

METHICILLIN-RESISTANT STAPH AUREUS (MRSA) INFECTIONS

WHAT IS STAPH AUREUS?

Staphylococcus aureus is a bacterium commonly found on the skin.

- ❖ Approximately 30% of healthy adults are “colonized” with *Staph aureus* and carry these bacteria as part of their normal skin flora, most commonly in the nose. In these individuals, the presence of *Staph aureus* on the skin does not lead to any problems.
- ❖ However, under the right conditions, *Staph aureus* can enter an opening in the skin, multiply, and cause an infection. Any opening in the skin, such as a minor scratch, a small cut from shaving, body piercings, and large open wounds, are possible sites of infection. MRSA infections can also occur on skin that does not have an obvious break or wound.

WHAT IS METHICILLIN RESISTANT STAPH AUREUS (MRSA)?

Before the 1950s, most *Staph aureus* infections responded well to penicillin and penicillin-related antibiotics, like methicillin. MRSA is a *Staph aureus* strain that does not respond to penicillin-related antibiotics.

- ❖ It is estimated that 2% of adults are colonized with MRSA. As with non-MRSA strains, an individual colonized with MRSA does not have an active infection until conditions change and provoke an abnormal growth of the bacteria.
- ❖ Early cases of MRSA were seen only in people who were hospitalized or lived in long-term care facilities (eg. nursing homes). Then in the 1990s, the first cases of MRSA outside of these medical settings were diagnosed. Since then, MRSA has become a common diagnosis in otherwise healthy people living in the community.

MRSA infections are divided into 3 different categories. It is possible for groups to overlap.

- ❖ Community-associated MRSA (CA-MRSA) refers to infections in healthy individuals living out in the community. In 2006, more than half of MRSA skin infections were of this type.
- ❖ Hospital-associated MRSA refers to infections in currently hospitalized patients.
- ❖ Healthcare-associated MRSA refers to infections in people who were recently hospitalized or have ongoing contact with medical facilities.

HOW IS MRSA TRANSMITTED?

MRSA infections are transmitted by touching:

- ❖ The skin of someone who carries MRSA.
- ❖ A contaminated surface or object. Examples include door knobs, countertops, phones, exercise equipment, clothing, and personal items (such as razors, soaps, and towels).

WHO IS AT RISK FOR CA-MRSA?

Anyone can become infected with MRSA. However, you are at higher risk for CA-MRSA if you:

- ❖ Have skin trauma (eg. cuts, sores, etc.)
- ❖ Have tattoos or body piercings.
- ❖ Shave or wax, especially in the armpits and groin.
- ❖ Share personal items or equipment that is not cleaned between users.

Because close skin-to-skin contact and crowded living conditions increase the risk of skin infection, the following groups are at higher risk for CA-MRSA:

- ❖ Athletes in team sports.
- ❖ Children enrolled in daycare.
- ❖ Military personnel.
- ❖ Prison inmates.

IS MRSA DANGEROUS?

In the community, most MRSA infections are limited to the skin and respond well to early treatment. More severe or potentially life-threatening MRSA infections occur among patients in medical settings, especially among the very young, elderly, and those with weakened immune systems. Complications can include infections of the bloodstream, heart valves, lungs, joints, and bones.

WHAT ARE SYMPTOMS OF CA-MRSA?

CA-MRSA skin infections often present as a painful red lump that may drain pus. Less commonly, it can present as a cluster of “pimples”. Over time, the infected area can enlarge and become more swollen, painful, and red. Fever and fatigue may develop with more severe infections. Left untreated, the infection can spread to other areas of the body and lead to the complications listed above.

HOW IS CA-MRSA DIAGNOSED?

A CA-MRSA skin infection is diagnosed based on your symptoms, physical exam findings, and wound culture results. A culture of an open wound or pustular drainage is used to identify the bacteria causing the infection. Results are usually available in 48-72 hours.

WHAT IS THE TREATMENT?

- ❖ **ANTIBIOTIC TREATMENT:** MRSA is responsive to certain antibiotics that are not penicillin-related.
 - Treatment courses vary from 7-10 days depending on how quickly the infection resolves.
 - It is important to finish the entire antibiotic course unless your medical provider instructs you to stop the pills or you develop an allergic reaction to the medication.
 - You should be evaluated 24-48 hours after starting antibiotics to determine if the infection is responding to treatment.
 - Return to your medical provider immediately if you think the infection is worsening. This includes increasing redness, warmth, tenderness, fever, nausea, or red streaking of the skin.
- ❖ **WOUND CARE:** Boils and abscesses need to drain in order to heal. Natural drainage is preferred and can be promoted by the use of warm compresses or soaks. In some cases, the infection will require surgical drainage by a trained healthcare professional. You **SHOULD NOT** try to squeeze or open the boil yourself, as this can worsen the infection.
 - **If warm compresses or soaks are advised**, you will need to do this for 10-15 minutes, 4 times a day, in order to get effective results.
 - Wet a washcloth with warm water, and apply it to the lesion for 10-15 minutes. Re-wet the washcloth every few minutes to keep it warm. Placing the warm washcloth in a ziploc bag can help it retain heat longer. Do not heat a wet washcloth in the microwave, as the washcloth can overheat and cause a burn.
 - You can also soak the infected area in a basin of warm water. Clean the basin with an antibacterial cleanser after each use.
 - Do not soak in a bathtub unless directed by your healthcare provider. The bathtub can become contaminated and act as a source of infection to both yourself and others. Similarly, athletes with skin infections should not use their training room immersion tubs.
 - **If surgical drainage is performed by your medical provider**, you will be given specific wound care instructions.
 - **Keep a clean, dry bandage** over your wound until all drainage has ceased and the wound is dry.
 - Change the bandage daily or more frequently if it becomes wet or soiled.
 - **Wash your hands thoroughly** after caring for your wound or changing the bandage. Hands should be rubbed together with soap and water for 15-30 seconds (about the time it takes to sing “Happy Birthday To You”) before rinsing and drying.
- ❖ **OTHER SELF-CARE TIPS**
 - Stop shaving until the infection has resolved. If you must shave, avoid the infected area, use disposable razors, and use a separate razor to shave skin near the infected area.
 - Wash your clothing, linens, towels, etc. with water and laundry detergent, and dry them in a hot dryer.
 - Do not share personal items, such as razors, brushes/combs, make-up, bar soap, towels/linens, clothing, athletic equipment, jewelry for piercings, etc.

HOW CAN I PREVENT INFECTION WITH CA-MRSA?

- ❖ Excellent hand hygiene is key! Wash your hands thoroughly as per instructions above. Pay special attention to your fingernails, the skin between your fingers, and your wrists.
- ❖ Alcohol-based hand sanitizers are a good alternative for handwashing if a sink is not available. Hand sanitizers should be rubbed over the entire surface of the hands and wrists until dry. When a sink is available, visibly soiled hands should be washed with soap and water.
- ❖ Keep cuts and scrapes of the skin clean, dry, and covered with a bandage until healed.
- ❖ Do not touch other people’s wounds or bandages.
- ❖ Do not share personal items, as listed above.
- ❖ Participants on team sports should shower after every athletic activity using soap and clean towels. Athletes should not compete if they have active skin infections.
- ❖ Avoid shaving as it may cause fine cuts in the skin. If ingrown hairs or pustules develop after hair removal, apply warm compresses as instructed above. If lesions do not improve, seek medical care.
- ❖ Follow skin care instructions carefully after receiving body piercings or tattoos. Seek care as soon as possible if you develop signs of infection.

RECOMMENDED WEBSITES: www.cdc.gov, www.mayoclinic.org