



Advicesheet

Infection control in dentistry
(England)

A12

contents	page
Introduction	1
Routine procedures	1
Patient perception	1
Acceptance of patients	1
Confidentiality	2
The infected dental health care worker	2
Infection control in dentistry	3
Infection control policy	3
Training in infection control	3
Staff roles	3
Surgery design	4
Decontamination area	4
Choice of equipment	4
Single use (disposable) items	5
Decontamination of instruments and equipment	6
New reusable instruments	6
The decontamination process	6
Pre-sterilisation cleaning	6
Washer-disinfectors	7
Ultrasonic cleaners	7
Manual cleaning	8
Cleaning dental handpieces	8
Inspection and function testing	8
Sterilisation	9
Dental handpieces	9
Checks, tests and record keeping	9
Instrument packaging and storage	10
Decontamination of impressions, prostheses and appliances	11
Surface decontamination	11
Cleaning protocols	11
Water supplies	12
Dental unit water lines	12
Disposal of waste	13
Blood spillages	13

contents

page

Personal protection	13
Immunisation	13
Hand protection	14
Hand hygiene	14
Gloves	15
Latex allergy	15
Eye protection and face masks	15
Surgery clothing	16
Removing PPE	16
Aerosol and saliva/blood splatter	16
Inoculation injuries	16
Emerging infections	17
Transmissible Spongiform Encephalopathies	17
Meticillin-resistant <i>Staphylococcus aureus</i> (MRSA)	17
Tuberculosis	17
Herpes simplex	18
Pandemic flu	18
Appendix	19
HTM 01-05: Decontamination in primary dental care practices	19
Essential quality requirements	19
Essential infection control policies	20
Best practice	20

In April 2009, the Department of Health (England) published HTM 01-05: Decontamination in primary care dental practice which describes essential and best practice requirements. An updated version was published in November 2009. A summary of the requirements is given in Appendix 1 and the full version is available on the Department's website (www.dh.gov.uk). This advice sheet incorporates the requirements of the Department's guidance. Models of the various policies and protocols that practices are required to have in place are available on the BDA's website at: www.bda.org/infectioncontrol.

Introduction

Dental practices have a responsibility to adopt safe systems of working with respect to cross-infection control and decontamination. Those working in primary dental care must ensure quality decontamination processes are in place. These can be provided by using modern local decontamination equipment and quality facilities. External decontamination facilities for reprocessing can be used where they meet the needs of the practice.

Implementing safe and realistic infection control procedures requires the full compliance of the whole dental team. Every practice must have a comprehensive written infection control policy which identifies the infection control procedures to be followed. These procedures should be regularly monitored during clinical sessions and routinely audited. All members of the dental team must understand and practise these procedures; regular discussion at practice meetings is recommended.

Routine procedures

A thorough medical history should be obtained for all patients at the first visit and updated regularly. Medical history questionnaires alongside direct questioning and discussion between the dentist and the patient are recommended. Discussions should be conducted in an environment that permits the disclosure of sensitive and confidential personal information. Medical history information should be retained as part of the patient's dental records.

The medical history and examination may not identify asymptomatic carriers of infectious disease and standard precautions must be adopted. This means that the same infection control procedures must be used for all patients.

All dental professionals have a duty of care to their patients to ensure adequate infection control procedures are followed. Failure to employ adequate methods of cross-infection control may call into question a practitioner's fitness to practice.

Patient perception

As a result of frequent media coverage, the public is now far more aware of the need for dentists to practise good infection control. Displaying an infection control statement may be appropriate in your practice to help allay patient anxiety and gain their confidence. It may encourage them to ask questions, so never be too busy to give an answer. Ensure all the members of your practice team are confident and competent to answer patients' queries or know who to refer to when necessary.

Acceptance of patients

Whilst a health professional has the right to accept or refuse to treat a patient, it is important that the dental profession accepts the responsibility of providing dental treatment to all members of the community. Dental clinicians have a general obligation to provide care to those in need and this should extend to infected patients who should be offered the same high standard of care available to any other patient.

Those with human immunodeficiency viruses (HIV), who are otherwise well, and carriers of the hepatitis viruses may be treated routinely in primary dental care settings. In the absence of an inoculation injury (which includes blood-contaminated splashes to the eyes or mouth), the evidence indicates that the risk of infection to a dental health care worker during the dental treatment of HIV-infected individuals is negligible. HIV-infected individuals need a high standard of dental care when they are asymptomatic to minimise dental problems. If they subsequently develop Acquired Immune Deficiency Syndrome (AIDS), the associated medical problems may make it appropriate for them to be referred for specialist dental advice and care.

It is unethical to refuse dental care to those patients with a potentially infectious disease on the grounds that it could expose the dental clinician to personal risk. It is also illogical as many undiagnosed carriers of infectious diseases pass undetected through practices and clinics every day. If patients are refused treatment because they are known carriers of an infectious disease, they may not report their conditions honestly or abandon seeking treatment; both results are unacceptable. Those who reveal that they are infected are providing privileged information.

All information disclosed by a patient in the course of medical history taking, consultation and treatment is confidential. No part of the information obtained should ever be disclosed to any third party, including relatives, without the patient's permission. Dentists are responsible for the security of information given by patients, whether it is written on record cards or held on computer. All members of the dental team should be aware of the duty of strict confidentiality and seek to ensure it at all times. Practices should have a confidentiality policy in place and contracts of employment for dental staff should include a statement on the need to maintain confidentiality.

Confidentiality

All health care workers have an overriding ethical and legal duty to protect the health and safety of their patients and those who carry out exposure-prone procedures should be immune to or non-infectious for hepatitis B. A dental clinician who believes he or she may be infected with a blood borne virus, TB or other infection has an ethical responsibility to obtain medical advice, including any necessary testing. If a clinician is infected, further medical advice and counselling must be sought. Changes to clinical practice may be required and may include ceasing or restricting practice, the exclusion of exposure-prone procedures or other modifications. An infected clinician must not rely on his/her own assessment of the possible risks to their patients. Failure to obtain appropriate advice or act upon the advice given would almost certainly lead to the practitioner's fitness to practice being questioned.

The infected dental health care worker

Exposure-prone procedures are those invasive procedures where there is a risk that injury to the worker may result in 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 body cavity, wound or confined anatomical space where the hands or fingertips may not be completely visible at all times.

A dental professional who employs a dental nurse who is subsequently found to be infected with a blood borne virus should seek advice from local occupational health services. A risk assessment must be carried out to consider the risk to patients and the need for the nurse to be redeployed within the practice. The risk assessment must take into account the duties performed by the dental nurse and the likelihood that the infection could be transmitted to a patient or another member of staff. An infected dental nurse must not undertake exposure prone procedures in order to remove, as far as is possible, the risk of transmitting infection. There may be employment issues that need to be considered and advice should be sought from the employment advisers at the BDA.

