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## Skin Infections and MRSA Information for California Schools

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Students, faculty and staff at schools should be sensitive to the possibility of disease transmission; including respiratory diseases (influenza, colds, tuberculosis) and diseases that are spread primarily through direct contact or contact with contaminated objects (such as lice and scabies). The media has recently focused on the spread of skin infections caused by methicillin-resistant *Staphylococcus aureus* (MRSA), especially among school children. Most skin infections, regardless of cause, can be easily treated if identified in a timely manner. This document is written to address the concerns of the educational community in California about MRSA but the prevention principles outlined are applicable to most skin infections.

### What is *Staphylococcus aureus*?

*Staphylococcus aureus*, often referred to simply as "staph," are bacteria that are most commonly carried in the noses of healthy people. Approximately 25-30% of the population are colonized (when bacteria are present, but not causing an infection) in the nose with staph bacteria. Staph can also be carried in the armpit, groin, rectum, or genital area. Staph bacteria are one of the most common causes of skin infections in humans. Most of these skin infections are minor (such as boils and abscesses) and smaller infections can be often be treated with incision and drainage without antibiotics. However, staph also can cause serious infections such as pneumonia, bloodstream infections, and joint infections. In the past, these staph infections typically have been easy to treat with inexpensive antibiotics. Now in most communities in the U.S., over half of the staph causing skin infections are resistant to commonly used antibiotics.

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

Methicillin-resistant *Staphylococcus aureus* (MRSA) is *Staphylococcus aureus* that is resistant to all penicillins (including dicloxacillin and other methicillin-related antibiotics) and cephalosporins, such as Keflex®. Until recently, most MRSA infections occurred among hospitalized patients. However, recently newer, more virulent strains of MRSA have emerged in the community, causing community-associated MRSA infections. The reasons for the emergence of these new strains are not entirely clear. What is clear is that community-associated MRSA strains did not originate from the strains of MRSA that have caused infections in hospitals and other healthcare facilities for decades.

## **What increases the risk for MRSA skin infections?**

The following factors increase the risk of MRSA skin infections:

- **Compromised** skin (such as cuts or abrasions)
- **Contact** (frequent skin-to-skin)
- Contact with **contaminated** items and surfaces
- **Crowding**, and
- Difficulty keeping skin **clean** or not **cleaning** skin after a cut or abrasion

The occurrence of an MRSA skin infection does not mean that the person is not clean or has been in an unhygienic environment. Some persons with no apparent risk factors for MRSA infection may come into contact with the bacteria at the same time that they have a small break in the skin and this can result in an infection in what had appeared to be normal skin.

## **How is MRSA spread?**

MRSA spreads easily through direct contact with people or contact with MRSA contaminated surfaces or items. MRSA is spread more frequently in crowded areas such as locker rooms, dormitory rooms, or other crowded living conditions, particularly when skin-to-skin contact is likely. In school settings, there are many opportunities for skin-to-skin contact among students, especially those on athletic teams or in residential facilities. Most infections occur when staph that is already on the skin enters through a break in the skin (cut or scrape), or when broken skin is in contact with MRSA contaminated objects (such as shared athletic equipment, clothing, towels, or razors). Contaminated hands can also transfer MRSA to cuts or scrapes on the skin. Staph is not usually passed through the air.

## **Why should school health professionals be concerned about MRSA?**

School health professionals (i.e., school nurses and school physicians) can play an important role in disseminating information about MRSA to staff, students, and parents and may also provide care for infected students and refer infected students to healthcare providers.

School health professionals should ensure that they have the most accurate and up-to-date information on MRSA. One student with a severe MRSA infection or an outbreak of skin infections can cause much anxiety for parents, students and staff. Although concern about MRSA is greatest following the occurrence of a severe infection, the risk to other students does not depend upon the severity of an infection but rather the number of students infected with MRSA and the circumstances under which infections are occurring. An outbreak among an athletic team may not pose a significant risk to other students, as long as the infected athletes are receiving appropriate treatment and follow recommended prevention measures.

Students with skin infections may need to be referred to a healthcare provider for diagnosis and treatment. School health professionals should notify parents/guardians of the affected students when possible skin infections are detected. Identifying an MRSA

infection can be difficult because the symptoms of MRSA infection are the same as those of other skin infections. MRSA can only be diagnosed by culture and antibiotic susceptibility testing. Unfortunately, misdiagnosis (e.g., many MRSA infections are misdiagnosed as spider bites) or delayed diagnosis of MRSA infection can result in delayed treatment and more serious complications.

School health professionals may provide care to students with skin infections. When such care is provided, standard precautions should be used (e.g., hand hygiene before and after contact, wearing gloves) when caring for nonintact skin or potential infections.

### **Should students with MRSA skin infections be excluded from school?**

Unless directed by a physician, students with MRSA infections should not be excluded from attending school. Students who have draining infections that cannot be covered and contained should be excluded from school until the infection is healed or can be covered and contained. If the student is involved in a physical activity or sport that involves skin-to-skin contact with other students, they should be excluded from those activities until the lesions are healed or can be covered and contained adequately; return to those activities should be approved by a school official or doctor.

