SATIS revisited
SUPPORTING HOW SCIENCE WORKS

What is MRSA?

Information sheet B – What is MRSA?

Staphylococcus aureus is a common **bacterium** that lives harmlessly on the skin and in the nose of about one third of people. It was first identified in the 1880s when doctors realised it was the most common cause of infected surgical wounds.

In the 1940s, doctors began to use a new **antibiotic** called **penicillin** to kill bacteria. But by 1959 most of the *Staphylococcus aureus* from infections in hospital patients were found to be **resistant** to the antibiotic**.**

A new antibiotic called **methicillin** was developed from penicillin in 1960. However, the first case of MRSA infection was reported in England soon after.

MRSA is short for methicillin-resistant *Staphylococcus aureus.* MRSA is a type of *Staphylococcus aureus* bacterium that is not killed by methicillin.

There were not many MRSA infections in hospitals in the UK in the 1960s and 1970s, but by the 1990s the number of MRSA infections had increased a lot. These strains of MRSA are easily **transmissible** (passed on to other people) and are sometimes called '**superbugs**' because they are resistant to some antibiotics.

There is no 'MRSA disease', as there is with tuberculosis or typhoid, for example. **Infections** occur when MRSA gets into the body. MRSA infections cause different symptoms depending on the part of the body that is infected. Some MRSA infections can be **fatal.** Sometimes, patients are carrying MRSA bacteria but have no symptoms. They are called **carriers**. Carriers can infect themselves if they have a wound, and they can also infect others when the bacteria are passed on – on people's hands, or on infected equipment, or through the environment.

MRSA exists because bacterial genes are constantly changing, or **mutating**, naturally. So, some bacteria become **naturally resistant** to some antibiotics. When most bacteria encounter antibiotics, they die, but bacteria with **resistance genes** survive and grow.

Antibiotics are not completely powerless against MRSA, but patients need a much higher dose for a longer time, or the use of a different antibiotic to which MRSA has less resistance. Doctors are now careful to only prescribe antibiotics when patients really need them. Patients should always finish the entire course. If you don't finish the course, there's a chance that you'll kill most of the bacteria, but not all of them – and the ones that survive are likely to be those that are resistant to antibiotics.

To reduce the spread of MRSA in hospitals, visitors and staff should wash their hands using soap or **antibacterial** alcohol solutions before and after touching patients. Also, hospital wards should be cleaned regularly, and patients who are carrying or infected with MRSA should be kept away from other patients.