Infection control in dentistry

Members of the dental team have a duty to ensure that infection control procedures are followed routinely. The mouth carries a large number of potentially infective microorganisms; saliva and blood are known vectors of infection. Most carriers of latent infection are unaware of their condition and it is important, therefore, that the same infection control routine is adopted for all patients.

The following recommendations for infection control procedures in routine primary dental practice are made in light of current knowledge and may be subject to revision, as further information becomes available.

Infection control policy

Every practice must have a comprehensive written infection control policy, which is tailored to the routines of the individual practice and regularly updated. It should demonstrate that the practice is working to current recommendations for all aspects of infection control including personal protection, instrument decontamination and equipment maintenance. The policy should be kept readily available so that staff can refer to it when necessary.

Where a practice does not have a washer-disinfector installed and/or does not have separate decontamination facilities, a written assessment of the improvements needed to incorporate these together with an implementation plan (subject to local constraints) should be available.

A model infection control policy can be downloaded from the BDA website at www.bda.org/infectioncontrol.

Training in infection control

All dental staff must be aware of the procedures required to prevent the transmission of infection and should understand why these are necessary. Regular monitoring of the procedures is essential and the infection control policy for the practice should be reviewed regularly and updated when necessary and at least annually.

All new staff must be appropriately trained in infection control procedures prior to working in the practice. Training should equip staff to understand:

- how infections are transmitted
- the practice policy on decontamination and infection control
- what personal protection is required and when to use it
- what to do in the event of accidents or personal injury.

With regard to decontamination procedures, training records should show that staff

- have been appropriately trained
- are competent to decontaminate the reusable dental instruments currently in use
- training is updated for any new instruments introduced into the dental practice.

Individual records of the training received should be maintained for all staff.

Staff roles

Each practice should establish its own systems for decontamination - identifying who is responsible for what. Ultimate responsibility for decontamination equipment, identifying staff duties and developing practice policies in the various aspects of decontamination will lie with the practice owner (or someone in a similar position). The practice owner (or similar) should therefore identify individuals to assume the following roles responsibilities; it is possible that some people will take on more than one:

- Responsibility for implementing infection control and decontamination procedures within the practice
- Training in decontamination procedures to ensure that those using the equipment do so competently and safely
- Daily and weekly periodic tests
- Liaison with outside services.

The practice must also have access to a competent person to service, test and maintain decontamination equipment in the practice and provide a Written Scheme of Examination where required

More information about staff roles and responsibilities is available on the BDA website at: www.bda.org/infectioncontrol.

The layout of the surgery, which should be simple and uncluttered, is an important aspect of infection control. Ideally there should be distinct areas for the operator and the dental nurse, each with a washbasin, which should have sensor controlled or elbow/foot-operated mixer taps and dispensers for antimicrobial hand wash solutions, liquid soap and alcohol hand rub /gel. The operator's area should have access to the turbines, three-in-one syringe, slow handpiece, bracket table and operating light. The dental nurse's area should contain the suction lines, perhaps the three-in-one syringe, curing light, and the cabinetry containing dental materials.

The surgery should be 'zoned' to identify those areas that are likely to be contaminated during treatment sessions from those that are unlikely to be contaminated. Zoning can help to make the decontamination process more efficient; only the contaminated areas need to be cleaned between patients.

At the end of the clinical session, all surfaces should be cleaned.

Work surfaces should be impervious and easy to clean and joins sealed to prevent the accumulation of contaminated matter and aid cleaning. Coving between the work surface and the wall will aid cleaning. Seek advice from the manufacturer on decontamination products compatible with the worksurface.

The floor covering should be impervious, smooth and easy to clean; seams should be sealed. Coving between the floor and the wall will aid cleaning.

There is a clear need to maximise the separation of decontamination activities from clinical work and wherever possible, decontamination should take place in a room (or rooms) away from the clinical area. Where space and room availability allow, dentists should plan for this as a matter of priority. Example layouts are given in *HTM 01-05 Decontamination in primary care dental practices* (Department of Health, 2009).

Decontamination area

Where instruments are reprocessed in the surgery, the reprocessing area should be as far from the dental chair as possible. To reduce the risk of exposure to aerosol, manual washing, using ultrasonic cleaners without a lid and opening decontamination equipment should not take place when the patient is in the surgery.

The decontamination area should, preferably, comprise a single run of sealed, easily cleaned worktops and include:

- a separate hand washing sink
- a setting down area for dirty instruments
- washing and rinsing sinks (or separate bowls within a single sink) adjacent to the receiving area
- ultrasonic cleaner (where used)
- a washer-disinfector (where available)
- an area with task lighting for instrument inspection and function testing. Where a type B (vacuum) autoclave is used, this area can also be used for wrapping instruments prior to sterilisation
- autoclave(s)
- an area for setting down sterilised instruments where they can be placed onto trays for same day use or wrapped for storage (where a type N (non-vacuum) or type S autoclave is used)
- where possible, air movement should be from clean to dirty areas.

A dirty to clean workflow should be maintained throughout the decontamination process to minimise the possibility of used instruments coming into contact with sterilised instruments.

A practice protocol for selecting new equipment will help to ensure that the purchase is necessary (and that other devices already present in the practice are not suitable), the equipment will achieve what is necessary and, where required, can be processed. The protocol will help the practice avoid the purchasing items which later prove problematic – for example, where the manufacturer recommends decontamination processes that are not available in the practice. Some of the aspects to consider are given below.

Choice of equipment

- What you want the equipment to do – will the equipment selected be fit for this purpose? Is it compatible with other equipment in the surgery?

- How easy will it be to use and maintain?
- Is it CE marked (a mandatory requirement to demonstrate compliance with Medical Devices Regulations)?
- Does the instrument need dismantling before cleaning? Are there instructions from the manufacturer describing how this can be done?
- Does the instrument have a limited life-cycle specified by the manufacturer?
- What are the manufacturer's recommendations for cleaning and will they be achievable in practice? Will the instrument withstand automated washer-disinfector processes?
- When selecting new hand instruments, avoid difficult to clean serrated handles and check that hinges are easy to clean.
- What cleaning agents are recommended – do they comply with COSHH and health and safety requirements? Are these cleaning agents compatible with the washer-disinfector, ultrasonic cleaner and instruments already in use in the practice?
- Check with the manufacturer which cleaning agents are recommended for the dental chair covering and work surfaces to ensure that they can be regularly decontaminated without deterioration.
- Is steam sterilisation (134 – 137°C for three minutes) appropriate for the instruments? If another time-temperature range is recommended, can this be undertaken?
- Select foot controlled equipment whenever possible.
- Is training required? Will the manufacturer provide it?
- What are the commissioning and validation requirements of the equipment? What are the ongoing costs?
- Service response – what is the response time in the event of a breakdown?

Single-use (disposable) items

Whenever feasible, single-use items should be considered as an alternative to processing reusable items. Where instruments and equipment can be processed for re-use, manufacturers must provide information on effective decontamination procedures. Where an instrument cannot be safely decontaminated for re-use, it is described as 'single-use' by the manufacturer and the packaging will bear the international symbol:



Single-use means that a device can be used on a single patient during one treatment session and then discarded. It is not intended to be reprocessed and used again – even on the same patient at a later session. Anyone who decontaminates and reuses a single-use item bears full responsibility for its safety and effectiveness.

