What's lurking on your work surface? – Part one

In part one of this feature, **KATHY PORTER** describes the hidden but common cross-infection threats posed in the dental practice and best practice for eliminating them...

EVERYDAY each member of the dental team and their visitors face potentially harmful, even fatal, hidden threats from the various microorganisms that cover each and every surface and piece of equipment they come into contact with.

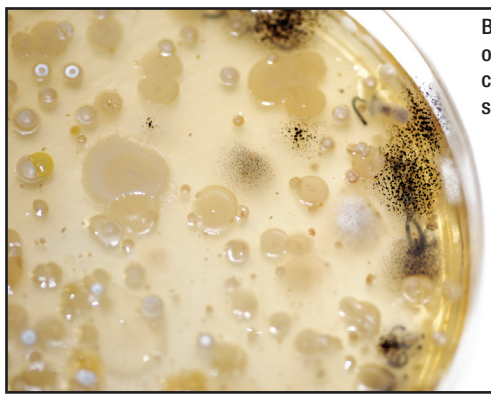
The risks from these potential hazards are frequently overlooked, even ignored, even though they represent a much bigger and therefore a much more dangerous threat to everyone.

The first two lines of the Department of Health's Decontamination Health Technical Memorandum 01-05 Decontamination in primary care dental practices says *Patients deserve to be treated in a safe and clean environment with consistent standards of care every time they receive treatment. It is essential that the risk of person-to-person transmission of infections be minimised as much as possible*.

What are these risks?

All dental practices are aware of the cross-contamination risks posed by inadequate decontamination and subsequent sterilisation of the various pieces of equipment employed in dentistry. Consequently the use of ultrasonic cleaners, washer disinfectors and various forms of autoclaves/steam sterilisers is mandatory. However, there are equally dangerous, yet hidden, threats lurking on potentially every hard surface within the practice. These often go unconsidered and therefore neglected.

We are all exposed to countless microorganisms, which are perfectly safe and pose no threats to anyone; however there are also many forms of pathogenic microorganisms, which can cause infections. These include:



Bacterial culture obtained from a contaminated work surface

- Bacteria (e.g. Clostridium difficile) – they are minute organisms about 1,000 to 5,000 of a millimetre in diameter. They are susceptible to a greater or lesser extent with antibiotics.
- Viruses (e.g. HIV, influenza) – they are much smaller than bacteria and although they may survive outside the body for a short time they can only grow inside cells of the body. Viruses are not susceptible to antibiotics, but there are a few anti-viral drugs available which are active against a limited number of viruses.
- Pathogenic Fungi – this can be either moulds or yeasts. For example, a mould which causes infections in humans is Tinea Corporis, which is one cause of ringworm and can also infect nails.
- Protozoa – which are microscopic organisms, larger than bacteria. Free-living and non-pathogenic protozoa include amoebae and paramecium. Examples of medical importance include Giardia lamblia which causes enteritis (symptoms of diarrhoea).
- Worms (e.g. threadworm, tapeworm) – are not always microscopic in size but pathogenic worms cause infection and some can spread from person-to-person.
- Prions – are infectious protein particles, e.g. the prion causing New Variant Creutzfeldt-Jakob Disease (vCJD).

These microorganisms can be transmitted from one person to another in a variety of ways, but the most likely routes within dental practices are:

- Hands
- Indirect contact which occurs when an intermediate carrier (fomite or vector) is involved. A fomite is an inanimate object which becomes contaminated with infected organisms and subsequently transmits those organisms to another person e.g. light handles, work surfaces etc. Crawling and flying insects are examples of vectors.
- Inhalation which occurs when pathogens are exhaled or discharged into the atmosphere.
- Direct contact
- Ingestion which can occur when organisms capable of infecting the gastro-intestinal tract are ingested. This can occur via fomites, hands, food and drink etc.

Disrupting the spread

Many of these routes can be eliminated by taking appropriate basic hygiene precautions, such as washing hands between patients and by wearing appropriate protective clothing such as disposable gloves, face masks, glasses and surgery clothing. This will protect the patient from the dentist and visa versa.

However, some of the routes involving fomites require the adoption of appropriate and effective cleaning regimes which, to be truly effective, need to be implemented thoroughly between each and every patient.

Storr and Clayton-Kent (2004) described the *Chain of Infection,* as consisting of the source of the infection, mode of spread, person at risk and potential portals of entry. The easiest place to break this chain, thus preventing the spread of infection, is by disrupting the mode of spread.

