MRSA Infections

Methicillin-resistant Staphylococcus aureus (MRSA) is an infection caused by a type of Staphylococcus, or staph, bacteria that's resistant to many different antibiotics. These bacteria naturally live in the nose and on the skin and generally don't cause any harm. However, when they begin to multiply uncontrollably, a MRSA infection can occur. These infections typically occur when there's a cut or break in your skin.

MRSA is very contagious and can be spread through direct contact with an infected person. It can also be contracted by coming into contact with an object or surface that an infected person has touched. Though a MRSA infection can be serious, it may be treated effectively with antibiotics. MRSA infections are classified as either hospital-acquired (HA-MRSA) or community-acquired (CA-MRSA).

HA-MRSA: HA-MRSA is associated with infections that are contracted in medical facilities such as hospitals or nursing homes. You can get this type of MRSA infection through direct contact with an infected wound or contaminated hands. You can also become infected through contact with contaminated linens or poorly sanitized surgical instruments. HA-MRSA can cause severe problems, such as blood infections and pneumonia. CA-MRSA: CA-MRSA is associated with infections that are transmitted through close personal contact with an infected person or through direct contact with an infected wound. This type of MRSA infection may also develop as a result of poor hygiene such as infrequent or improper handwashing.

Who is at risk for developing MRSA? Risk factors vary depending on the type of MRSA infection. You're at an increased risk for HA-MRSA if you: were hospitalized within the past three months, regularly undergo hemodialysis, have a weakened immune system due to another medical condition, live in a nursing home. You're at an increased risk for CA-MRSA if you: share exercise equipment, towels, or razors with other people, participate in contact sports, work at a day care facility, live in crowded or unsanitary conditions.

Streptococcus Pyogenes

Like other potentially dangerous bacteria such as *E.coli*, *Streptococcus pyogenes* can be found in 5 per cent - 15 per cent of all humans, residing in the lungs or throat without causing any harm. *Streptococcus pyogenes* causes over 700 million infections globally every year and has

a high mortality rate of 25 per cent in serious cases - once you have an infection the bacteria can cause a range of diseases ranging from sore throat and impetigo up to scarlet fever. Luckily, the bacteria is affected by penicillin so is treated easily in most cases - however several strains are building resistance to various other antibiotics.

Neisseria Gonorrhoeae

Gonorrhoea is spread through sexual contact and causes various infections in both men and women. Certain strains of the bacteria have shown resistance to antibiotics and have mutated over the course of 50 years or so, slowly adapting different resistances as doctors change their approach by using different antibiotics to counter the disease. The small hairs or 'pili' on the bacteria act like hooks that are used to move the cell and attach it to other healthy cells.

Mycobacterium Tuberculosis

Tuberculosis has been know by many names including scrofula and the White Plague and has been a huge cause of death and distraction throughout history, with evidence found in bodies estimated to be around 9,000 years old.

Acinetobacter Baumannu

Acinetobacter baumannii have become resistant to many antibiotics and like other bacteria are currently being countered most effectively through thorough hygiene in healthcare situations. The bacteria can survive in harsh conditions for long periods of time so are often difficult to deal with in weaker patients, and coupled with increasing resistance presents a tough challenge when encountered by doctors. Sometimes called *Iraqibacter*, *Acinetobacter baumannii* became very prevalent during the Iraq war amongst injured soldiers who passed through several different medical facilities.

Escherichia Coli (E.Coli)

Most *E.coli* is completely harmless and survives happily in the human digestive system. However, some strains of *E.coli*can cause serious illness and most commonly lead to severe food poisoning as well as meningitis and infections. A high level of resistance to antibiotics has been found across several strains of *E.coli* and while it is rare to find these strains causing illness, it is another concerning example of a bacteria that has the potential to cause problems if our use of antibiotics goes unchecked.

Klebsiella Pneumoniae

Klebsiella pneumoniae can cause a range of infections and has proven to be very resistance to a range of antibiotics. Primarily affecting middle-aged and older men with weakened immune

systems, this bacteria can be dangerous but is mostly ‘opportunistic’ and is far less likely to affect healthy adults.

Clostridium Difficile

One of the better known ‘superbugs’ because of a consistent presence in hospitals around the world, *C.difficile* is, primarily, an easily spread type of diarrhoea that can lead to complications in the colon.

Pseudomonas Aeruginosa

Quick to mutate and adapt to counter different antibiotic treatments, *Pseudomonas aeruginosa* shows an innate ability to develop resistance to antibiotics. Described as ‘opportunistic’ because it primarily affects humans that are already critically ill, this bacteria can cause serious complications in the treatment of AIDS, cancer or cystic fibrosis patients. While it isn’t a massive threat to humanity currently, this bacteria will become an increasing threat over the next few years.

Burkholderia Cepacia

Discovered in 1949 as the bacterium that causes onions to rot, *Burkholderia cepacia* can be very dangerous to humans in the worst cases. While it mostly responds well to treatment with a combination of antibiotics, it has been shown to have high levels of resistance to several types of antibiotics and is able to survive in extreme conditions.

Staphylococcus Aureus (Mrsa)

More commonly known as MRSA (which stands for Methicillin-resistant *Staphylococcus aureus*), this ‘superbug’ is very easily spread through human contact and can cause a range of illnesses from skin disorders to deadly diseases like meningitis and pneumonia. Most often treated with Penicillin type antibiotics, by 1960, 80 per cent of hospital samples were antibiotic resistant.