### **Do schools need to be closed and disinfected if a student is diagnosed with MRSA?**

No, it is not necessary to close the school if a student is suspected of or diagnosed with an MRSA infection. MRSA skin infections are transmitted primarily by skin-to-skin contact and contact with surfaces or items that have come into contact with MRSA wound drainage. **Ensuring that skin infections are covered will greatly reduce the risk of contaminating surfaces or items with MRSA or other bacteria.**

When MRSA skin infections occur, cleaning and disinfection should be performed on surfaces or items that are likely to have had contact with uncovered or poorly covered infections. Cleaning surfaces with routinely used detergent-based cleaners or Environmental Protection Agency (EPA)-registered disinfectants is effective at removing MRSA. It is important to read the instruction labels on all products to make sure they are used safely and appropriately. For example, many disinfectants require at least 30 seconds of contact time on a surface to ensure killing of bacteria. Environmental cleaners and disinfectants should not be used to treat infections. The EPA provides a list of EPA-registered products effective against MRSA:

<http://epa.gov/oppad001/chemregindex.htm>.

It is important to note that since MRSA infections are now common in the community; the location of acquisition/transmission may not be in the schools.

### **Should the entire school community be notified of every MRSA infection?**

No, it is usually not necessary to inform the entire school community about a single MRSA infection. When an MRSA infection occurs within the school population, the school nurse and school officials should determine which students, parents, and staff should be notified based on the athletic activities and close contacts of the infected

student. Consultation with local public health authorities should be used to guide this decision. Remember that staph bacteria have been and remain a common cause of skin infections and that most infections are not associated with severe disease.

Consideration may be given to notifying the school community of an outbreak of staph or other infections when additional measures are being taken to control the outbreak.

### **What should teachers know about MRSA?**

Teachers can recognize children with open draining wounds or other infections and refer them to the school nurse. In addition, teachers can help prevent the spread of MRSA and other infections by enforcing student hand hygiene with soap and water or alcohol-based hand sanitizers before eating and after using the restroom and can help protect themselves from becoming infected with MRSA and other infections by also using good hand hygiene.

### **What do schools need to do to reduce the spread of skin infections?**

Hand hygiene by washing hands with soap and water or using an alcohol-based hand sanitizer is the single most important measure that can be taken to prevent the spread of skin infections and should be emphasized to students and staff. Hands should be clean before they touch the eyes, mouth, nose, or any cuts or scrapes on the skin. School staff serve as role models and should wash hands or use an alcohol-based hand sanitizer frequently. If hands are visibly soiled, they should be washed with soap and water.

Hand washing procedure:

1. Use warm water and wet hands and wrists;
2. Use a bar or liquid soap (antimicrobial soap is not necessary to remove MRSA);
3. Work soap into a lather and wash palms, back of hands up to wrists, between fingers, around thumbs, and under fingernails for at least 15 seconds (about the time it takes to sing "Happy Birthday" or "Row, Row, Row Your Boat");
4. Rinse well under warm, running water, and
5. Dry hands, using a disposable paper towel or hand-dryer.

Hand sanitizer procedure: Apply a dime sized amount of hand sanitizer to the palm of one hand; rub hands together covering all surfaces of hands and fingers until all hand sanitizer is absorbed. To be effective, hand sanitizers must be at least 60% alcohol (check label) and used on hands that are clear of visible dirt. If there is any visible dirt, hand sanitizers are not fully effective and hands should be washed with soap and water.

### **When should hands be cleaned?**

- Whenever there is bare skin contact with others or with shared surfaces or equipment,
- After sneezing, coughing, blowing or touching nose,
- Before and after touching wounds, the mucous membranes of your eyes, nose, or mouth, or non-intact skin like acne, boils and skin rashes,
- After using the toilet or urinal, and,

- Before preparing food, eating, or drinking.

### **How can infected students minimize spreading it to others?**

Those infected with MRSA should following these steps to minimize spreading the infection to others:

- Cover the wound. Keep wounds that are draining or have pus covered with clean, dry bandages. Follow the healthcare provider's instructions on proper care of the wound. Drainage and pus from infected wounds can contain large amounts of bacteria, so keeping the infection covered will help prevent the spread of infections to others. Bandages or tape can be discarded with the regular trash.
- Clean hands. The student, their family, and others in close contact with the infected student should clean their hands frequently with soap and warm water or an alcohol-based hand sanitizer, especially after changing bandages or touching an infected wound.
- Do not share personal items. Avoid sharing personal items such as towels, washcloths, razors, clothing, or sports uniforms/equipment that may have had contact with the infected wound or bandage. Wash sheets, towels, and clothes, including sports uniforms that become soiled, with water and laundry detergent. Drying clothes in a hot dryer also helps kill bacteria.
- Inform healthcare providers who treat them that they are or have been infected with MRSA.

### **Is MRSA a reportable disease in California?**

MRSA is not a reportable disease in California. However, it is reportable in a few counties including Santa Clara and San Mateo. Contact your local health department if there is an outbreak of skin infections occurring at your school.

### **Are there any educational materials available on MRSA?**

Yes, educational materials can be found at the following websites:

CDPH: <http://www.cdph.ca.gov/healthinfo/discond/Pages/MRSA.aspx> including [Community-associated \(CAMRSA\)/Staph Infections: A Guideline for Athletic Departments](#) and [Methicillin-Resistant \*Staphylococcus aureus\* for Athletes.](#)

CDC: [http://www.cdc.gov/ncidod/dhqp/ar\\_mrsa\\_ca\\_posters.html](http://www.cdc.gov/ncidod/dhqp/ar_mrsa_ca_posters.html)

AWARE: <http://www.aware.md/Education/handwashing.asp>

Washington State Department of Health:  
<http://www.doh.wa.gov/Topics/Antibiotics/MRSA.htm>

Los Angeles County: <http://lapublichealth.org/acd/MRSA.htm>