Where instruments are difficult to clean, single-use alternatives (if available) should be considered. In dentistry, this includes, but is not limited to, matrix bands, saliva ejectors, aspirator tips and three-in-one tips. Re-usable endodontic files and reamers (as marketed by the manufacturer) can now be re-used on the same patient. This represents a relaxation of the guidance provided in HTM 01-05, and the earlier CDO letter of December 2007.

The relaxation is conditional upon the instruments being marketed as re-usable and the practice being satisfied that the tracing and audit procedures used are such as to exclude error in identifying the instrument(s) and associating them with the correct patient.

Practices should also be aware that:

- When manual washing or ultrasonic cleaning is used the files/reamers should be washed separately from other instruments.
- Where automated washer-disinfectors are used, the risk of cross-contamination to other instruments would be very low, in view of the dilution factors. Therefore, these instruments do not need to be dealt with on a separate run. However only endodontic files and reamers from a single patient can be washed in any one cycle of a washer-disinfector.
- Only endodontic files and reamers from a single patient can be sterilized in any one cycle of an autoclave.

Decontamination of instruments and equipment

All instruments contaminated with oral and other body fluids must be thoroughly cleaned and sterilised after use. The decontamination process (also known as reprocessing) includes pre-sterilisation cleaning, disinfection, inspection, sterilisation and storage. Manufacturers are required to provide instructions for the decontamination of their equipment – these instructions should be followed. It is worth checking with the manufacturer prior to purchase that the equipment can be used for the purpose intended and decontaminated by the methods used in the practice.

New dental instruments should be fully decontaminated before use. Identify instruments that can withstand automated cleaning processes (washer-disinfectors and ultrasonic cleaners) and those which require manual cleaning. Some instruments may require dismantling before cleaning and sterilising. It is important to follow the manufacturer's instructions, especially if the new equipment is unfamiliar to those responsible for its reprocessing.

New reusable instruments

A systematic approach to the decontamination of instruments after use can help to ensure that dirty instruments are segregated from clean.

The decontamination process

After sterilisation, instruments for immediate use (ie on the same day) can be put onto individual covered trays. At the end of each patient treatment, all instruments on the tray (used and unused) must be regarded as contaminated and reprocessed. At the end of the day, unused trays of instruments should be reprocessed before use. Keeping to a minimum the instruments put onto trays at the start of the day will reduce the decontamination workload.

A practice protocol should describe the safe procedures for transferring contaminated instruments to the decontamination area and for transferring sterilised instruments to the treatment or storage area.

Instruments for use at a later date should be wrapped to prevent recontamination during storage:

- non-vacuum autoclave – instruments should be dried after sterilisation, wrapped/ packaged and used within 21 days
- vacuum autoclaves – pre-wrapped/packaged sterilised instruments should be used within 60 days

Effective cleaning of instruments before sterilisation will reduce the risk of transmission of infectious agents. Wherever possible, cleaning should be undertaken using an automated and validated washer-disinfector in preference to manual cleaning; a washer-disinfector includes a disinfection stage that renders instruments safe for handling and inspection. Manual cleaning should be considered where the manufacturer's instructions specify the device is not compatible with automated processes.

Pre-sterilisation cleaning

Validation means that a process has been verified, tested and documented and is consistently reproducible. A summary of the validation, testing and maintenance requirements is available on the BDA website at www.bda.org/infectioncontrol. A validated washer-disinfector (and, if possible, ultrasonic cleaner) demonstrates that instruments and equipment are reliably and consistently cleaned.

Instruments cleaned as soon as possible after use may be more easily cleaned than those left for a number of hours before reprocessing. Blood, saline and iodine are corrosive to stainless steel instruments and will cause pitting and then rusting if remaining on instruments for any length of time. Where a delay is anticipated, instruments should be kept moist by immersion in water or an enzymatic cleaner (following the manufacturer's recommendations for use) or the use of a foam spray intended to maintain a moist or humid environment. Long periods of wet storage should be avoided, however.

Dental materials (especially cements) can harden on instruments so should be removed from instruments as soon as possible after use to allow effective cleaning.

Where recommended by the manufacturer, instruments and equipment that consist of more than one component should be dismantled to allow each part to be adequately cleaned. Members of the dental team should be trained to ensure competence in dismantling, cleaning, sterilising and reassembling instruments and equipment.

Washer-disinfectors

Washer-disinfectors offer the best option for the control and reproducibility of cleaning with a process that can be validated. Dentists should plan, where possible, to install a validated washer-disinfector to remove the need for manual cleaning. There are a number of different models that meet current requirements. The size, model and type chosen should be considered against the workload and throughput requirements, together with the availability of space.

A typical washer-disinfector cycle includes five stages:

1. Flush - removes gross contamination using a water temperature of less than 45°C
2. Wash – removes remaining soil using detergents specified by the manufacturer
3. Rinse(s) – removes detergents
4. Thermal disinfection – temperature raised for required time: 80°C for 10 minutes or 90°C for 1 minute, for example
5. Drying – heated air removes residual moisture.

Potable water can be used for rinsing if deemed satisfactory by the local water adviser (i.e. endotoxin levels below 30 EU/mL, hardness less than 50 mg/L, suitable pH and salt burdens). Changes in water quality mean that you should seek this advice once a year. However, where the water quality is unsatisfactory, or spotting is observed on instruments, then RO/freshly distilled water is recommended.

The manufacturer's instructions for use should be followed, including recommendations for detergents and/or disinfectants and instrument loading. Staff must be trained how to use it and how to perform daily tests. Records of training must be maintained.

Washer-disinfectors must be loaded correctly to ensure effective cleaning. This involves:

- not overloading instrument carriers or overlapping instruments
- opening instrument hinges and joints fully
- attaching instruments requiring irrigation to the irrigation system correctly, ensuring filters are in place if required (eg for handpieces).

Washer-disinfector logbooks and records should include cycle parameters and details of routine testing and maintenance. Automated data-loggers or interfaced small computer-based recording systems can be used, provided the records are kept securely and replicated (to guard against fading). Records should be kept for at least two years.

Ultrasonic cleaners

Evidence supports the use of ultrasonic cleaners as an effective means of cleaning dental instruments and reduces contact with contaminated instruments. The cleaner must be maintained according to manufacturer's recommendations with quarterly testing to ensure that it is fully functional. The results of all tests should be recorded.

After use, instruments should be immersed briefly in cold water (with detergent) to remove visible soiling, taking care to avoid inoculation injuries. A container with a sealing lid is recommended.

The manufacturer's instructions for operating the ultrasonic cleaner should be followed.

