# Methicillin-resistant *Staphylococcus aureus* (MRSA)


*Staphylococcus aureus*

- MRSA is a strain of common bacteria resistant to treatment with most antibiotics
- The UK has one of the highest rates of MRSA infection in Europe
- MRSA is becoming more dangerous and more drug-resistant, but there are no new drugs or vaccines available

## What is *Staphylococcus aureus*?

*S. aureus* is a bacterium that is found on the skin and in the nose. It usually lives there completely harmlessly, this is called colonisation.
About 30 % of the healthy population are colonised by *S. aureus*, but the rate is higher in hospital patients.

If you cut yourself and the wound gets inflamed and produces pus, you probably have a *S. aureus* infection. If you are healthy, your immune system will fight the infection and it will clear up without antibiotic treatment.

## Hospital-acquired infection

*S. aureus* is the most common cause of hospital-acquired infection (HAI) and costs the NHS approximately £500 million per year.
Many hospital patients have open wounds, or require surgery or injections, and these openings in the skin allow the bacteria in. As patients in hospital are already sick, they are less able to fight the infection. *S. aureus* infections are usually minor, but can be severe and even fatal.

## MRSA

In the past, *S. aureus* infections have been treated with penicillin-like antibiotics, but the bacteria have become increasingly resistant to these drugs. This has led to the hospital superbug, methicillin-resistant *Staphylococcus aureus* (MRSA).
Some people carry MRSA, but it is generally not necessary to treat MRSA colonisation, as it is not harmful to a healthy person. 40 % of *S. aureus* infections are due to MRSA.

## Treatment

MRSA infections are treated with the last reliable class of antibiotic, vancomycin.
This drug is expensive, has side effects and must be administered in hospital. Approximately 5,000 people die every year from MRSA blood infections.

## How do we fight it?

MRSA is already established in UK hospitals.
It is spread from colonised or infected patients to others, usually via hands or equipment. There are no simple solutions to stopping the spread of *S. aureus* or MRSA. Reductions in infection rates may be achieved through greater awareness and more hand-washing resources.

## Current research

There is a shortage of high-quality investigations into different strategies for reducing MRSA.
More research is needed into:

- rapid diagnostics
- improved tools for infection control
- decolonisation of patients and staff
- understanding the sources and spread of MRSA.

## MRSA drug resistance news

Since 2004, the US has reported four cases of S. aureus resistant to vancomycin (VRSA), the only antibiotic that can treat MRSA. It is very likely that the UK will have its own cases of VRSA. As VRSA infections have the potential to be untreatable, it is essential that we prevent them from becoming established in UK hospitals.

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# MICROBIOLOGY AWARENESS CAMPAIGN

The Society for General Microbiology (SGM) Microbiology Awareness Campaign aims to highlight the important issues relating to microbiology. Through its many members, the SGM can offer impartial and expert information on all microbiological topics. Enquiries are welcome.
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