



COMMONWEALTH OF VIRGINIA

*New River Health District
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New River Health District (NRHD) Interim Guidance Methicillin-Resistant *Staphylococcus aureus* (MRSA) in Schools: *Prevention and Control Recommendations* October 2007

BACKGROUND

Staphylococcus aureus (*S. aureus*), often referred to as “staph,” is commonly found on the skin or in the nose of healthy people. “Staph” generally causes a minor skin infection (pimple, pustule, or boil). However, on occasion, staph bacteria can cause more serious illnesses involving soft tissue, bone, blood, or the lungs.

Over the past few years, treatment of some staph infections has become more difficult because the bacteria have become resistant to some antibiotics. The type of *S. aureus* that is resistant to methicillin is called methicillin-resistant *Staphylococcus aureus* (MRSA). MRSA is actually resistant to a whole class of antibiotics including penicillins and cephalosporins. These types of antibiotics are commonly used to treat skin infections, but they will not work against MRSA. Fortunately, MRSA infections, especially if caught early, can usually be treated with drainage, dry heat, and bandage changes--and sometimes when these measures are not sufficient, certain effective antibiotics can be used.

While 20% to 30% of the general population is colonized with *S. aureus*, approximately only 1% to 5% is colonized with MRSA (colonized means we carry the bacteria without becoming ill). MRSA first emerged in a hospital environment in England in 1961. According to Centers for Disease Control and Prevention data, the proportion of infections that are antibiotic resistant has been growing. In 1974 hospital MRSA infections accounted for two percent of the total number of *Staph. aureus* infections; in 1995 it was 22%; in 2004 it was some 63%. While infections caused by MRSA have historically been associated with ill persons in hospitals and long-term care facilities (called healthcare associated or HA-MRSA), MRSA has now emerged in previously healthy adults and children who have not been in healthcare settings. This type of MRSA infection is known as community-associated MRSA (CA-MRSA).

CA-MRSA can be transmitted from person to person through close contact. Risk factors associated with the spread of MRSA include:

- Direct skin-to-skin contact with colonized or infected persons (non-intact skin serves as a point of entry for the bacteria, the place where infection can begin)
- Shared contaminated personal items (for example, towels, razors, soap, deodorant, clothing, and water bottles)
- Crowded conditions and poor personal hygiene and direct contact with contaminated environmental surfaces

Possible outbreaks of MRSA should be routinely reported to the Virginia Department of Health (VDH); however, individual cases of MRSA infection are not reportable. Recently, health agencies in our district, Virginia, and the U.S. as a whole have received increasing reports of CA-MRSA infections, clusters and outbreaks. Outbreaks of CA-MRSA have occurred among prison inmates, military recruits, children, and participants in contact sports (e.g., football, wrestling). The good news is that MRSA is preventable!

INTERIM STRATEGIES FOR THE PREVENTION AND RECOGNITION OF MRSA IN SCHOOL SETTINGS (OCTOBER, 2007)

Note: Additional research and consideration regarding these strategies is ongoing at the Virginia Department of Health (VDH). When complete, this guidance will be made available and these interim guidance documents will be updated.

To limit the spread of MRSA infections in school settings, the NRHD recommends the following interim guidance with respect to policy, infection control, and education/increased awareness:

SUGGESTED SCHOOL POLICIES

- **Active involvement by the school health staff:** School health staff should take an active role in evaluating students who complain of painful skin lesions, including lesions that resemble a “bug/spider bite,” or other pustule skin lesions that appears to be infected. Any unusual skin lesion or other draining wound is potentially infectious to others, and infection control measures should be in place to prevent the spread of infection.
- **Active surveillance for skin infections:** Transmission of MRSA infection among students and student athletes can have substantial school and public health impact. A policy for active surveillance for skin infections should be developed with input from the following staff: the school health staff, school physician, and sports teams (especially those teams involved in contact sports). School health staff should assess any skin infection reported from students, parents, teachers, coaches, or other staff to expedite referral for medical evaluation. Coaches and/or athletic trainers should be encouraged to assess student athletes for any unusual skin lesions before practice or competition and immediately refer the athlete to the school health staff or primary care provider.
- **Referral for medical evaluation and follow-up:** When MRSA infection is suspected, athletes should be referred to their primary care provider for evaluation and treatment. Following medical evaluation, the school should ask the student or parent to provide verification of the healthcare provider’s treatment plan. (Those infected with MRSA should follow their healthcare provider’s treatment plan, including completing antibiotic therapy, if an antibiotic was prescribed.)
- **Contact checks for confirmed MRSA cases:** If MRSA is diagnosed, interview the student (parent/guardian for young children) to evaluate other risk factors, as appropriate. The school health staff should investigate the possibility of other cases among their friends, roommates, teammates, and/or family members. If other possible MRSA cases are identified, please contact your local health department.

