

Healthcare Associated Infection (HCAI) lottery

Hospital acquired infections are of growing concern in Europe, with Surgical Site Infections (SSIs) alone representing a serious risk for the 30 million European surgical patients each yearⁱ. With a 2-4% rate of infection, approximately 900,000 SSIs occur annually and are estimated to cost European health care systems more than 2.5 billion euros per yearⁱⁱ.

According to the Commission one in ten patients, **just like you**, is unlucky enough to contract a HCAI during a hospital stay. We provide below an overview of the three most prominent HCAs:

MRSA

MRSA is also known as the 'super bug', it is a bacterium that is becoming more and more prevalent in European hospital systems. MRSA is very virulent and can kill rapidly, even in relatively healthy patients, and is resistant to almost all antibiotics.

Staphylococcus is a type of bacteria which lives most commonly in the human nose and skin. In 1884 Dr. Rosenbach from Germany described two types of staphylococci which differed in colour: *Staphylococcus aureus* (yellow) and *Staphylococcus albus* (white). The latter is now named *Staphylococcus epidermidis* and is the most common bacteria on the skin. When penicillin first came into use in the 1940s, all species of *Staphylococcus* were killed when exposed to it. Very quickly, however *Staphylococcus* developed resistance to penicillin and its derivatives. Methicillin is a synthetic form of penicillin which, for many years, remained active against *Staphylococcus*. However, beginning in the 1960s, Methicillin-resistant *Staphylococcus aureus* (MRSA) emerged as a virulent cause of infection in health care settings.

Whenever MRSA is detected today it represents a red flag to health-care professionals warning them that their patient is in grave danger unless a more powerful antibiotic like vancomycin is given immediately. It is also a signal that their hospital system has been 'contaminated', unless the patient is rapidly isolated.

Many people are 'carriers' of MRSA but have no symptoms themselves. The MRSA lives in their nasal passages and only causes disease when the person's immune system is weakened or when that person comes in contact with someone else who is weakened and passes the bug along to them. Health care providers working amongst patients with MRSA have a high likelihood of becoming carriers themselves and of passing the bug to other patients. Critically, some MRSA are now becoming resistant to vancomycin.

VRE

VRE stands for Vancomycin-Resistant Enterococci, a deadly hospital-associated infection. VRE has caused about 1 in every 3 infections in hospital intensive care units. Enterococci are bacteria that are normally present in the human intestines and in the female genital tract and are often found in the environment. Vancomycin is an antibiotic that is often used to treat infections caused by enterococci. Enterococci are increasingly becoming resistant to this drug, hence VRE.

VRE is usually passed to others via the hands of healthcare providers or on contaminated environmental surfaces. Usually those hands or surfaces have been in contact with blood, stool or urine containing VRE. Patients can get VRE in association with indwelling catheters. In that case removing the catheter is part of the treatment plan.



C. Dif.

C. Dif. stands for *Clostridium difficile*, a bacteria that causes diarrhea and more serious intestinal conditions such as colitis. C. Dif. has now overtaken MRSA as the main cause of hospital-acquired infections in the UK.

People in good health usually don't get C. Dif. Disease, only people that are hospitalised and/or on antibiotics are likely to become ill. Paradoxically, the antibiotics that are being used to treat another infection actually facilitate the emergence of C. Dif. strains which release a toxin leading to AAD (antibiotic-associated diarrhea).

The risk for disease increases in patients with lengthy antibiotic exposure, gastrointestinal surgery/manipulation, long stays in healthcare settings, a serious underlying illness, immunocompromising conditions and advanced age.

The bacteria are found in the feces. People can become infected if they touch items or surfaces that are contaminated with feces and then touch their mouth or mucous membranes. Healthcare workers can spread the bacteria to other patients or contaminate surfaces through hand contact. As with MRSA, healthy persons can become colonised with C. Dif. and pass it along to others. This is especially common amongst Health care workers who are in contact with patients suffering from C. Dif. infections.

For more information on what can be done to tackle HCAs, please refer to HFE's brochure on this issue, which can be downloaded from our website: www.healthfirsteurope.org

i Data on file

ii Emmerson AM, Enstone JE, Griffin M et al. *J Hosp Infect* 1996; 32:175-90

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