

Recommendations on Children with Methicillin-Resistant *Staphylococcus aureus* (MRSA) in School Settings

Staphylococcus aureus (“staph”) are bacteria commonly found in the noses and on the skin of healthy people. Staph with resistance to the antibiotic methicillin (and other related antibiotics) are known as methicillin-resistant *Staphylococcus aureus* or “MRSA.” Resistance means that a particular antibiotic will not work against those bacteria.

When staph are present on or in the body without causing illness it is called “colonization.” At any given time, from 20% to 50% of the general population is colonized with staph bacteria; some may be MRSA while others are not antibiotic-resistant.

Most people with staph are colonized only. These bacteria can occasionally get through the skin barrier and cause superficial infections (most such infections are not severe). Symptoms of infection vary depending on the part of body that is infected. Skin infections (the most common site of staph infections) typically result in local redness and warmth of the infected area, with or without pus. Localized infections include boils, impetigo and wound infections. Rarely, the bacteria get into the bloodstream and other body sites and can cause more severe illness.

HOSPITAL versus COMMUNITY-ACQUIRED MRSA

MRSA was first identified in the United States in the late 1960s. In past decades MRSA was primarily seen in the hospital setting among older and sicker people. These hospital strains are usually resistant to multiple other antibiotics. Most people with MRSA have a history of recent hospitalization, surgery or dialysis, residence in a long-term care facility or an implanted medical device (such as a catheter).

Since the late 1990s, a number of studies have demonstrated that MRSA colonization and infection are now being seen among healthy children and adults who do not have these healthcare-associated risk factors. It appears that these people have acquired MRSA in the community, rather than in a healthcare setting. Compared to typical hospital-acquired MRSA infections, these community-acquired MRSA (CA-MRSA) infections tend to occur among younger people, and often involve less serious skin and soft tissue infections. Additionally, these CA-MRSA strains are usually susceptible to many other antibiotics besides penicillins and related antibiotics.

SPREAD

Staph bacteria are spread by contact with the hands, wound drainage, or nasal secretions of a person who is infected or colonized. Persons who have draining wounds are shedding more bacteria and are more infectious than persons who are colonized only. The role of environmental surfaces is less clear but is probably less important than direct person-to-person spread.

TREATMENT

Infections caused by MRSA may be more difficult to treat than those caused by non-resistant staph because there are fewer antibiotic choices. Antibiotics typically prescribed for healthy persons without known MRSA risk factors are often not effective for a MRSA infection, and effective antibiotics may not be prescribed until the results of culture and antibiotic susceptibility tests are known. This delay can allow the infection to progress.

PREVENTION and CONTROL

Hand washing is the most effective method of preventing the spread of staph. Persons should wash hands thoroughly with soap and warm running water after having contact with secretions from the nose, tracheostomies, or skin drainage of an infected or colonized person.

GENERAL RECOMMENDATIONS FOR SCHOOLS

Skin Infections in the Classroom, Including MRSA

Any infection or draining wound could pose a threat to others. When a student with a MRSA infection is in the classroom, certain infection control measures should be in place. These measures include, but may not be limited to:

- Keep infections, particularly those that produce pus or drainage, covered with clean, dry bandages. The student should follow the healthcare provider's instructions on proper care of the wound. Pus from infected wounds can contain bacteria, including MRSA, and spread the bacteria to others. Bandages should be disposed of in a manner such that other people cannot have contact with the drainage (*e.g.*, in a closed plastic bag).
- Advise those who may have contact with the infected wound to wash their hands thoroughly with soap and warm water. Persons who expect to have contact with the infected wound should wear disposable gloves, and wash their hands after removing the gloves. Hand washing is the single most important measure to prevent MRSA transmission.
- Avoid sharing personal items (*e.g.*, towels, washcloths, clothing) that may have come in contact with the infected wound. Wash soiled linens and clothes with hot water and laundry detergent. Drying clothes in a hot dryer, rather than air-drying, also helps kill bacteria.
- Clean potentially contaminated surfaces carefully with a disinfectant or a bleach-water solution (1:100 dilution of sodium hypochlorite, which is approximately ¼ cup of 5.25% household chlorine bleach to 1 gallon of water) after caring for the wound.

Schools should continue to provide general cleaning on a regular schedule. Students who are infected with MRSA should follow the healthcare provider's treatment plan, including completion of any antibiotics prescribed.

Children with wounds that cannot be covered and/or who are classmates of severely immune-compromised children may present additional risks. Complex situations should be assessed on a case-by-case basis in conjunction with the local or state health department and pediatric infection control specialists.

CONSULTATION

Please call your local County/Municipal Health Department or State Health Center, or 1-877-PAHEALTH.

The above was adapted from documents developed by the Colorado Department of Health (http://www.cdphe.state.co.us/dc/epidemiology/CO_MRSA_schools5_03.pdf) and the Indiana Department of Health (<http://www.in.gov/isdh/dataandstats/epidem/2004/sep/guidelines.pdf>).

- General information about community-acquired MRSA is available from the Centers for Disease Control and Prevention at www.cdc.gov/ncidod/hip/ARESIST/mrsa.htm
- Information on MRSA specifically relating to sports is available via the website of the National Collegiate Athletic Association at www1.ncaa.org/membership/ed_outreach/health-safety/sports_med_education/infectious_prevention and from the CDC at <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5233a4.htm>