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## Staphylococcus aureus - golden staph

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### Summary

- Staphylococcus aureus (*S. aureus*) is a common bacterium that lives on the skin and in some people's noses.
  - Golden staph can cause a range of mild to severe infections.
  - Excessive use of antibiotics has led to drug-resistant strains of *S. aureus* (MRSA).
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*Staphylococcus aureus*, or *S. aureus*, is a common bacterium that lives on the skin or in the nose. It is also called golden staph. In most situations, *S. aureus* is harmless. However, if it enters the body through a cut in the skin, it can cause a range of mild to severe infections, which may cause death in some cases.

### How golden staph is spread

Golden staph is commonly carried on the skin or in the nose of healthy people. Around two to three out of every ten people carry the bacterium in their noses. This is known as 'colonisation' – the bacteria are present, but do not cause infection. The armpits (axilla), groin and under skin folds are other places golden staph likes to inhabit.

Golden staph can be spread by skin-on-skin contact or by touching contaminated surfaces. Poor personal hygiene and not covering open wounds can lead to infection with golden staph. Thorough hand washing and good housekeeping, such as damp dusting, are important as golden staph is part of our environment.

### Infections caused by golden staph

Common infections caused by golden staph include:

- boils and abscesses – infections of the skin
- impetigo (school sores) – a highly contagious, crusty skin infection that may affect newborn babies and schoolchildren.

More serious infections include:

- meningitis – infection of the membranes lining the brain
- osteomyelitis – infection of the bone and bone marrow
- pneumonia – infection of one or both lungs
- septic phlebitis – infection of a vein
- endocarditis – infection of the heart valves.

### Drug-resistant strains of golden staph

A bacterial infection consists of countless individual bacteria. Most infections caused by golden staph are treatable with antibiotics. However, there is a strong possibility that a few bacteria will survive a course of antibiotics, perhaps due to a gene mutation. The antibiotic-resistant golden staph bacteria that remain then flourish, since they no longer have to compete for resources with the rest of the colony.

Resistant strains of golden staph are known as multi-resistant *S. aureus* (MRSA). Unnecessary or excessive use of antibiotics encourages drug-resistant strains. The overuse of disinfectants in general can also lead to drug resistance. In most cases, good cleaning or washing with soap and warm water is enough.

### Antibiotic resistance is a serious public health problem

Before antibiotics, a severe infection was fatal for many people. Penicillin was effective in treating golden staph

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until the bacterium became resistant. Throughout the second half of the 20th century, new antibiotics such as methicillin and vancomycin were developed, which successfully treated golden staph infections.

Methicillin-resistant strains of golden staph evolved in the 1970s and have troubled hospitals worldwide with persistent infections in patients. A vancomycin-resistant strain of golden staph emerged in Japan, and strains with partial resistance to vancomycin have been found in the USA, Australia and other countries.

### **Infection in hospitals**

Hospital patients are more likely to be infected by golden staph because of surgical or other wounds. These people can become seriously ill if their golden staph infections resist treatment from most types of antibiotics, and they may require isolation from other patients.

Standard hygiene practices undertaken by hospital staff include:

- always washing hands when they are soiled for any reason
- using an alcohol-based hand rub solution (with or without chlorhexidine) between patients when taking observations (such as pulse and temperature), bed making or performing other similar duties
- washing hands before, and after, performing procedures on patients
- wearing gloves, gowns and masks (if necessary)
- handling used equipment and laundry with care
- isolating infected patients when required
- thoroughly cleaning all surfaces.

### **Community-acquired golden staph infection**

Golden staph infections with resistant strains are becoming more common in the community, including among people who have not been in hospital recently (within the past year) or had a medical procedure (such as dialysis, surgery or catheters).

These infections are called 'community-acquired golden staph' or 'community-acquired MRSA'. These are similar, but different to strains of golden staph found in hospitals, and can cause mild to severe infections.

#### **Preventing the spread of golden staph**

Since golden staph is easily spread by contaminated hands, strict hygiene practices are needed, such as hand washing with soap and warm water, as well as good housekeeping.

Cover all open wounds with a waterproof occlusive dressing until healed.

The use of alcohol-based hand rub solutions in 'clean' situations when hands are visibly clean, particularly when water is not immediately available, may be useful when travelling or at a picnic, for example. These solutions are not necessary in the home or work situation.

There are some situations when alcohol-based hand rub solutions should **never** be used – for example, instead of washing after going to the toilet. Hands should be washed with soap and warm water and dried.

### **Long-term prevention of golden staph**

Worldwide measures need to be taken to prevent new resistant strains of *S. aureus* from emerging. Experts propose:

- a more conservative approach to using antibiotics
- the use of narrow-spectrum rather than broad-spectrum antibiotics
- limiting the use of antibiotics like vancomycin
- maintaining or upgrading hygiene practices in hospitals and the community
- good infection prevention and control measures, such as hand washing

- developing new lines of antibiotics that are effective against golden staph.

### Where to get help

- Your doctor

### Things to remember

- Staphylococcus aureus (*S. aureus*) is a common bacterium that lives on the skin and in some people's noses.
- Golden staph can cause a range of mild to severe infections.
- Excessive use of antibiotics has led to drug-resistant strains of *S. aureus* (MRSA).

### This page has been produced in consultation with and approved by:

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