclaves achieve the above conditions by electrically heating water (usually sterile water for irrigation, but the manufacturer may recommend purified) within the chamber to produce steam at the required pressure and temperature. Air is passively displaced from the chamber by steam in displacement autoclaves but actively removed from the chamber in vacuum autoclaves. This active removal of air ensures heat is not only in contact with external surfaces but in addition penetrates the inner surfaces of the instruments with lumens and packed instruments.
3. During the sterilising cycle the autoclave door must prevent access to the chamber whilst it is under pressure. The door should not be able to be opened until the “cycle complete” signal is indicated.

### **Solutions**

The quality of water is important for an effective process to achieve sterilisation and to prevent scale and/or rust accumulation on the instruments. HTM2031 (Clean Steam) recommend water for irrigation, however, check compatibility with manufacturer. Reservoir should be emptied and cleaned as per manufacturers' guidance.

### **Loading the Autoclave**

It is important to ensure that the steam can reach all surfaces of the instruments, ensure that they are dry and not touching. Leave hinged instruments open. Do not overload machine.

### **Use of Instruments**

Instruments should be used immediately (up to 3 hours after the cycle is finished when the door remains shut) after sterilisation, as no adequate method exists to store and also maintain sterility when instruments have been sterilised unwrapped.

For non-invasive procedures store instruments in a clean, dry and dust-free place, preferably a drawer or covered box.

Wrapped instruments as processed in vacuum autoclaves can be deemed sterile indefinitely provided the packing remains intact. However, good practice dictates that a life-time is placed on these e.g. 3 years, to allow rotation of instruments through the system.

**Training**

Training of personnel to use the equipment correctly is an essential part of ensuring a safe procedure. No staff should be expected to use such equipment, or be involved in the sterilisation procedure unless a clear understanding is first ensured.

## C Disinfection and Impression Materials and Prosthetic and Orthodontic Appliances

### DISINFECTION METHODS

Disinfection methods apply to hand washing, skin preparation and equipment. Disinfection of equipment should be limited and, where possible, disposable or autoclavable equipment used instead. If disinfection is required, use the method recommended by the manufacturer.

Chemical	Advantages	Disadvantages	Uses
Chlorine-based: Hypochlorites (e.g. Domestos, Milton) NB Undiluted commercial hypochlorite contains approx. 100,000ppm available chlorine	<ul style="list-style-type: none"> <li>• wide range of bacterial, virucidal, sporicidal and fungicidal activity</li> <li>• rapid action</li> <li>• non-toxic in low concentrations</li> <li>• can be used in food preparation</li> <li>• cheap</li> </ul>	<ul style="list-style-type: none"> <li>• inactivated by organic matter</li> <li>• corrosive to metals</li> <li>• diluted solutions can be unstable</li> <li>• need to be freshly prepared</li> <li>• does not penetrate organic matter</li> <li>• bleaches fabrics</li> <li>• need ventilation</li> </ul>	<ul style="list-style-type: none"> <li>• can be used on surfaces and for body fluid spills</li> </ul>
Sodium Dichloroisocyanu- rates (NaDCC) e.g. Presept, Haz- Tab, Sanichlor	<ul style="list-style-type: none"> <li>• slightly more resistant to inactivation by organic matter</li> <li>• slightly less corrosive</li> <li>• more convenient</li> <li>• long shelf-life</li> </ul>	<ul style="list-style-type: none"> <li>• as above</li> </ul>	<ul style="list-style-type: none"> <li>• as above</li> </ul>
Alcohol 70% e.g. isopropanol	<ul style="list-style-type: none"> <li>• good bactericidal, fungicidal and virucidal activity</li> <li>• rapid action</li> <li>• leaves surfaces dry</li> <li>• non-corrosive</li> </ul>	<ul style="list-style-type: none"> <li>• non-sporicidal</li> <li>• flammable</li> <li>• does not penetrate organic matter</li> <li>• requires evaporation time</li> </ul>	<ul style="list-style-type: none"> <li>• can be used on visibly clean surfaces, or for skin and hand decontamination</li> </ul>
Chlorhexidine e.g. hibiscrub, chlorhexidine wound cleaning sachets	<ul style="list-style-type: none"> <li>• most useful as disinfectants for skin</li> <li>• good fungicidal activity</li> <li>• low toxicity and irritancy</li> </ul>	<ul style="list-style-type: none"> <li>• limited activity against viruses</li> <li>• no activity against bacterial spores</li> <li>• inactivated by organic matter</li> </ul>	<ul style="list-style-type: none"> <li>• For skin and hand decontamination</li> </ul>

