

Guidance on sharps injuries and exposure-prone procedures

Exposure-prone procedures (EPPs) are those 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. Needlestick injuries can result from performing EPPs. This article advises on the development of practical policies for EPPs in general dental practice.

All members of the dental clinical team will be involved in exposure-prone procedures when undertaking patient treatment. A sharps injury refers to any injury or punctures to the skin involving a sharp instrument—e.g. bur, needle, scaler, endodontic file—with the healthcare worker being potentially exposed to risk of acquiring a blood-borne virus from the patient. Therefore, it is important that registered dental nurses understand their role in maintaining their patients', colleagues' and own safety during patient treatment.

What are exposure-prone procedures?

Exposure-prone procedures are those 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 (Department of Health (DH), 2007). Thus the patient is potentially placed at risk from the healthcare worker.

In dentistry, these are classified into three broad categories based on the degree of visibility of the



The risk of needlestick injury is everpresent but often underestimated by those working in dentistry.

hands and the risk of significant sharps injury occurring during the procedure (Table 1) (Pankhurst and Wilson, 2009).

Although sharps injuries can occur when using any sharp instrument during treatment, the majority of incidents in general health care are needlestick-related. The Health Protection Agency (2008) undertook a 7-year study, entitled *Eye of the Needle*, using data collected from 150 centres on significant occupational exposure to blood-borne viruses among healthcare workers.

The study found that 63% of injuries reported involved hollow-bore needles. Numerically, between 2000–2007 most occupational exposures involved nursing professionals. However by profession, medical professionals (doctors and dentists) reported a higher number of occupational exposures than nursing professionals in 2007 (200 compared with 191). About a third of the incidents involving doctors were reported to be senior house officers (junior doctors).

A study undertaken by the Royal College of Nursing (RCN, 2003) identified that general nurses

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sustain the highest number of sharps injuries of all general healthcare workers, with 37% of nurses sustaining a sharps injury during their career. The study found that 56.4% of sharps injuries are sustained by the original user of the sharps or needle. Poor disposal of sharps and needles were found to account for a significant percentage of injuries, with 20% of injuries among healthcare workers being the result of sharps or needles protruding from a dedicated sharps' disposal container (RCN, 2003). Therefore, it is important to close and discard sharps containers when they are three-quarters full.

What are blood-borne viruses?

The risk of any sharps-related injury is exposure to blood-borne viruses. In dentistry, this can involve patient to patient, patient to dental staff, and dental staff to patient infection. The main viruses concerned in dentistry are:

- Hepatitis B (HBV)
- Hepatitis C (HCV)
- Human immunodeficiency virus (HIV).

HBV

HBV is a blood-borne and sexually-transmitted virus.

Table 1. Classification of exposure-prone procedures

Category	Associated risk	Example of procedure
1	Low: Gloved hands are fully visible	Dental suction
2	Medium: Gloved hands are partially visible	Extraction of a tooth
3	High: Gloved hands are not visible, usually due to patient's own blood	Osteotomy

Of the above three viruses, it is the most highly contagious. HBV vaccine can prevent HBV infection. HBV vaccination is now mandatory for all healthcare workers but should not be considered a substitute for safe working practices.

HCV

HCV can cause a form of hepatitis that leads to chronic liver disease. There is no known way to prevent this infection following exposure. Blood