Place instruments in a suspended basket and not on the floor of the cleaner (avoid overloading and overlapping) and fully immerse in the cleaning solution. Joints and hinges should be fully opened and instruments disassembled where appropriate before immersion. Set the timer, close the lid and do not open until the cycle is complete. Drain the basket of instruments and rinse using clean fresh reverse osmosis (RO), distilled water or satisfactory potable water to remove residual soil and detergent. Instruments to be wrapped and sterilised in a vacuum autoclave must be dried first using a disposable non-linting cloth.

The water/fluid must be changed at the end of the clinical session and more frequently if it becomes heavily contaminated. At the end of each day, the ultrasonic cleaner must be emptied, cleaned and left dry.

Manual cleaning

Compared with other cleaning methods, manual cleaning carries a greater risk of inoculation injury. It is however, important for practices to have the facilities, documented procedures and trained staff to carry out manual cleaning when other methods are not appropriate or available.

Manual cleaning, although simple to set up, is difficult to validate as it is not possible to ensure that it is carried out effectively each time. Where manual cleaning is necessary, the parameters should be controlled as much as possible to reduce variability in cleaning. A written procedure should be available and followed routinely. A model protocol can be downloaded from the BDA website at www.bda.org/infectioncontrol.

A dirty-to-clean workflow should be maintained throughout. Two sinks are needed - one for cleaning and one for rinsing with separate areas for setting down dirty and clean instruments. If there is only sufficient space for one setting down area, the surface should be cleaned with a water-detergent solution between stages.

Always use detergents specifically made for the manual cleaning of instruments and mix with water to the correct concentration and temperature (as specified by the manufacturer). The temperature should not exceed 45°C. Fully submerge the items to be cleaned (unless manufacturer recommends otherwise) and scrub using long-handled brushes. Drain the cleaning water and rinse items using RO, freshly distilled water or satisfactory potable water. Instruments to be wrapped and sterilised in a vacuum autoclave must be dried first using a disposable non-linting cloth.

Cleaning dental handpieces

Dental handpieces must be decontaminated after use.

- Where the manufacturer confirms that a handpiece can withstand cleaning in a washer-disinfector and the washer-disinfector can be adapted to clean handpieces, this method is preferred.
- Dedicated handpiece-cleaners can be considered where a washer-disinfector is not recommended.
- Commercial products for decontaminating handpieces can be used where the product can be shown to reduce the risk of infection transmission or the process can be validated.
- The manufacturer's recommendations for lubrication should be followed.
- Separate canisters of lubricant should be used for unclean and cleaned handpieces.

After cleaning, instruments should be inspected for cleanliness and checked for wear or damage before sterilisation. A magnifying glass with task lighting is recommended.

Inspection and function
testing

- If there is residual contamination, the instrument should be rejected and re-cleaned.
- Working parts should move freely and joints should not stick. The occasional use of a non-oil-based lubricant may be necessary where hinges are stiff.
- The edges of clamping instruments should meet with no overlap or rough edges.
- The edges of scissors should meet to the tip and move freely across each other with no overlap or rough edges.
- All screws on jointed instruments should be tight.

Instruments found to be faulty or damaged should be taken out of use. If they are to be sent for repair, they should be decontaminated fully (cleaned and sterilised) and labelled 'decontaminated' before dispatch. Equipment that cannot be sterilised must be thoroughly cleaned and disinfected in accordance with the manufacturer's instructions.

Sterilisation

Saturated steam under pressure delivered at the highest temperature compatible with the product is the preferred method for the sterilisation of most instruments and devices used in the clinical setting. In dentistry, this is usually a temperature of 134-137°C with a holding time of 3-3.5 minutes.

Three types of autoclaves are suitable for use in dentistry:

Type N: passive displacement of air with steam (non-vacuum). Designed for unwrapped, non-hollow and non-air retentive instruments

Type B (vacuum): designed for hollow, air retentive and packaged loads

Type S: designed to reprocess specific loads (determined by the manufacturer).

Effective sterilisation requires steam to contact all surfaces of the instrument. Instruments must, therefore, be loaded into the chamber to allow free circulation of steam. This is particularly important when air removal is passive; air remaining in the chamber will impair or prevent the sterilisation process. Avoid overloading the autoclave chamber.

Water reservoirs should be filled daily using fresh distilled or reverse osmosis (RO) water. Autoclave water should be discharged after each cycle but where this is not possible, the reservoir must be drained at the end of each working session to reduce the likelihood of a build up of toxins in the water supply. After the final use of the day, the chamber should be drained, cleaned and dried and left with the door open.

Dental handpieces

The internal lumen of dental handpieces makes them difficult to clean although a compatible validated washer-disinfector may produce successful cleaning results. Furthermore, the presence of lubricant in the lumen means that, whichever autoclave is used, handpiece sterility is unlikely. Good cleaning and steam sterilisation will, however, result in a beneficial reduction in contamination levels and bioburden.

Checks and tests and record keeping

Before use each day:

- Clean the rubber door seal with a clean, damp non-linting cloth
- Check the chamber and shelves for cleanliness and debris
- Fill the reservoir with freshly distilled or RO water
- Turn on the power source.

Daily tests and housekeeping tasks should then be carried out and the results recorded in the logbook:

- Steam penetration test (vacuum autoclaves only)
- Automatic control test (all autoclaves) to demonstrate that the autoclave is actually working
- Where required, a warm-up cycle before instruments can be processed.

Records of regular checks must be maintained to demonstrate compliance. An autoclave that fails to meet any of the test requirements should be withdrawn from service and advice sought from the manufacturer and/or maintenance contract.

Autoclaves should be commissioned when first purchased to ensure that they are appropriately calibrated and functioning correctly. Validation before use by a Competent Person (Decontamination) or service engineer is needed to demonstrate that the right conditions for sterilisation are achieved. The equipment must be properly maintained according to the manufacturer's instructions and periodically examined by a competent person. A summary of the validation, testing and maintenance requirements is available on the BDA website at www.bda.org/infectioncontrol.

The parameters should be monitored for each cycle. Printouts and automated data loggers or interfaced computer-based recording systems are acceptable provided the records are kept securely and replicated. Printouts fade within a short time, so require photocopying. Manual records (where no automatic data production is available) are acceptable and should document the temperature/pressure achieved or an absence of failure. Records should be maintained for at least two years.

The readings should be compared with the recommended values – if any reading is outside its specified limits, the sterilisation cycle must be regarded as unsatisfactory, irrespective of the results obtained from chemical indicators and the autoclave cycle checked again. If the second cycle is unsatisfactory, the autoclave should not be used until the problem has been rectified by an appropriately trained engineer. Chemical indicators (TST strips, for example) demonstrate only that instruments have been through a sterilisation cycle, not that they have been sterilised

Sterilised instruments must be protected against the possibility of recontamination by wrapping or storing in a covered container. The autoclave used affects the wrapping and storing options.

Instrument packaging and storage

Type B autoclave (vacuum): dried instruments can be pre-wrapped. Once sterilised, the instruments may be stored for up to 60 days.

Type N autoclave (displacement): dried instruments can only be wrapped after sterilisation using sealed view packs. If trays of instruments are to be stored, the entire tray should be placed in a sealed pack. Instruments can be stored for up to 21 days. Alternatively, instruments can be covered and used within the current session.