## **Dental Impressions and Prosthetic and Orthodontic Appliances**

It is important to follow the instructions of the manufacturer as the preferred method described below may not be suitable for all impressions and appliances. The preferred method of disinfection is as follows:

The impression must be rinsed in cold water then left to soak in freshly made chlorine based solution for 0.1%(1,000ppm) available chlorine for 10 minutes. After disinfection rinse the impression and dry. When this process has been completed the impression can be packaged for delivery to the dental laboratory.

### **D Decontamination of Equipment Prior To Inspection, Service, Repair or Loan**

Do not send contaminated equipment elsewhere without decontaminating first. Before dispatch, complete and attach a certificate which states the method of decontamination used, or the reason why it was not possible (NHS Management Executive 1993). Equipment that is impossible to decontaminate is likely to be complex, high-technology and heat-sensitive.

Often it cannot be decontaminated without being dismantled by an engineer - in this case attach a biohazard label to the item. Complete the clearance certificate and advise staff on protective measures (see following page).

## DOCUMENTATION

A completed clearance certificate must be attached to the equipment prior to work being carried out. A suggested letter is:

From:

-----  
-----  
-----  
-----

To:

-----  
-----  
-----  
-----

Make and description of equipment item:

-----

Model/Serial/Batch Number:

-----

Other distinguishing marks:

-----

This equipment/item has not been in contact with blood or other body fluids. It has been cleaned in preparation for inspection, servicing or repair.

This equipment has been decontaminated. The method used was:

\_\_\_\_\_

This equipment could not be decontaminated. The nature of risk, and safety precautions to be adopted are:

\_\_\_\_\_

Signed \_\_\_\_\_ Date \_\_\_\_\_

Position \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## **8. Air, Water and Suction Lines**

The surgery water supply should be fitted with a class A air gap. Some aspirators will also have a class A air gap as an integral part of their construction. The ceramic filters are to be changed as recommended by the manufacturer.

The external surfaces of air and water lines may become contaminated from splashes and aerosol material. A protective sheath is desirable. #The distal end may still become contaminated and should be decontaminated with a solution of 0.1% (1,000ppm) available chlorine in detergent.

To prevent contamination by aspiration, the water and air lines should be fitted with anti-retraction valves. To help reduce microbial accumulation, it is then necessary to run water through the water lines for 2-3 minutes at the beginning of the session. At the end of the day the water line should be disconnected and purged with air. Between patients the high speed handpieces should be run for 20-30 seconds.

The water supply for the water line unit should be isolated from the mains water. This can be achieved by using bottled water in the unit. It is advised that the unit is filled at the beginning of the day from an unopened bottle of water for irrigation BP. Water from opened bottles must be discarded after 24 hours. It may be necessary to use sterile water for immunosuppressed patients from an additional separate supply.

Consult the manufacturer of the dental water unit for the recommended method of decontamination and maintenance of the water bottle, water and air lines. The water bottle should be cleaned and then disinfected with a chlorine based detergent/disinfectant as recommended by the manufacturer. The water bottle must be filled at the beginning of each day/session with sterile water from an unopened bottle of sterile water. Open bottles of sterile water must be used within 24 hours. If the contents are not used the water must be discarded.

### **Aspirator**

It is advised that the aspirator unit is connected to the mains drainage. The emptying of the effluent bottles poses a health and safety risk to staff while removing the bottle from the unit and in the course of emptying the bottle. The suction lines may similarly be contaminated and should be decontaminated as described above#. The filters are to be changed as recommended by the manufacturer.

## **9. Healthcare Worker's Surgery Clothing**

Clean uniforms should be worn every day. Staff who are at risk of contaminating their clothes with body fluids should always change into 'home' clothes as soon as possible - preferably before leaving the work place or as soon as home is reached.

