Core subject: Disinfection and Decontamination

MRSA: stopping infection before it starts

A review of superbug MRSA, referencing what we should be doing in practice to continue to keep this bug out.

Author: Richard Musgrave

CPD: 1 hour

Educational aims and objectives

Teach the reader about how MRSA develops and what to look for if it presents in the surgery.

Anticipated outcomes

The reader will have the knowledge to educate patients on MRSA concerns and issues. They will know the importance of disinfecting the surgery of MRSA potential and will know why it is important to disinfect the surgery and decontaminate instruments.

MRSA: stopping infection before it starts

Richard Musgrave presents a detailed review of superbug MRSA, referencing what we should be doing in practice to continue to keep this bug out

Medical science is in a continual state of advancement, but has seen a particularly strong boost in the past century, thanks in no small part, to breakthroughs in the field of infection control. Outbreaks of more virulent pathogens such as smallpox, typhoid and tuberculosis are virtually unheard of in modern western society due to an increased focus on suppressing bacteria and viruses before they have a chance to enter the human body. This is done simply through sterilising equipment, work surfaces and hands, as well as through treatment of existing infection with antibiotics.

One might have thought it was safe to assume then that the majority of microorganisms that cause communicable infections and diseases would eventually die out completely. However, this has unfortunately proven to be far from the case. In recent years, a favourite buzzword in the media has been "superbug", a term referring to a number of pathogens and viruses that have managed to adapt, developing resistance to the antibiotics and cleaning agents commonly used in hospitals and becoming even more dangerous than previous strains.


Photo Credit: Gregory Moran, M.D.

The most familiar example of a superbug is the MRSA virus. Rather than being a single organism, MRSA refers to the various strains of staphylococcus aureus bacteria that, through repeated exposure to beta-lactam antibiotics such as penicillin and its derivatives, has developed complete immunity to those treatments. Though the virus is no more aggressive than its predecessor, and generally only causes fairly minor infections, access to body tissues through surgical wounds or similar exposed areas can lead to complications such as pneumonia, sepsis, endocarditis and cellulitis. It is also particularly dangerous to patients with weakened immune systems, where it can lead to much more serious infections and viruses. Not least of these is tuberculosis, which can easily lead to patient deaths.

We have also seen these immunities arise in other microorganisms, most recently in strains of *pseudomonas aeruginosa*, which was blamed for three infant deaths in Belfast's Royal Jubilee Maternity Hospital in January of 2012 . An 'opportunistic' organism, this bacteria does not usually cause illness in healthy humans; however, can cause severe illness in patients with weaker defences, including necrotising enterocolitis, which leads to extensive tissue damage if the gastro-intestinal system is infected. Pseudomonas aeruginosa is capable of surviving for several days on work surfaces if not properly sterilised and, like MRSA, is largely resistant to most antibiotics.

The key to the adaptation of these bacteria and viruses lies in their startlingly fast rate of reproduction; if a small number of one generation of the organism survives exposure to a cleaning agent or antibiotics, the next generation will retain that resistance and the number of immune microbes will increase exponentially, and the number of effective treatments will dwindle.

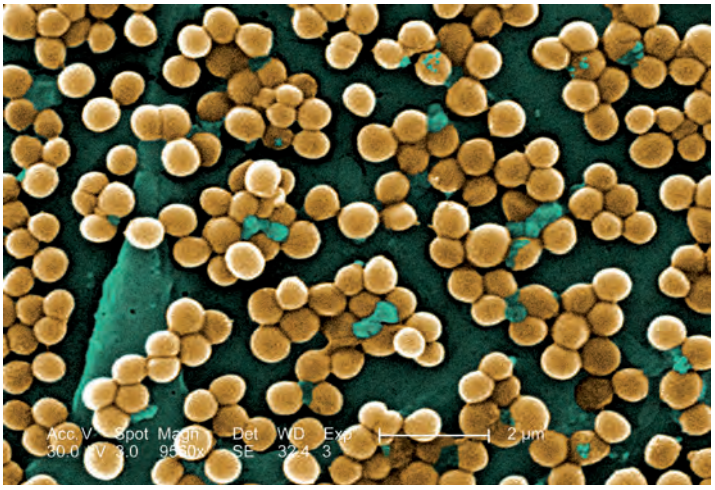
As one can imagine then, it is infinitely

AUTHOR

Richard Musgrave of Schülke background in the industry spanning 18 years, Richard brought his knowledge and experience to schülke five years ago.

