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Methicillin-resistant *Staphylococcus aureus* (MRSA)

Staphylococcus aureus (*Staph aureus* or "*Staph*") is a bacterium that is carried on the skin or nasal lining of up to 30 percent of healthy individuals. In this setting, the bacteria usually cause no symptoms.

However, when the skin is damaged, even with a minor injury such as a scratch or a small cut from shaving, *Staph* can cause a wide range of problems. These problems can range from a mild pimple to severe illness, especially in young children, older adults, and people with a weakened immune system.

This topic review discusses the signs and symptoms, diagnostic tests, treatment, and prevention of a particularly dangerous form of *Staph aureus* called methicillin-resistant *Staphylococcus aureus* (MRSA, pronounced "Mursa").

HOW IS MRSA SPREAD?

You can be "colonized" with MRSA, meaning that you carry the bacteria on your skin or in your nose but you have no signs or symptoms of the illness. You can become colonized with MRSA in a variety of ways:

- By touching the skin of another person who is colonized with MRSA
- By touching a contaminated surface (such as a countertop, door handle, or phone)

You can develop an infection from MRSA if your skin is colonized and the bacteria enter an opening (eg, a cut, scrape, or wound) in the skin.

MRSA RISK FACTORS

Anyone can become colonized and then infected with MRSA, although certain people are at a higher risk.

Hospital care — Risk factors for becoming infected with hospital-associated MRSA include the following:

- Having a surgical wound and/or intravenous (IV) line
- Being hospitalized for a prolonged period of time
- Recent use of antibiotics
- Having a weakened immune system due to a medical condition or its treatment
- Being in close proximity to other patients or healthcare workers who are colonized with MRSA

In hospitals and other long-term healthcare facilities, MRSA can be spread from one patient to another on the hands of healthcare workers. Hands or gloves may become contaminated with MRSA when healthcare workers touch a patient's skin, wounds, wound dressings, or devices, such as IV tubing.

Healthcare providers should wash their hands before and after touching any patient and should change gloves between patients to decrease the risk of spreading MRSA.

Hemodialysis — People who need hemodialysis for kidney failure have a substantially higher risk of becoming infected with MRSA compared with other patients. In one study, 4 percent of hemodialysis patients became infected with MRSA; only about 0.04 percent of people in the general population become infected with MRSA.

Community-associated MRSA — You can pick up MRSA outside the hospital, especially if you:

- Have skin trauma (eg, "turf burns," cuts, or sores)
- Are an athlete
- Shave or wax to remove body hair, particularly of the armpits and groin
- Have tattoos or body piercing
- Have physical contact with a person who has a draining cut or sore or is a carrier of MRSA



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- Share personal items or equipment that is not cleaned or laundered between users (such as towels or protective sport pads)

Community-associated MRSA infections may occur more commonly in certain populations, such as daycare centers, prisons, in the military, or in athletes who play on a team. Spread of MRSA within households is common.

MRSA TREATMENT

If MRSA is diagnosed, you will be given an antibiotic. The antibiotic dose or type may be changed when the results of the laboratory culture are available.

At home — Treatment of MRSA at home usually includes a 7 to 10 day course of an antibiotic (by mouth) such as trimethoprim-sulfamethoxazole (brand name: Bactrim), clindamycin, minocycline, or doxycycline. It is very important to carefully follow the instructions for taking the antibiotic; this means taking it on time and finishing the entire course of treatment, even if you feel better after a few days. If the oral antibiotic is not effective or if the infection is making you ill, you may need to be treated in the hospital.

In addition to antibiotics, your healthcare provider may drain the infected area by inserting a needle or making a small cut in the skin. This is done to reduce the amount of infected material (pus), which will help the tissue to heal. You should not try to drain a boil or pimple on your own because this could worsen the infection.

In some cases, additional strategies may be used for management of household spread and/or recurrent infection. These may include use of mupirocin ointment, chlorhexidine soap, and other techniques. These strategies are not always fully effective.

In the hospital — Hospitalized people with MRSA infections are usually treated with an intravenous medication. The intravenous antibiotic is usually continued until the person is improving.

In many cases, the person will be given antibiotics after discharge from the hospital, either by mouth or by intravenous (IV). This may be needed for a short period of time or for as long as six to eight weeks. Intravenous antibiotics can be given at home, by a visiting nurse, or in a rehabilitation facility.