

Hands: First line of defence

Schülke marketing manager, **RICHARD MUSGRAVE** discusses the importance of hand hygiene in the prevention of cross infection.

The single most important tool in infection control is hand hygiene, and it is the duty of all dental care professionals to understand just how and why it is so important. To put it bluntly, all the latest, most expensive high tech equipment and instruments are as good as useless if the hands that use and operate them are not properly decontaminated and sanitised.

Microorganisms exist naturally and invisibly in our environment. They are essential to life and not all of them are bad, but those that are, known as pathogens, spread disease and infections rapidly, often with deadly consequences. Ever since outbreaks of Legionnaire's disease, MRSA, c-difficile and other so-called "superbugs", there has been greater emphasis on the importance of hand washing, particularly in clinical or surgical situations. In fact, there has been much scorn and ridicule in the media about instructions on how to correctly wash your hands, as if it is patronising and unnecessary because "everyone knows how to do something that simple, surely?"

The short answer to that is a very firm "no", because a quick flick under a tap is not sufficient to ensure hands are properly clean and safe. Indeed there is a whole body of research that supports the claim that hand hygiene is the single most effective weapon in the battle against cross infection.

Our skin is the first line of defence in the body's fight against infection, and in the dental profession it is the skin on the hands that is most likely to transport pathogens between patients and the dental team. It is vital for the safety of both patients and staff that hands are as clean as possible. Any cuts or lesions on the skin are easy sources of entry for bacteria and viruses, so good hygiene practice is crucial to reducing the risk of infection. Thoroughly washing hands, the use of gloves and alcohol rubs are the primary means employed by dental clinicians to maintain effective hand hygiene and prevent the spread of infection.

Hands that are insufficiently decontaminated and sanitised can become a lethal weapon in a clinical context such as a dental surgery. However, the invisible pathogens they carry do not stop at the surgery door. They are everywhere – on surfaces, furniture, floors, walls, equipment and people. This means that patients, reception and administrative staff, external contractors and the clinical team are all potential carriers of infection, which is why a strict regime of meticulous cleaning and decontamination in every part of the practice, including staff rooms and public areas, is essential.

Ideally there should be a designated person in charge of hygiene procedures across the practice that will regularly check that strict standards are maintained, everyone is trained and familiar with procedures, cleaning products and equipment, and the importance of hand hygiene is stressed relentlessly.

While pathogens are dangerous, they are not as dangerous as underestimating their threat to people and material. Preventing contamination and cross-infection is far easier than combating them. Whether working within a clinical environment or not, good hand hygiene should be second nature to everybody. We cannot prevent the existence of pathogens, but preventative measures, such as maintaining effective personal hygiene, can significantly reduce the dangers of contracting or passing on an infection.

The correct hand washing procedure using just hot water and soap is effective in killing 95 per cent of bacteria. However, even though this is a mandatory part of a dental practitioner's hygiene routine, many dental care professionals fail to perform the procedure properly and as such are leaving themselves and their patients open to the risk of infection.

The correct hand washing technique

The only effective hand washing technique is as follows:

1. Palm to palm – including wrists.



2. Right palm over back of left hand, and let palm go over back of right hand.



3. Palm to palm, with fingers interlaced.



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



5. Rotational rubbing of thumbs clasped in opposite palms.



6. Rotational rubbing of fingertips in palms.



In order to be effective, this technique must be followed exactly and frequently. It must be performed meticulously on entering the surgery, before putting on gloves, after removing gloves, between patients, before leaving the surgery and before or after clearing a working area or handling any instruments. It should go without

or lethal weapon?

saying that the same procedure should also be carried out after visiting the lavatory, and before handling any food or drink. This applies not only to working in a clinical environment, but also at home and in day-to-day life!

It is important to remember that pathogens are not only found on the skin, but also on and around any jewellery or watches. So, before starting on a hand care procedure, all jewellery should be removed from the hands and wrists so that thorough cleaning can take place. If jewellery needs to stay in place for religious or medical reasons, it should be moveable so it is possible to thoroughly clean underneath and in the surrounding area. Once the washing has been completed, any wrist adornments should be pushed as far up the arm as possible and secured with tape to make sure that they do not interrupt treatment. Similarly, long sleeves should be rolled up the arms and secured above the elbow. Nails must be kept short and clean. Nail polish or nail extensions are forbidden and should be removed before treatment commences to enable a thorough clean.