Under no circumstances should staff go out socialising in clothes that may have been in contact with body fluids.

Uniforms or work clothes should be washed as soon as possible on as hot a wash as the fabric will tolerate. Uniforms should not be mixed with other household linen. Cardigans/jumpers should be washed at least weekly but should not be worn when exposure to body fluids is expected.

Worn uniforms should be stored away from other household washing.

The majority of bacteria and viruses will not survive away from the host and would not present a high risk of infection on clothing. However, within a mass of body fluid, organisms would survive longer.

Shoes should be cleaned immediately if contaminated with body fluids, using general-purpose detergent and hot water whilst wearing disposable gloves.

## **10. Safe Handling of Specimens**

Clinical specimens include any substance, solid or liquid, removed from the patient for the purpose of analysis.

Staff should be trained to handle specimens safely and receive regularly updated immunisation cover.

### **General Principles**

- All specimens should be collected using **Standard Principles of Infection Control – Section C** (i.e. wearing of appropriate gloves, washing and drying of hands before and after the procedure)
- Laboratory approved containers must be labelled with patient identification details, date of specimen and specimen details. The lids should be screwed on tightly. The container with the specimen must be placed in an individual transparent plastic transport bag as soon as it has been labelled
- The transport bag must be sealed. The request form must always accompany the specimen but should not be put inside the bag with the specimen. (If, for example the specimen is a wound swab, state type of wound, where on the body, whether deep or superficial, and, if antibiotics have been used, either topical or systemic)
- Specimens must be sent to the laboratory as soon as possible after collection. This will mean planning workload carefully. Whilst awaiting transport, specimens should be stored securely, for as short a time as possible i.e. not overnight and away from food and medicines
- Non-fixed biopsy specimens sent by post in packaging that complies with UN602 and labelled 'PACKED IN COMPLIANCE WITH THE POST OFFICE INLAND LETTER POST SCHEME'
- Fixed specimens should be placed in a padded bag and labelled 'PATHOLOGICAL SPECIMEN - FRAGILE WITH CARE'.

## **11. Waste Management**

### **1. Responsibility**

All healthcare organisations have a legal responsibility to dispose of waste safely, ensuring no harm is caused either to staff, members of the public or the environment. This responsibility begins when waste is generated and ends with its final disposal, even where properly authorised agents are used.

It is essential that persons handling waste exercise care to prevent injury or transmission of infection to themselves or others. This is to fulfil their responsibilities under the current legislation (for list see end of this Section).

### **2. Definition of Clinical Waste**

Clinical waste is:

1. Any waste which consists wholly or partly of human or animal tissue, blood or other body fluids, excretions, drugs or other pharmaceutical products, soiled swabs or dressings, or syringes, needles or other sharp instruments, being waste which, unless rendered safe, may prove to be hazardous to any person coming into contact with it;

and

2. Any other waste arising from medical, nursing, dental, veterinary, pharmaceutical or similar practice, investigation, treatment care, teaching or research, or the collection of blood for transfusion, being waste which may cause infection to any other person coming into contact with it.

(Controlled Waste Regulations 1992)

### **3. SEGREGATION OF WASTE**

This is currently being reviewed following the recent Hazardous Waste Regulation (2005). In addition there have been:

- 1) Changes in Waste Management Regulation, notably Landfill Waste Regulations (2002)
- 2) Changes in carriage regulations, notably amendments to Carriage of Dangerous Goods and Use of Transport Pressure Equipment Regulations (ADR 2005)
- 3) Changes in waste segregation – the need to segregate and identify waste destined for different disposal routes.

Therefore new guidance is awaited from the Environment Agency as to the categories of waste according to the European Waste Catalogue and routes of disposal. We currently recommend that you follow the waste contractor's instructions until we get clarity from the Environment Agency.