Type S autoclaves: the manufacturer's guidance for pre-wrapping should be followed although post-sterilisation packing remains an option.

Disposable non-linting cloths should be used to dry instruments and disposed of after each sterilisation load.

The area where sterilised instruments are packaged for storage should be free of clutter and wiped clean with detergent and alcohol wipes at the start of each session.

Instruments should be stored in an area dedicated for the purpose and away from direct sunlight and water in a secure, dry and cool environment. Where this is in the surgery, the storage area should be as far from the dental chair as reasonably practicable; a purpose designed storage cabinet that can be easily cleaned will be useful. Ideally, air flow should be from clean to dirty areas. Where possible, practices should plan to store instruments in a separate environment, away from the surgery.

Decontamination of impressions, prostheses and appliances

Storage systems must ensure easy identification of instruments and monitoring of storage times to ensure recommended intervals are not exceeded. The packaging should therefore display the use-by date and a system of first-in, first-out introduced. Simple record keeping for infrequently used instruments will help to avoid excessive periods of storage resulting in pathogen recolonisation. The record should show the date of decontamination and an expiry date.

Before use, check that the packaging is intact or the instruments have remained covered, the sterilisation indicator confirms that the pack has been sterilised (if a type B autoclave has been used) and visible contamination is absent.

The responsibility for ensuring these devices have been cleaned and disinfected prior to dispatch to the laboratory lies solely with the dentist. It is good practice to agree the cleaning and disinfection process with the laboratory and label the device to indicate disinfected status. This removes uncertainty and, for impressions, also removes the possibility of repeated disinfection, which may detract from quality.

Immediately on removal from the mouth, the device should be rinsed under running water to remove saliva, blood and debris. Continue the process until it is visibly clean. If an appliance or prosthesis is grossly contaminated, it should be cleaned in an ultrasonic bath containing detergent and then rinsed.

The device should then be disinfected following the manufacturer's recommendations. Products that are suitable for the disinfection of impressions, prostheses or appliances are CE marked to demonstrate conformity to European Directives.

There are two methods of disinfection: immersion and dipping.

Immersion in disinfectant (following the manufacturer's recommendations for dilution and duration) can be effective but may be compromised by the limited working life of the disinfectant, which is affected by the frequency of use and the presence of biological debris.

Dipping avoids the prolonged immersion that can distort hydrocolloid and polyether impression materials. The recommended contact time is still necessary, during which the impression must not be allowed to dry out.

Following disinfection, the device must be thoroughly rinsed in water before packaging to send to the laboratory with a confirmation that it has been disinfected. Items received from a laboratory should also be disinfected.

Surface decontamination

Surfaces should be impervious and easily cleanable. Work surfaces and floor coverings should be continuous, non-slip and, where possible, without joints. If present, joints should be sealed. Coving between the floor and wall will help prevent accumulation of dust and dirt. The manufacturer's advice should be sought on the compatibility of detergents and disinfectants with the surface or equipment.

Surfaces can be effectively cleaned using commercial bactericidal cleaning agents and wipes. Alcohol, although effective against viruses, binds to blood protein and stainless steel; it should therefore be avoided. Water with suitable detergents is satisfactory, provided the surface is dried after cleaning. Following initial deep cleaning of a surface, subsequent use of a wet or dry microfibre cloth can achieve satisfactory removal of infectious agents. The microfibre can then be reprocessed as laundry at the end of each session or when obviously contaminated.

A strict system of zoning aids and simplifies the cleaning process. In practice, this means defining the areas, which will become heavily contaminated during operative procedures – worksurfaces, dental chair, curing lamp, inspection light, hand controls, spittoons, and aspirator, for example. Light and chair hand

controls can be protected with disposable impervious coverings and changed between patients. If these are not used, the controls must be cleaned effectively between patients.

At the end of clinical sessions, all work surfaces, including those apparently uncontaminated, should be thoroughly cleaned using disposable cloths or microfibre materials and should include the taps, drainage points, splashbacks, cupboard doors and sinks. Aspirators, drains and spittoons should be cleaned at the end of a session according to manufacturers' instructions. Computer keyboards should be either washable or provided with covers that can be easily decontaminated at frequent intervals.

Cleaning protocols

The practice should have a written protocol outlining surface- and room-cleaning schedules and maintain simple records. Cleaning staff should be briefed on cleaning patient care areas and decontamination rooms.

Water supplies

Practices should have a written scheme (a course of action) for controlling *Legionella* bacteria in water systems and preventing or controlling the risk. A risk assessment will identify potential problems in the system (for example, excess storage capacity, temperature distribution problems, low water usage, inappropriate materials etc). Further information is available on the BDA's website (www.bda.org).

Dental unit water lines (DUWLs)

The majority of dental units will harbour biofilm, a source of microbial contamination for the water produced by the unit, so the water will not be potable (ie of drinking water quality). Contaminated water is a potential hazard to both patients and surgery staff and may harbour potentially pathogenic organisms such as *Legionella* spp and *Pseudomonas aeruginosa*.

All water lines should be fitted with anti-retraction valves to help prevent contamination of the lines but these valves cannot be relied upon to prevent infected material being aspirated back into the system. DUWLs should be flushed for at least two minutes at the beginning of the day and for at least 20-30 seconds between patients to reduce the microbiological counts in the water delivery tube.

No currently available single method or device will completely eliminate biocontamination of DUWLs or exclude the risk of cross-contamination. The manufacturer's instructions should be followed for the periodic disinfection of water lines. Introducing chemical treatments into the dental unit is best achieved via a water reservoir (bottled water system), which can be fitted retrospectively, if not fitted at the time of purchase. The water bottles should be removed, flushed with distilled or RO water, left to dry overnight and stored inverted.

An effective treatment regime includes an initial purge to remove longstanding biofilm followed by a daily maintenance regime to prevent the reformation of fresh biofilm. Waterline biofilm reforms rapidly if the unit remains untreated, so less frequent intermittent treatments may fail. For surgical procedures, an independent system with a sterile irrigant should be used.

Manufacturers of dental units should supply guidance for the maintenance of the unit and treatment regimes to ensure water quality. Apart from situations where there are indications from taste or odour, microbiological monitoring using dipslides for total viable counts TVCs is not considered essential.

The design of some dental equipment requiring a mains water supply means that it is possible for contaminated water to be drawn back through the waterlines to the mains water supply (backflow/back-siphonage). This can affect the dental unit, wet-line suction pumps, automatic radiographic processors and washer-disinfectors. Interrupting the water supply to the surgery by a physical break (air gap) will remove the possibility of backflow. Some equipment requiring a water supply is now manufactured to incorporate an air gap - check this with the manufacturer.

Disposal of waste

All waste in the practice must be:

- correctly segregated
- stored safely and securely on the premises
- packaged appropriately for transport
- described accurately and fully on the accompanying documentation when removed
- transferred to an Authorised Person for transport to an authorised waste site
- appropriately registered, with necessary records and returns at the practice.