Initially working to develop both the range of infection control products as well as the acclaimed infection control training division, Richard is now responsible for the UK marketing team.

He attributes the success of schülke to the quality of its product and its dedication to providing the best possible support to the dental profession, both in the UK and beyond. This commitment is demonstrated through schülke's association with leading companies such as Dental Protection Limited.



preferable to stop the microorganism in its tracks and prevent the possibility of infection before it occurs. The best approach to achieving this lies in continued upkeep of HTM01-05 guidelines, and keeping the practice's hygiene protocols up to date. Full sterilisation of the dental team's hands and arms, as well as all equipment and all surfaces, is the most effective means of avoiding the need for a course of antibiotic treatment at a later date.

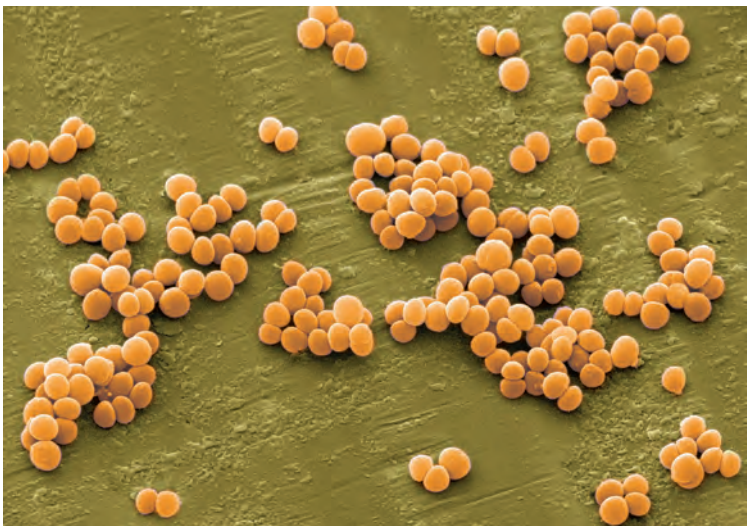
There are a wide range of products available to dental practitioners in order to easily and effectively maintain the required level of hygiene and infection control; however, given the adaptable nature of the microorganisms that must be tackled, it is of great importance to choose the correct product. For instance, products used to sterilise hands or any other areas of skin should be effective at destroying bacteria and germs without causing any irritation or damage to the skin. Any products containing any unnecessary additives such as colouring or perfume should be avoided, and it is advisable to use emollient products that help retain the skin's moisture rather than harsher products that can dry skin out with repeated use.

When sterilising the hands and arms, practice staff should always use an alcohol-based hand rub, such as Schülke's Desderman pure gel, in tandem with a soap free liquid gel for removing any visible contaminants. Treatment on a patient should never begin unless this has been carried out, as the alcohol rub will clear any bacterial flora from the arms and hands that might be harbouring potentially harmful bacterial organisms. This is especially imperative in the case of invasive surgeries where any wounds or lesions may allow bacteria and viruses access to the patient's body. The use of surgical gloves does not preclude or decrease the importance of these sterilisation practises.

Schülke also offers a number of other products to make hand sanitation even more effective, such as a range of sempercare surgical gloves (in both nitrile and latex in the event that allergies are an issue), a touch-free dispenser, and kodan wipes, schülke can also provide staff with training and education in the proper use of the products, as well as advise on hand sanitation and other areas of infection control within the dental practice.

The battle against infectious disease is ongoing, as new and more virulent strains of bacteria and viruses are constantly evolving and adapting against antimicrobial treatment. Like in any medical profession, a dentist and the practice staff have a responsibility to their patients to uphold their safety, and as such, a thorough regime of cleaning hands, surfaces and instruments, using the correct products, is of the utmost importance in keeping communicable infections at bay.

For more information on Schülke products call 0114 254 3500. **CPD**



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