#### **4. HANDLING OF WASTE**

- Waste should be segregated at the point of origin
- Personal protective clothing should be worn when handling waste
- Clinical waste should be:
  - Correctly bagged in yellow bags of 225 gauge to prevent spillage
  - Double bagged where:
    - the exterior of the bag is contaminated
    - the original bag is split, damaged or leaking
  - Kept in a rigid-sided holder or container with a foot-operated lid, and, so far as is reasonably practicable, out of the reach of children
  - Only filled to  $\frac{3}{4}$  full
  - Securely sealed and labelled with coded tags at the point of use to identify their source.
- Clinical waste should not be:
  - Decanted into other bags, regardless of volume
  - Contaminated on the outside
  - Re-used
  - Sharps must be disposed of into approved sharps containers that meet BS7320/UN3291
  - Sharps container should NEVER be placed into a yellow clinical waste bag.

#### **5. DISPOSAL OF WASTE**

The safe disposal of waste is the responsibility of the independent self-employed practitioner. The options for disposal include the local authority special collection or authorised independent contractor.

The practitioner should ensure that the contractor is licensed and registered with the Environment Agency.

The practice must keep a copy of the consignment notes.

### **Disposal of sharps**

- Fully discharged syringes, needles, razors, ampoules and other sharps should always be placed in a sharps container. These items should never be placed in a waste bag of any kind
- Care should be taken to ensure that sharps containers are correctly assembled according to the manufacturers' instructions
- Use the appropriately sized sharps container to prevent used sharps being stored for long periods of time
- It is the responsibility of the person who uses a sharp to dispose of it safely
- Always place sharps in the sharps container as soon as possible
- Sharps containers must be sealed, labelled with the point of origin and placed in the designated clinical waste collection point when  $\frac{3}{4}$  full
- Sharps containers should conform to BS 7230/UN 3291
- Sharps containers should be kept in a safe location (on a flat surface, below eye level but not on the floor). This will reduce the risk of injury to patients, visitors and staff.

### **For dental workers who carry sharps boxes in their cars:**

- Sharps should only be carried by staff if there is no alternative for safe disposal
- Sharps should be placed into the sharps container at the point of use
- The container should be carried in secure area of the car, to prevent tipping over whilst driving
- The container should be carried out of sight
- The employer may request the member of staff displays a 'Hazard' notice in the car. It is recommended that this be standard hazard notice, rather than a notice that sharps are carried.

## **12. Infection Control Checklist**

Daily checklist as recommended by the DBA advice sheet A12.

## Dental Policy Infection Control Checklist

(Adapted from the DBA A12 [2003])

<b>At start of day or session if surgery not used daily</b>	Mon	Tue	Wed	Thur	Fri	Sat	Sun
Fill the autoclave reservoir with water (sterile H <sub>2</sub> O for irrigation) and run the autoclave, with the chamber empty except for trays for a complete cycle							
Record the sterilisation parameters (temperature, pressure, holding time and Bowie Dick or Helix test), record readings in the autoclave log book							
Compare these with the manufacturers' recommended parameters							
Before laying out the surgery check that all clinical surfaces are clean. Wipe all surfaces with a hard surface cleaner. (Surgeries that have not been decontaminated at the end of the previous day must be cleaned and all surfaces washed with hot water and detergent then thoroughly dried)							
Run water through water lines for 2-3 minutes at beginning of each session							
Dental surgeon/hygienist surgical scrub hand decontamination	AM						
	PM						

<b>Before patient treatment</b>	Mon	Tue	Wed	Thur	Fri	Sat	Sun
Ensure that all equipment has been sterilised or adequately disinfected (if it cannot be sterilised)							
Put disposable coverings in place where necessary e.g. 3 in 1 syringe tips							
Place only the appropriate instruments on bracket table							
Set out all materials and other essential instruments							
Update patient's medical history							

<b>During patient treatment</b>	Mon	Tue	Wed	Thur	Fri	Sat	Sun
Wash hands							
Treat all patients as potentially infectious. Maintain Standard Principles of Infection Control by wearing gloves, protective eyewear (visor) and aprons (if appropriate)							
Provide eye protection for patient							
Wash eye protection in hot soapy water and dry thoroughly, or if disposable discard							
At the end of the patient's treatment remove gloves, dispose as clinical waste, remove visor, then wash hands. If visor needs cleaning don new gloves, clean visor, then discard gloves and wash hands again. A new pair of gloves must be used for each patient							
Change gloves immediately if they are torn, cut or punctured							
Use rubber dam to isolate when appropriate							
Use high-volume aspiration							
Ensure good ventilation of the treatment area							
Handle sharps carefully and only re-sheath needles using a suitable device							