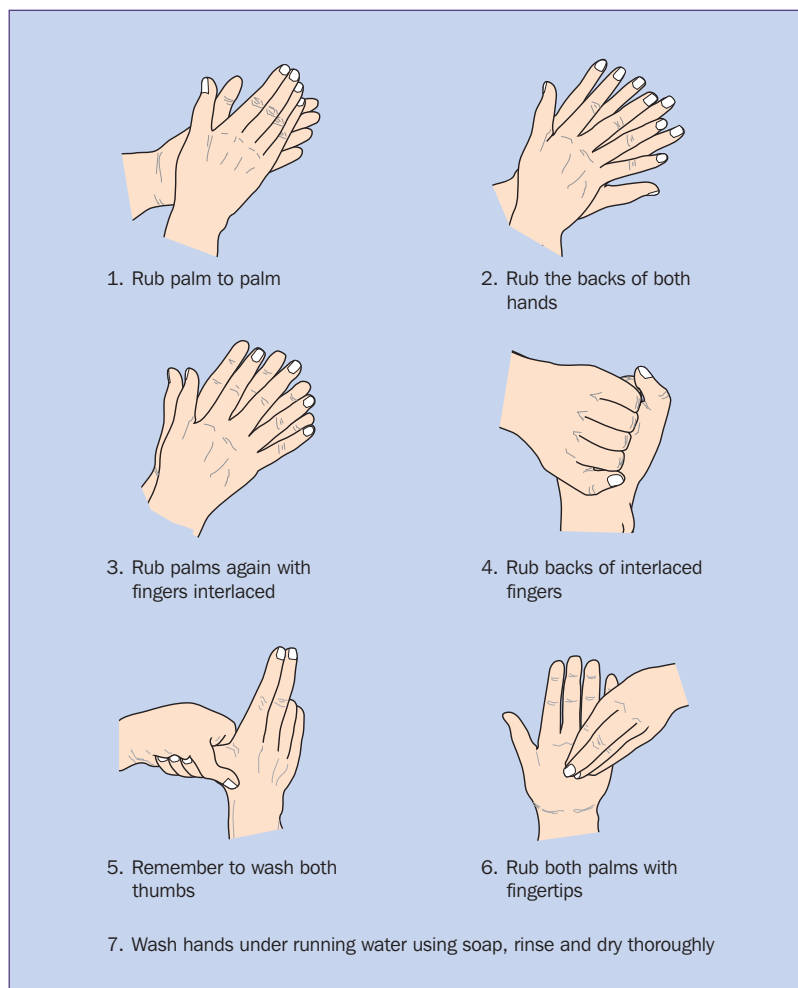


Figure 1. How to wash hands correctly and reduce infection.

tests should be done immediately after exposure to measure the liver function and test for the presence of HCV; the tests should be repeated after 4–6 weeks and again after 4–6 months or sooner if symptoms of HCV develop.

Symptoms of HCV include abdominal pain, loss of appetite, nausea, darkening of urine, light stools, or jaundice (yellowing of the skin or whites of the eye).

HIV

Prophylactic treatment is available to reduce the risk of becoming infected with HIV after exposure. HIV transmission during clinical procedures is 100 times less common than that of HBV and 80 times less than HCV.

The benefits of prophylactic treatment (e.g. reduced risk of infection) must be weighed against the risks (e.g. side-effects of treatment, interactions with other medications, cost of treatment). All women of childbearing age should be tested for pregnancy before beginning treatment, although

being pregnant does not mean that a woman cannot take anti-HIV medications. Anyone who is exposed to potentially infected blood or bodily fluids should be tested for HIV at the time of exposure (known as the baseline test) and at 6 weeks, 3 months, and 6 months post-exposure.

Currently the General Dental Council (GDC) (2010a; 2010b), following 'appropriate' DH (2005) guidance, does not permit dental professionals with known HIV to participate in dental exposure-prone procedures. However, this is currently under discussion following the Beijing Declaration made at the 6th International World Workshop on Oral Health and Disease in AIDS which took place in Beijing in April 2009.

Beijing declaration 2009

The participants of the 6th World Workshop on Oral Health and Disease in AIDS, which took place from 21–24 April 2009 in Beijing, China, welcomed the opportunity to assess the evidence relating to the transmission of HIV in the dental setting from oral healthcare professionals to patients.

The participants from over 30 countries noted and considered the inconsistencies in the regulation of the ability of an HIV positive oral healthcare professional to continue practice.

Having analysed the scientific evidence that has become available over the last 20 years, the participants of this workshop concluded that the evidence now supports the view that oral healthcare professionals with HIV do not pose a risk of transmission to patients in the dental setting. They can continue a career in clinical practice, provided that the following criteria are met:

1. The individual is under ongoing care by a suitably qualified HIV healthcare professional
2. The individual remains aware of his/her health status and acts appropriately
3. Standard infection control is observed
4. Scientific evidence related to HIV transmission will continue to be reviewed.

What reduces the risk of contracting blood-borne viruses?

The standard safety procedures followed in dentistry for the prevention of sharps injuries are known as standard or universal precautions, with all blood and body fluids being considered to contain infectious agents, and treated as such. The DH (1998) produced the publication *Guidance for Clinical Health Care*

Workers: Protection against infection with blood-borne viruses to advise healthcare professionals on how to reduce the risk of contracting a blood-borne virus. Recommendations included:

- Hand washing after each patient contact and after contact with blood or body fluids (*Figure 1*)
- Using personal protective equipment
- Disposable gloves should be worn whenever working with blood or body fluids
- Disposable plastic aprons/impermeable gowns should be worn when splashing with blood or body fluids may occur
- Eye protection (visors, goggles, or safety spectacles) should be worn when blood, body fluids or flying contaminated debris/tissue might splash into the face
- Covering any cuts or abrasions with waterproof plasters
- Immediate and safe disposal of sharps into appropriate, puncture-proof sharps bins
- Not overfilling sharps containers
- Never resheathing needles
- Sterilization of dental instruments
- Use of single-use items.