Dental practices produce a range of hazardous and non-hazardous waste. Further information can be found in the [BDA Advice Note *Management of healthcare waste*](#) available at www.bda.org/infectioncontrol.

Blood spillages

If blood is spilled, the spillage should be dealt with as soon as possible following a protocol that protects against infection. The spilled blood should be completely covered either by disposable towels, which are then treated with sodium hypochlorite solution or sodium dichloroisocyanurate granules, both producing 10,000 ppm chlorine. Good ventilation is essential. Allow at least 5 minutes to elapse before clearing and disposing of towels as clinical waste. The dental health care worker dealing with the spillage must wear appropriate protective clothing: household gloves, protective eyewear, a disposable apron and, in the case of an extensive floor spillage, protective footwear.

Personal protection

The employer has a duty of care towards employees to provide a safe place of work. It is not sufficient simply to provide personal protective equipment such as gloves and eye protection; the employer must ensure that it is being used in the correct manner. It is important that all staff understand the principles of personal protection and that compliance is part of their contracts of employment.

Immunisation

Advice should be sought from the local occupational health department on the appropriate vaccination requirements of all clinical staff. All those involved in clinical procedures must be vaccinated against hepatitis B. If an inoculation injury is sustained before completion of the course, follow up action, including boosters and tests for hepatitis B markers, is essential. The hepatitis B vaccine is effective in preventing infection in individuals who produce specific antibodies to the hepatitis B surface antigen (anti-HBs). Antibody responses to the hepatitis B vaccine vary widely between individuals. It is preferable to achieve anti-HBs levels of above 100mIU/ml, although levels of 10mIU/ml or more are generally accepted as enough to protect against infection. Protection against infection is maintained even if antibody concentrations at the time of exposure have declined. Antibody titres should be checked one to four months after completion of a primary course of the vaccine.

Responders with anti-HBs levels $\geq 100\text{mIU/ml}$ do not require any further primary doses; once a response has been established further assessment of antibody levels is not indicated. A single booster dose at around five years after primary vaccination is recommended for all health care workers who have contact with blood, blood stained fluids and patients' tissues. Pre- and post-testing at the time of this booster is not required if the individual responded to the primary course of vaccine.

Responders with anti-HBs levels of 10 to 100mIU/ml should receive one additional dose of vaccine at the time; further assessment of antibody levels is not indicated. They should also receive the booster at five years.

An antibody level below 10mIU/ml is classified as a non-response to the vaccine and testing for markers of current or past infection is required (and to exclude the possibility of being a carrier of infection). Those identified as non-responders should undergo a repeat course of vaccine, followed by retesting one to four months after the second course. Those who still have anti-HBs levels below 10mIU/ml and who have no markers of current or past infection, will require hepatitis B immunoglobulin for protection if exposed to the virus.

Employers must hold documentary evidence to demonstrate that all relevant members of the dental team have been immunised and their responses to the vaccine checked; post vaccination blood test results will show whether an adequate level of immunity has been achieved. The consent of the employee must be obtained before the occupational health department or the GMP is approached. Any information provided is confidential and should be stored appropriately.

New staff who are not immunised should undergo a course of vaccination as soon as possible. Chairside assisting can begin after the first vaccination as long as a risk assessment of their duties has been carried out, and the appropriate controls identified have been put in place.

Further information is available in [BDA Advice Note Immunisation against hepatitis B](#) available at www.bda.org/infectioncontrol.

Hand care is vital to infection control; lacerated, abraded and cracked skin can offer a portal of entry for microorganisms. Clean hands complement the use of gloves; neither is a substitute for the other. Training in hand hygiene should be included in a staff induction programme and regular update training provided to all staff.

Hand protection

Hand hygiene

There are different levels of hand hygiene depending on the potential for contamination of the hands and the process to be undertaken.

Social (10-15 seconds) will remove transient microorganisms using plain or antimicrobial liquid soap.

When: general non-clinical activities, including decontamination.

Hygienic (15-30 seconds) will destroy microorganisms and provide a residual effect using an antiseptic cleanser or antimicrobial soap from a dispenser.

When: before wearing gloves to carry out clinical procedures and after contact with blood and other body fluids.

Surgical scrub (2-3 minutes, ensuring all areas of the hands and forearms are covered) will substantially reduce the numbers of resident microorganisms using an antiseptic hand cleaner (chlorhexidine gluconate 4%, povidone iodine 7.5%).

When: oral, periodontal and implant surgery

A poster depicting the relevant method(s) should be displayed above every wash-hand basin in the practice. A poster is included in the Department of Health's guidance (HTM 01-05).

To reduce the risk of irritation, mild liquid soap should be applied to wet hands and hands washed under running water. Hands should be washed:

- Before and after each treatment session
- Before and after the removal of PPE

- Following the washing of dental instruments
- Before contact with sterilised instruments (wrapped and unwrapped)
- After cleaning or maintaining decontamination devices used on dental instruments
- At the completion of decontamination work.

After washing, hands should be dried thoroughly, using disposable towels, to prevent transfer of microorganisms and prevent skin damage. Hand cream (preferably water-based) will help to avoid chapped or cracking skin. A wall-mounted dispenser with disposable cartridges should be used.

Fingernails should be kept clean, short and smooth. False nails and nail polish should not be used. Rings, bracelets and wrist watches should not be worn during clinical procedures. If a wedding ring is worn, the skin beneath it should be washed and dried thoroughly.

Gloves

Gloves must be worn for all clinical procedures and treated as single use items, so a new pair of gloves must be used for each patient. It is important that gloves fit properly. Gloves should be put on immediately before contact with the patient and removed as soon as clinical treatment is complete. Used gloves must be disposed of as clinical waste.

There is a variety of gloves available for clinical procedures. Those selected should be –

- good quality non-sterile medical gloves (to European standard BSEN 455, parts 1 and 2, medical gloves for single use), worn for all clinical procedures and changed after every patient
- well fitting and non-powdered. The powder from gloves can contaminate veneers and radiographs, disperse allergenic proteins into the surgery atmosphere and interfere with wound healing
- low in extractable proteins (<50µg/g) and low in residual chemicals.

Domestic household gloves, if used, should be washed with detergent and hot water and left to dry after each use to remove visible soil. These gloves should be replaced weekly or more frequently if torn or visible soil cannot be removed by washing.

Latex allergy

Allergic contact dermatitis is rare but, if it develops, it may be serious enough to cause the person to cease practice. If it is suspected, the advice of a dermatologist should be sought. Irritant contact dermatitis is more common and can be avoided by careful choice of glove and hand disinfectant and meticulous hand care.

All clinicians are encountering patients who are allergic to latex or the chemicals used in glove manufacture. Non-latex gloves are available but additional precautions will be needed to protect the allergic patient against contact with latex through other sources in the surgery – local anaesthetic cartridges, rubber dam and eye protection, for example. A BDA Fact File on hand dermatitis and latex allergy is available on the BDA website at www.bda.org. The advice of occupational health may need to be sought on the treatment of the patient. Further guidance is also available from the Faculty of General Dental Practice and the Health and Safety Executive.