<b>After patient treatment</b>	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Dispose of sharps via the sharps container							
Used cartridges containing medicines dispose as pharmaceutical waste							
Segregate waste and dispose appropriately into household, special clinical waste and pharmaceutical special waste							
Clean and inspect all instruments to ensure cements and similar substances have been wiped off prior to placing in an ultrasonic cleaning machine or washer disinfector or manual clean if no mechanical method available							
After cleaning, inspect all instruments to ensure visibly clean and dry before placing in autoclave							
Specific instruments e.g. handpieces must be lubricated prior to placing in the autoclave							
Sterilise the instruments in the autoclave							
Cover and store sterilised instruments							
Clean and disinfect all contaminated work surfaces							
Clean and disinfect impressions and other dental appliances before sending to laboratory							
Run water for 20-30 seconds through waterline (if used)							
Prepare surgery for next patient							

<b>At the end of the session</b>		Mon	Tue	Wed	Thur	Fri	Sat	Sun
Dispose of all clinical waste from the surgery area	AM							
	PM							
Clean all work surfaces thoroughly by washing surfaces with detergent and hot water	AM							
	PM							
Disinfect the aspirator, its tubing and the spittoon, as per manufacturer instructions	AM							
	PM							
Clean the chair and the unit (remember the light)	AM							
	PM							
Empty and clean ultrasonic cleaning machine and leave to dry	AM							
	PM							

<b>At the end of the day</b>	Mon	Tue	Wed	Thur	Fri	Sat	Sun
Drain autoclave water reservoir and chamber to remove all residual water and leave to dry. Wipe with a damp cloth the exterior surface of autoclave							

# ESSEX HEALTH PROTECTION UNIT DENTAL INFECTION CONTROL GUIDELINES

## SECTION G – REFERENCES

### Decontamination

Babb J., (1994) Methods of Cleaning and Disinfection. British Journal of Theatre Nursing 3(10) Jan 12-29.

Bassett WH (1992) Clay's Handbook of Environmental Health. 16<sup>th</sup> Edition. London.

BDA (2003) advice sheet Infection Control in Dentistry A12, London

Martin M (2004) Why this fuss about decontamination? The Dentist, March, 55-56.

MDA (2000) single-use medical devices: implications and consequences of re-use. MDA DB2000 (04)

MDA (2002) Benchtop Steam Sterilizers – Guidance on Purchase, Operation and Maintenance. MDA DB 2002(06).

NHS Estates (1994) Health Technical Memorandum 2010. London

NHS Estates (1997) Health Technical Memorandum 2031. Clean Steam for sterilization. London

NHS Estates (1997) Health Technical Memorandum 2030 Washer – disinfectors. London.

NHS Estates (2001) A protocol for the local decontamination of surgical instruments. London

Guidelines for Infection Control in Dental Health-Care Settings 2003  
CDC (USA)

<http://www.cdc.gov/oralhealth/infectioncontrol/guidelines/slides/091.htm>

PHLS (1993) Chemical Disinfection in Hospitals. London.

Weightman N.C, Lines L.D (2004) Problems with the decontamination of dental handpieces and other intra-oral dental equipment in hospitals, Journal of Hospital Infection 56, 1-5.

Whittaker A.G, Graham E.M, Baxter R.L, Jones A.C, Richardson P.R, Meek G, Campbell G.A, Aitken.A, Baxter.H.C (2004) *Plasma cleaning of dental instruments*, Journal of Hospital Infection 56,37-41.

## **Health and Safety**

Health and Safety Commission (1974). Health and Safety at Work Act. HMSO. London.

Health and Safety Executive (1994). Control of Substances Hazardous to Health Regulations. HMSO. London.

## **Infection Control**

Ayliffe G, Fraise A, Geddes A, Mitchell K, (2000) Control of Hospital Infection – A Practical Handbook. Fourth edition. London

British Dental Association (2003) Infection Control in Dentistry A12

Gould et al 2000. *Improving hand hygiene in community health settings*. Journal of Clinical Nursing 9-95-102

Hawker J, Begg N, Blair I, Reintjes R, Weinberg J (2001) Communicable Disease Control Handbook. London.