If the dental clinician or practitioner has any cuts or lesions on the surface of their hands, wrists, or around the fingers and nail beds, these must be securely covered with a waterproof dressing before touching a patient's mouth. This is absolutely essential as blood or saliva-borne viruses can enter or leave the body via open wounds, putting the safety of both the patient and clinician at severe risk of cross-infection.

When the hand washing procedure is carried out correctly, soap and water should effectively remove most of the microorganisms that are found on the hands. When hand washing is followed with the use of a reputable alcohol rub and sterile gloves, the clinical team can be confident that the most important tool in a dental surgery is perfectly prepared for practice. However, it is entirely dependent on the dedication of the dental team to ensure that such procedures are carried out as rigorously as they should be. It is worrying to note that industry sales statistics show that the hand disinfection market in 2009 was valued at £900,000, however the number of dental staff across the UK numbers around 100,000 – equating to less than £9 per year, per person being spent on the correct "CE" marked products suitable for the industry. As with all cleaning and disinfectant products, if a practice is using one that is not suitable for the job, the time and effort that goes into maintaining an effective hand care routine is severely compromised which is another reason why the practice needs an integrated and strictly maintained regime of cleaning and decontamination which would include choosing the correct products.

Although the importance of hand hygiene

cannot be emphasised enough, care must be taken to ensure that while protecting themselves and others from infection, dental professionals are not leaving themselves open to long term suffering and discomfort. Skin irritations and allergies are something of an occupational hazard in dentistry so it is important to reach a balance that means while hand hygiene is paramount, the dental healthcare professional does not suffer any ill effects.

Eczema is the highest ranked occupational skin disease and the reported cases of it in the medical profession are on the increase. Symptoms include itchy, rough skin, which is prone to flaking and cracking and although the disease is not infectious it is unpleasant and uncomfortable for the sufferer. Additionally, many people suffer from allergies associated with perfumes, colours and materials such as latex – all of which can have a large effect on the implementation of many practice's infection control procedures.

Allergic reactions to natural rubber latex (NRL), the material used in the manufacture of medical gloves, have increased over the last 10 years particularly within healthcare occupations. The proteins naturally present in NRL cause irritation either through direct contact with the skin or by inhalation of powder from poor quality powdered latex gloves. The reaction manifests itself in a red itchy scaly rash, which may spread to other areas. Obviously, it is of the utmost importance that such discomfort is minimised and the correct steps are taken swiftly to ensure that the dental professional's health is not compromised.

Wearing gloves in order to keep skin free of any pathogens is an absolute necessity in the dental profession, but of course, for someone suffering from a latex allergy this can further exacerbate the problem. Many suppliers now produce latex-free surgical gloves, which can be worn without discomfort whilst still maintaining strict infection control policies.

The use of alcohol hand rubs has proved very effective in reducing the spread of potentially lethal bacteria such as MRSA on the hands of medical and clinical staff, but frequent usage can severely compromise the condition of the skin, as can excessive exposure to skin-cleansing products. It is important to take restorative action to help minimise dryness and irritation, as weaker skin is more prone to skin complaints and cracking. In order to maintain healthy skin on hands and arms, the regular use of a water-based, non-perfumed moisturising cream or lotion is essential. However, it is important to remember that staff responsible for sterilisation should not use hand creams whilst handling equipment, and that instruments can become contaminated during handling and thus compromise the sterilisation procedure.

Alongside a rigorously implemented infection



control procedure that is practice-wide and applies to every member of the team, instituting and maintaining the highest standards of hand hygiene will play a major role in the fight against contamination and cross-infection. Ineffective or non-existent hand hygiene is probably the major factor in the spread of infection, but following a few key guidelines, cleaning hands properly and thoroughly are all that is needed to prevent this happening in your practice.

About the author

Richard joined Schülke five years ago, bringing knowledge and experience gained over almost 20 years in the industry. He has been at the forefront of developing the company's infection control products and training division.



Questions

1. Harmful pathogens usually restrict themselves to the confines of the dental surgery.
2. It is permissible to wear nail polish and nail extensions as long as hands are thoroughly cleaned?
3. Only clinical staff need to pay so much attention to hand hygiene.
4. Hot water and soap will kill 99 per cent of harmful bacteria.
5. All microorganisms are harmful.
6. Blood or saliva-borne viruses can enter the body via open wounds.

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