

**PENNSYLVANIA SCHOOL HEALTH
FACT SHEET
METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS (MRSA)**

COMMUNITY ACQUIRED vs. HEALTHCARE ASSOCIATED

Recently, there have been a number of reports about Methicillin-resistant Staph aureus (MRSA) infections in schools. There are many resources available for schools that have questions about MRSA infections. Below is some general information about MRSA. **There is also a fact sheet regarding MRSA on the Pennsylvania Department of Health web site (www.health.state.pa.us).**

What is *Staphylococcus aureus*?

Staphylococcus aureus, often referred to simply as "staph," is commonly carried on the skin or in the nose of healthy people. Approximately 25% to 30% of the population is colonized (when bacteria are present, but not causing an infection) with staph bacteria in the nose or on the skin. Sometimes, staph can cause an infection. Staph is among the most common causes of skin infections in the United States. Most of these skin infections are minor (such as pimples and boils) and can be treated without antibiotics (also known as antimicrobials or antibacterials). However, in some instances staph can cause serious infections (such as surgical wound infections, bloodstream infections, and pneumonia).

What is MRSA (methicillin-resistant *Staphylococcus aureus*)?

Some staph bacteria are resistant to antibiotics. MRSA is a type of staph that is resistant to the antibiotic methicillin and its close cousins oxacillin, penicillin and amoxicillin. While 25% to 30% of the population is colonized with staph, only about 1% normally carries MRSA.

Who gets staph or MRSA infections?

Staph infections, including MRSA, occur most frequently among persons in hospitals and healthcare facilities (such as nursing homes and dialysis centers) who have weakened immune systems. These healthcare-associated staph infections include surgical wound infections, urinary tract infections, bloodstream infections, and pneumonia and are quite different from the MRSA infections that occur in the community setting

What is community-associated MRSA (CA-MRSA)?

Another form of MRSA can cause illness in persons outside of hospitals and healthcare facilities. This community form of MRSA occurs in persons who **have not** been recently (within the past year) hospitalized nor had a medical procedure (such as dialysis, surgery, catheters) and is known as CA-MRSA. This type of MRSA usually produces skin infections, such as pimples and boils.

How is MRSA transmitted in the community?

The main mode of spread of all forms of staph, including MRSA, is by the **hands** and skin-to-skin contact, crowded conditions, and poor hygiene. The sharing of towels, personal hygiene items like razors, athletic equipment, clothes, nonsterilized tattoo instruments, and illicit drug paraphernalia also promote the spread of *S.aureus* from one individual to another. Habits like body shaving are also thought to promote MRSA infection.

Although MRSA has been isolated from environmental surfaces (e.g., floors, work areas, medical equipment) and pets, **these are not considered to be the most important sources for spread and there is no need to do environmental sampling in any affected facility. However, it is important to routinely clean shared items like athletic equipment.**

What are the risk factors for CA-MRSA?

Although there have been documented outbreaks of CA-MRSA in numerous settings and associated with a number of activities, it is important to remember that CA-MRSA may occur in otherwise healthy persons with no traditional MRSA associated risk factors. CA-MRSA knows no age boundaries and has been documented in newborns, toddlers, teens, adults, and the elderly. A recent study (2007) concluded that there are no reliable markers to distinguish patients with CA-MRSA infection from patients with other skin infections caused by staph. With that in mind there are some factors that should raise the level of suspicion for community onset of skin infections being MRSA.

* Populations in which MRSA clusters have been documented

Athletes in contact sports
Intravenous drug and methamphetamine users
Inmates at correctional facilities
Military personnel

* Medical history

Recent hospitalization
Recurrent or recent antibiotic use
Past MRSA infections
Recurrent skin disease
Recurrent or recent skin damage

* Environmental conditions

Living in crowded or unsanitary conditions
Close contact with someone known to be infected or colonized with MRSA
Contact with a colonized pet
High incidence of MRSA in the community

What are the clinical features of CA-MRSA?

CA-MRSA most often presents as skin or soft tissue infection such as a boil or abscess. Pimples, rashes, pus-filled boils, especially when warm, painful, red or swollen, can indicate a staph skin infection. Impetigo is one example of a skin infection that can be caused by staph, including MRSA. Patients frequently recall a "spider bite". Staph infections also can cause more serious infections, such as blood stream infections or pneumonia, leading to symptoms of shortness of breath, fever, and chills.

What are the criteria for distinguishing community-associated MRSA (CA-MRSA) from healthcare-associated MRSA (HA-MRSA)?

Persons with MRSA infections that meet all of the following criteria are likely to have CA-MRSA infections:

- Diagnosis of MRSA was made in the outpatient setting or by a culture positive for MRSA less than 48 hours after admission to the hospital.
- No medical history of MRSA infection or colonization.
- No medical history in the past year of:

- Hospitalization
- Admission to a nursing home, skilled nursing facility, or hospice
- Dialysis
- Surgery

- No permanent indwelling catheters or medical devices that pass through the skin into the body.