Single-use items

The Medical Devices Agency (1995) state items marked as 'single use' must only be used on a single occasion and then discarded. Single-use devices should never be used on multiple occasions on a single patient or on different patients. You will be personally liable if you cause any damage or injury by reusing an item marked for single-use only (Medical Devices Agency, 2000).

If a medical device is marked for single patient use, it can be used multiple times on one patient and then it must be discarded. Examples of single-patient-use devices include plastic syringes and suction tubing. Some form of decontamination may be necessary between use on the same patient; manufacturer's instructions should always be followed.

Prepacked sterile single-use or single-patient-use medical devices should be checked to ensure the packaging is intact and that the content is within its use-by date. Stock should be stored in a clean area, stored off the floor and rotated to ensure that older stock is used before it reaches its expiry date.

Single-use devices should always be used where possible as long as this does not compromise the clinical outcome.

European employment ministers have agreed a directive aimed at preventing sharps injuries in

the healthcare sector. The directive has now been published in the *Official Journal of the European Union*, and EU countries will have until 11 May 2013 to implement the new provisions.

What is the directive?

The directive gives legal effect to a framework agreement concluded by the European Hospital and Healthcare Employers' Association (HOSPEEM) and the European Federation of Public Service Unions (EPSU) through the social dialogue process which allows representatives of employers and workers to negotiate agreements on matters relating to employment and social affairs.

What is the purpose of the directive?

The purpose of the directive is:

- To achieve a safe working environment
- To prevent injuries with all medical sharps including needlesticks
- To protect workers at risk
- To set up an integrated approach establishing policies in risk assessment, risk prevention, training, information, awareness raising and monitoring
- To put in place response and follow-up procedures.

Who does the directive apply to?

All workers and employees, as well as students and trainees that are under the managerial authority and supervision of the employer are covered by this agreement.

What should I do if I sustain a sharps injury or get exposed to body fluids?

The following actions should be undertaken immediately:

- Stop treatment and attend to the wound
- Bleeding must be encouraged by squeezing puncture wounds for 2 minutes (do not suck the wound)
- Wash the site with soap and water without scrubbing
- Dry the wound and cover with a waterproof dressing
- Irrigate or rinse mucous membranes—for example, mouth, nose, ears or eye—with large quantities of water as appropriate

- Check the medical history of the source patient to determine the risk of contamination
- If the source patient is a known or suspected carrier of HIV, the primary care trust or local hospital designated specialist—for example, the consultant in communicable disease control or consultant medical microbiologist—should be contacted so antiviral treatment can commence within the hour. The contact number should be included in the practice's sharps injury policy
- How the injury occurred and the actions taken need to be registered in the practice accident book, and reported to the senior dentist and local occupational health contact.

If local advice is not available the following can be contacted:

- England: The duty doctor at the PHLS Communicable Disease Surveillance Centre, 61 Colindale Avenue, London. Tel: 020 8200 6868
- Scotland: Scottish Centre for Infection and Environmental Health (SCIEH), Clifton House, Clifton Place, Glasgow. Tel: 0141 300 1100
- Wales: PHL Cardiff, The University Hospital of Wales, Heath Park, Cardiff. Tel: 02920 742718
- Northern Ireland: Director of Public Health at the local Health and Social Services Board.

Conclusion

Dental nurses should take an active role in ensuring that safe sharps practice is maintained during and following patient treatment. This involves maintaining a safe environment for the patient, the operating dentist, and themselves. They should ensure universal precautions are followed during

and following treatment and that they and their colleagues are vaccinated.

Dental nurses should take care when clearing away kit following any treatment and take responsibility for the safe use and disposal of sharps bins.

Dental nurses have a responsibility to maintain their professional competence through continuing professional development, and this should include keeping up to date with current sharps and exposure-prone procedures practice and policy. DN

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KEY POINTS

- Dental nurses need to understand their role in maintaining their patients', colleagues' and own safety during patient treatment.
- Dental nurses need to take an active role in ensuring safe sharps practice.
- Dental nurses need to ensure they are appropriately vaccinated.
- Dental nurses need to maintain their continuing professional development regarding sharps and exposure-prone procedures sharps practice.

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