Eye protection and face masks

Operators and close support clinical staff must protect their eyes against foreign bodies, splatter and aerosols that may arise during operative dentistry, especially during scaling (manual and ultrasonic), the use of rotary instruments, cutting and use of wires and the cleaning of instruments.

Eye protection should have side protection. Many modern prescription glasses have small lenses, which would make them unsuitable for use as eye protection. A visor or face shield can be worn over spectacles to give additional protection. Patients' eyes must always be protected against possible injury; tinted glasses may also protect against glare from the operating light.

Masks do not confer complete microbiological protection but they do stop splatter from contaminating the face. Masks or visors are recommended for all operative procedures. Masks are single use and must be changed after every patient, not pulled down or re-used; visors should be cleaned between patients or, if single-use, disposed of as clinical waste.

A wide variety of clothing is worn in dental surgeries and in many practices is used to reinforce the corporate image. Surgery clothing should not be worn outside the practice; adequate changing and storage facilities must be provided. Short sleeves allow the forearms to be washed as part of the handwashing routine. Long sleeves are more likely to become contaminated during clinical sessions and could cause a breach in infection control.

Surgery clothing

Surgery clothing can become contaminated with microorganisms during procedures, so freshly laundered uniforms should be worn every day. Machine-washing with a suitable detergent at a minimum temperature of 60°C will reduce any potential microbial contamination.

Disposable plastic aprons should be worn during decontamination processes.

Depending on the type of PPE worn, it should be removed in the following order:

Removing PPE

1. Gloves – ensuring that the gloves end up inside out and that the hands do not become contaminated. If contaminated, wash hands thoroughly before removing other PPE.
2. Plastic disposable apron – by breaking the neck straps and gathering the apron together touching the inside only.
3. Face mask – by breaking the straps or lifting over the ears, avoiding touching the outer surface of the mask. Never allow mask to hang around neck.
4. Face and eye protection, taking care not to touch outer surfaces.
5. Wash hands thoroughly.

Good surgery ventilation and efficient high-volume aspirators, which exhaust externally from the premises, will reduce the risk of infection by dispersing and eliminating aerosols. High-volume aspirators turned on prior to the handpiece will reduce risk from aerosols. External vents should discharge without risk to the public or re-circulation into any building. Aspirators and tubing should be cleaned and disinfected regularly in accordance with the manufacturer's instructions and the system should be flushed through at the end of each session with their recommended surfactant/detergent and/or non-foaming disinfecting agent.

Aerosol and saliva/blood splatter

Rubber dam isolation of teeth also offers substantial advantages and should be used whenever practicable. It enhances the quality of the operative environment and virtually abolishes saliva/blood splatter. When working without rubber dam, the use of high-volume aspiration is essential.

Inoculation injuries are the most likely route for transmission of blood borne viral infections in dentistry. The definition of an inoculation injury includes all incidents where a contaminated object or substance breaches the integrity of the skin or mucous membranes or comes into contact with the eyes. The following are typical examples:

Inoculation injuries

- sticking or stabbing with a used needle or other instrument
- splashes with a contaminated substance to the eye or other open lesion
- cuts with contaminated equipment
- bites or scratches inflicted by patients.

Inoculation injuries must be dealt with promptly and correctly.

- Allow the wound to bleed and then wash thoroughly with running water.
- Assess the risks associated with the patient and the injury. Where there is reason to be concerned about the possible transmission of infection, the injured person should seek urgent advice according to the local

arrangements in place on what follow up action, including serological surveillance, is necessary. All practices should have formal links with their local occupational health service, so that management of sharps injuries is undertaken promptly and according to accepted national protocols.

- Contact the occupational health service of the primary care organisation for advice on post-exposure prophylaxis. Practices without an NHS contract may have to arrange this privately. Every practice should have details of the local contact displayed prominently.
- When local advice is not available, advice should be obtained from the following sources:

England: Health Protection Agency Centre for Infections
61 Colindale Avenue, London NW9 5EQ
Tel: 020 8200 4400, Email: infections@hpa.org.uk

Scotland: Health Protection Scotland
Clifton House, Clifton Place, Glasgow G3 7LN
Tel: 0141 300 1100, Email: hpsenquiries@hps.scot.nhs.uk

Wales: PHL Cardiff
University Hospital of Wales, Heath Park, Cardiff CF14 4XW
Tel: 02920 742718

N Ireland: Director of Public Health at the local Health and Social Services Board

- Make a full record of the incident in the accident book, including details of who was injured, how the incident occurred, what action was taken, which dentists were informed and when and, if known, the name of the patient being treated. Both the injured person and the dentist in charge should countersign the record.

In dentistry, the risk of acquiring HIV infection following an inoculation injury is very low. If, however, the injury is risk-assessed as significant for transmission of HIV and the source patient is HIV infected, post exposure prophylaxis (PEP) should be commenced as soon as possible after the incident and ideally within the hour. PEP involves the use of a short course (four weeks) of treatment with anti-retroviral drugs in an attempt to reduce even further the risk of infection with HIV following exposure. Dentists should clarify with their local occupational health service the local arrangements for urgent access to PEP before any incident occurs.

Emerging infections

Transmissible Spongiform Encephalopathies

CJD and related conditions raise new infection control questions: 'prions', the infectious agents that cause them, are much more difficult to destroy than conventional micro-organisms, so optimal decontamination standards need to be observed. All instruments must be thoroughly cleaned before autoclaving, in order to remove as much matter as possible. Patients with vCJD or CJD, or identified as 'at-risk' of vCJD for public health purposes, (or their relatives) should not be refused routine dental treatment.

Guidance on the prevention of transmission is available in Transmissible Spongiform Encephalopathy Agents: safe working and the prevention of infection produced by the Advisory Committee on Dangerous Pathogens (December 2003) and supplemented by a letter from the Chief Dental Officer (February 2005). Both are available on the Department of Health and BDA websites.

Meticillin-resistant *Staphylococcus aureus* (MRSA)

No additional infection control precautions are necessary for the dental treatment of patients colonised with MRSA. However, members of the dental team known to be colonised with MRSA should not undertake or assist with invasive procedures. A clinical microbiologist or communicable disease physician will be able to provide treatment to eradicate the MRSA colonisation.

The incidence of all forms of tuberculosis (TB) is rising and now approximately one third of the world's population is infected. The disease is spread by droplets or by direct contact and has been transmitted by dental procedures. Although *Mycobacterium tuberculosis* is the usual cause of TB, other species of mycobacterium can also cause the disease. The infection control procedures described in this document should be adequate protection against transmission of TB. Staff infected with TB should seek guidance from their local occupational health services.