The single most effective way to do this is effective hand washing. This can only be carried out effectively if the nails are short and unvarnished; only plain wedding bands and no wrist watches are worn; and sleeves are short. No stoned rings or wrist ornaments, whether decorative or for religious reasons, should be worn. Where such wrist ornaments cannot be removed, then they should be pushed as far up the arm as possible and then covered with waterproof tape.

Effective hand washing should be carried out for at least two minutes when entering and leaving the treatment area, between patients, after visiting the toilet, when changing gloves and when hands are visibly soiled.

Alcohol hand gels can be used on visibly clean hands, but if used regularly will cause a build up. Gels should not be used as an alternative to effective washing with soap and water, merely as an adjunct to it. However, It is never acceptable to wash or gel gloves. ■

About the Author

Kathryn (Kathy) Porter has been a qualified and now registered dental nurse for 38 years mainly spent in various guises at Birmingham Dental Hospital. Her title now is senior dental nurse (Decontamination). Her book, entitled *The Dental Nurses Guide to Infection Control and Decontamination*, was published in 2008. Kathy is a trained Infection Prevention and Control Link Practitioner and co-ordinates the group of Link Practitioners at Birmingham Dental Hospital. She is a Fellow of the BADN.

How green is your dental practice?

DR CARL PARNELL looks at how eco-friendly dental practices really are and ways you can make your working environment "greener"...

AS I sat down to write this article, the Copenhagen Conference on *Climate Change* was coming to a close with little consensus on how changes would be put in place in order to reduce carbon emissions. There are the obvious elements of self interest in a world divided by the riches of the West and the visions and aspirations of the under developed nations. With these in mind, I decided to look closer to home and to see if I could possibly make my own working environment "greener".

Dental practice waste

Let's look firstly at the volume of waste that the average dental practice produces. Not very much you may think, but consider the amount of water used during treatments, the quantity of rubber gloves, X-ray developing solutions, vast quantities of disposables, paper waste and perhaps even the use of toxic mercury in amalgams.

I am no environmental scientist but from a quick look at my practice it soon becomes apparent that a typical dental surgery is not a particularly eco-friendly business.

Minimising the effects

What can we do to help minimise the effect of this waste? Firstly we need to accept that best practice will lead to the increased use of disposables and that this is an inevitable result of better infection control within our practices. What measures should we take?

One of the most obvious issues is that of X-ray developing solutions, which could be totally eliminated by the use of digital X-rays as well as reducing the exposure levels to our patients. But, what's holding us back from installing this equipment in our practices? The answer is cost.

We can also make sure that, wherever possible, paper waste is recycled and that we utilise the correct disposal procedures for toxic and contaminated waste. We now routinely separate our domestic waste so why not initiate similar procedures at the practice? We now have a simple rule in the practice – all waste that is generated in the surgery is treated as contaminated and bagged and labelled as such, and all other paper waste generated at reception and in the office is bagged for recycling. I have been amazed at how much we can now recycle.

Management of the washer/disinfector and autoclaves has been changed in order to maximise efficiency and reduce waste water without compromising our stringent infection control guidelines, and the proper disposal procedures of waste amalgam and other toxic waste have been reviewed.

Other issues that we are currently looking into include:

- The use of SMS text messaging for recall and appointments
- Developing procedures to reduce paper waste in reception
- Better management of our appointment books in order to maximise our efficiency and reduce time lost through FTAs
- The viability of running double shift surgery sessions, for example from 8.00am to 8.00pm, to make the best use of our facilities and to provide our patients with greater convenience.
- A move to a totally paperless system and digital X-rays
- A staggered lunch break – keeping the practice open from 8.00am to 8.00pm

Not ignoring the cost

Having given these issues a great deal of thought and consideration I am convinced that I can improve the "green" credentials of my practice and I am sure that some of these will improve our profitability.

However, I have not been so naive as to ignore the cost of going down this route. Everything that we would wish to initiate has a cost and therefore that cost will need to be recouped from either increased efficiencies and/or from increased fees. It is my view that we will need help if we are to turn our practices green. We can make a start, but will require help in managing and financing the processes, a fact that no government can afford to ignore. ■

About the Author

Dr Carl Parnell is a partner of The Dentistry Business and has been in private practice since 1998.

He currently spends some time in practice and the rest of his time advising and coaching practices in aspects of quality assurance and Clinical Governance, including preparing for a DRO visit.