Hepatitis B immunisation for employees at risk. Guidance for GPs – BMA August 2005

Informed Infection Control Practice by Rozila Norton and Lynn Parker 2<sup>nd</sup> edition pp94-95

Implantology course for dental nurses (January 2006) Eastman Dental Hospital, tutor Suzanne Morkus.

Interventions for replacing missing teeth; maintaining health around dental implants (Review) (2006) Esposito M, Worthington HV, Thomsen P, Coulthard P the Cochrane Library 2006, Issue 1, John Wiley & Sons Ltd.

ICNA (2002) Hand decontamination guidelines, Fitwise, Bathgate.  
Lawrence, J., May, D., (2003) Infection Control in the Community. Churchill Livingstone. London.

Lawrence J. and May D., (2003) Infection Control in the Community, Churchill Livingstone, Edinburgh.

McCulloch, J. (2000) Infection Control - Science, management and practice. London.

MEERS P, McPherson M, SEDGWICK J (1997) Infection Control in Healthcare. 2<sup>nd</sup> edition. Thomas Cheltenham.

Morris S (2006) Lecturer, Eastman Dental Hospital, School of Dental Nursing, Reference for implantology/invasive procedures in dentistry.

NATIONAL INSTITUTE FOR CLINICAL EXCELLENCE (2003) Infection Control – Prevention of healthcare-associated infection in primary and community care.

Pritchard, A.P., Mallet, J. (Eds) (1992). The Royal Marsden Hospital Manual and Clinical Nursing Procedures, Blackwell, London

Shorman HA, Nabaa LA, Coulter WA, Pankhurst CL, Lynch E, (2002) Management of Dental Unit Water Lines, Dental Update 2002, 29: 292-298, July/August 2002.

Wilson J. (2000) Infection Control in Clinical Practice. Bailliere Tindall London

### **Infectious Diseases**

Health Service Circular 1998/226 Guidance on the management of HIV/AIDS infected health workers and patient notification

Health Service Circular 2000/020 Guidance on Hepatitis B infected Healthcare Workers

Health Service Circular 2000/010 Hepatitis C infected Healthcare Workers

HIV Post-exposure Prophylaxis, February 2004, Department of Health

GDC. Maintaining Standards. November 1997, as amended May 2001

Revised TSE Guidance Part 4 April 2003, *Transmissible Spongiform Encephalopathy Agents; Safe Working and the Prevention of Infection*, Infection Control of CJD and related disorders in the healthcare setting. Department of Health

Risk Assessment for vCJD and Dentistry, Economics and Operational Research Division (EOR4), Department of Health, July 2003

### **Waste**

HSC (1999) Safe Disposal of Clinical Waste. London

IWM (2000) Healthcare Waste Management and Minimisation. London

NHS estates look up ventilation

Health and Safety Commission

## Appendix

## Protocol for the Local Decontamination of Surgical Instruments

### Immersion Method

#### Procedure for Manual Cleaning

To minimise the risk to personnel undertaking manual cleaning, splashing and the creation of aerosols must be avoided at all times.

- Wear protective clothing
- Fill the clean sink (not hand washbasin) with the appropriate amount of water and detergent
- Dismantle or open the instrument
- Fully immerse the instrument in the solution and keep under water during the cleaning process to prevent aerosols
- Brush, wipe, agitate, irrigate, jetwash or hand spray the item to clean. Drain any excess detergent prior to rinsing in second sink with clean water. (Jet guns may be used under the water surface but should only be connected to the **cold** water supply)
- Drain the item before drying using the preferred method. Complete any relevant documentation.

N.B.

- Dispose of cleaning materials safely in accordance with local policy
- Replace obviously soiled or contaminated cleaning solution or the rinse water.

### Non-immersion Method

#### Procedure for Manual Cleaning

Manual cleaning methods are required for certain equipment where items will become compromised by immersion in aqueous solutions, e.g. electrical/electronic equipment. In such cases clean items in accordance with manufacturers' instructions.

(See also advice given by the Microbiology Advisory Committee on Decontamination, Part 2 Section 4).

The complete version of this protocol can be found on:  
[www.dh.gov.uk](http://www.dh.gov.uk)