Herpes simplex virus type 1 (HSV-1) is usually associated with infections of the lips, mouth and face. It is the most common virus and is usually associated with childhood. HSV-1 often causes lesions such as cold sores in and around the mouth and is transmitted by contact with the lesion and infected saliva. By adulthood, up to 90% of individuals will have antibodies to HSV-1. The herpes virus can reside in the body for years, appearing only as a cold sore when something provokes it, for example, illness, stress, hormonal changes and sun exposure. Individuals usually experience a tenderness, tingling or burning before the actual sore appears, initially as a blister which subsequently crusts over.

All stages of a herpes virus infection can be contagious although fluid-filled vesicles are much more infectious than other stages of the herpes infection. Ideally, dental treatment should not be undertaken but the decision lies with the individual clinician - bearing in mind that

- the herpes simplex virus is highly infectious and easily transmitted
- manipulation of the facial and oral tissues can exacerbate the condition and cause breakdown of the lesion and bleeding
- spread of the virus to other areas of the skin can cause significant problems (new primary lesions, for example); infection of the eyes is a rare but significantly serious complication.

A patient requiring urgent dental care should not be denied it but until the herpetic lesions are healed, the dental team should take care to prevent the spread of the virus.

Dental treatment can cause reactivation of oral herpes within three days of major dental treatment (root canal treatment or surgery, for example). It may also cause intraoral recurrent herpes in the oral soft tissue (mucosa) adjacent to the teeth.

Children are particularly vulnerable before they develop antibodies to HSV-1, so extra care must be taken to avoid spreading the virus to other areas of the child's mouth and face. Gloves, mask, and eye protection are mandatory when treating a child with an active infection.

The Department of Health has issued specific guidance for dental practices on what to do in the event of pandemic flu, which is available at www.dh.gov.uk/en/Publichealth/Flu and summarised on the BDA's website at www.bda.org/infectioncontrol.

Influenza is a respiratory illness characterised by rapid onset of a wide range of symptoms including fever, cough, headache, sore throat and aching muscles and joints. It has an average incubation time of two to three days and people are most infectious soon after they develop symptoms.

Transmission is through close contact with an infected coughing or sneezing person. Hand washing (with soap and water or alcohol handrub) and environmental cleaning will deactivate the virus and help control spread through contact.

The main measures for containing the infection include:

- standard infection control measures and droplet precautions
- a 'stay at home' approach for anyone with flu-like symptoms
- separating flu-infected patients from well patients when dental care is needed
- preventing symptomatic visitors (accompanying well patients, for example) from attending the practice.

Appendix

HTM 01-05: Decontamination in primary dental care practices

Published by the Department of Health in 2009, the guidance HTM 01-05 is based on a principle of continuous improvement and introduces benchmarks to achieve compliance with 'essential quality requirements' and 'best practice'. Essential requirements should be in place within 12 months of publication. There is no timescale for implementing best practice, but practices should plan how to progress towards it where they can, identifying when they might have separate decontamination facilities incorporating a washer-disinfector. The guidance recognises, however, that it will take some practices longer than others to comply and some may never comply fully.

Where new practices are commissioned or new premises contemplated, best practice requirements should be adopted wherever reasonably practicable.

Essential quality requirements

Prior to sterilisation, cleaned instruments should be free of visible contaminants when inspected. Reprocessing using a validated decontamination process, which includes a cleaning and steam sterilisation (using a validated autoclave), should provide instruments in a sterilised state at the end of the reprocessing cycle. Reprocessed instruments should be stored in a way to prevent microbiological recolonisation. Decontamination processes should be audited quarterly.

In maintaining and developing decontamination practices, the following should be included:

- a local infection control policy, updated as necessary
- protocol for decontaminating instruments (as part of the infection control policy)
- storage, preparation and use of decontamination products in line with COSHH Regulations
- procedures for management of single-use and re-usable instruments
- reprocessing of instrument using dedicated equipment
- dedicated handwashing facilities
- instrument cleaning using an ultrasonic bath and or manual cleaning and inspected to ensure free from visible contamination. Practices should plan for the introduction of washer-disinfectors
- separation of instrument processing from other clinical work by physical or temporal means – the designated area for decontamination may be in or adjacent to a clinical room
- decontamination equipment should be fit for purpose and validated – it should be commissioned, maintained and periodically tested by a Competent Person (decontamination), with records of maintenance kept and functioning monitored and recorded
- appropriate and controlled disposal of waste
- a documented training protocol with individual training records for all staff involved with decontamination
- an assessment of changes needed to progress to best practice
- immunisation against hepatitis B for all staff involved in decontamination (and tetanus, if local policies require)

- plan to use washer-disinfectors to clean and disinfect handpieces or use dedicated cleaning equipment
- two dedicated sinks for decontamination or two bowls incorporated into a single unit (in addition to the dedicated sink(s) for handwashing)
- routine (quarterly) audits of infection control requirements (in line with HTM 01-05); use of the audit tool produced by the Infection Prevention Society is recommended

Essential infection control policies

Having the correct documentation is key to the essential quality requirements. All practices should have an infection control policy together with the policies and procedures listed below. Models of these policies and procedures are available on the BDA website at www.bda.org/infectioncontrol.

- Minimising the risk of blood-borne virus transmission, including needlestick injuries (policy)
- Decontamination and storage of dental instruments (policy)
- Cleaning, disinfection and sterilisation of dental instruments (procedures)
- Clinical waste disposal (policy)
- Hand hygiene (policy)
- Decontamination of new reusable instruments (policy)
- Personal protective equipment use (procedures)
- Management of dental instruments and equipment in infection control (procedures)
- The use, storage and disposal of disinfectants within the practice (procedures)
- Spillage procedures (as part of COSHH)
- Environmental cleaning and maintenance (policy)
- Transfer of contaminated items from the treatment to decontamination area (procedures)
- A documented training scheme with individual training records for all staff engaged in decontamination.

Systems should be developed to ensure instruments sterilised in a non-vacuum autoclave are used immediately or, if wrapped after sterilisation, within 21 days. Instruments wrapped and sterilised in a vacuum autoclaves should be used within 60 days.

Best practice

Best practice is concerned with achieving higher standards in infection control through improvements in premises and equipment, and changes in practice management and the culture in which patients are treated by the dental team. The Department of Health has not set timescales for achieving best practice, recognising that it will take some practices longer than others and that some may never be able to comply fully. Some PCTs, however, are implementing local timescales for complying with best practice requirements; NHS practices should, therefore, be aware of local policies for achieving best practice.

Best practice requirements include:

- Installing a modern validated washer-disinfector of adequate capacity to remove the need for manual washing.
- The use of a decontamination room or rooms to provide more complete separation from other work activities, enhancing the distinction between clean and dirty workflows. Access should be restricted to those staff performing decontamination duties.
- Suitable instrument storage away from the surgery to reduce exposure to air and possible pathogenic contamination. Systems should ensure instruments are easily identified for selection and are used on a first-in, first-out principle within the recommended time frames.



British Dental Association

64 Wimpole Street London W1G 8YS Tel: 020 7563 4563 Fax: 020 7487 5232

E-mail: enquiries@bda.org www.bda.org © BDA December 2009