INFECTION CONTROL MEASURES

Any student with a draining skin lesion could transmit potentially infectious agents to others. When a student with a suspect or confirmed MRSA skin infection is in the classroom, the following infection control measures (based on Centers for Disease Control and Prevention [CDC] guidance) should include, but may not be limited to:

- **Keeping the wound covered.** All skin infections, particularly those that produce pus, must be covered with a clean, dry bandage to contain the drainage. Because bandages can shift or dislodge with activity or when wet, students that participate in contact sports or other contact activities should ensure that the wound dressing stays intact during the anticipated activity. Self-adherent tape may be helpful for this purpose. Keeping the site covered will help control the spread of potentially infectious drainage to others and can protect the environment from contamination. If a wound cannot be adequately covered or the drainage cannot be adequately contained by the bandage, consider excluding the player from practice or competition until the lesion is healed. When providing wound care or dressing changes in the school setting, the school health staff must follow contact precautions. Contaminated dressings and other materials associated with the infected lesion should be placed in a plastic bag before discarding, as appropriate.
- **Practicing Good Basic Hygiene.** The infected student, medical staff, sports team staff, and anyone expected to have contact with the infected student must be diligent with hand hygiene. To this end, **ensure availability of adequate soap, water, and means of drying hands.** This is essential in all restrooms and locker facilities. The strategic placement of an alcohol-based waterless hand sanitizer is also strongly encouraged. Advise the MRSA-infected student and all those who might have contact with the infected wound or wound dressing to thoroughly wash their hands (for at least 15-20 seconds) using soap and warm water or, if this is not practical, to use an alcohol-based waterless hand sanitizer (that is at least 70% alcohol) immediately after contact. In addition, emphasize the importance of good hygiene overall, including showering and washing with soap after all practices and competitions, before using the gymnasium, or immersing in a whirlpool, hot tub, or swimming pool.
- **Prohibiting students from sharing personal items.** Instruct students and athletes to avoid sharing personal hygiene supplies and other items such as athletic clothing, towels, uniforms, skin balms, skin lubricants, razors, and certain personal sports equipment (such as padding) at all times. It is particularly important to avoid sharing personal items that may have been in contact with the infected wound or bandage. Also, utilization of liquid soap dispensers rather than bar soap for showers and hand washing is recommended. Sharing bar soap in the shower or at the sink is prohibited. Provide antiseptic waterless hand gel rubs (at least 70% alcohol) when soap and water is not available.
- **Laundering soiled clothing appropriately.** School laundries and parents/caregivers should be instructed to wash clothes and other soiled items (e.g. towels, sheets, bed linens) with hot water and laundry detergent as appropriate. They should also be advised to dry items in a hot dryer to help eliminate bacteria.
- **Cleaning environmental surfaces.** Establish a written procedure and schedule for routine surface cleaning of shared athletic equipment. Clean and disinfect environmental surfaces and athletic equipment that has been in contact with potentially infectious wound drainage, blood, or non-intact skin utilizing an EPA-registered disinfectant cleaner or bleach solution that meets the requirements of the Bloodborne Pathogens Standard developed by the Occupational Safety and Health Administration. Disinfect mats, benches, and surfaces that come in contact with non-intact skin after each practice or game and when they become contaminated. Disinfect equipment (such as strength training equipment) after use with an EPA-registered cleaner or a dilute bleach solution made fresh daily (1 part bleach in 9 parts water). Non-washable personal gear should be wiped down with an EPA registered disinfectant cleaner or bleach solution.

STRATEGIES FOR EDUCATION/INCREASED AWARENESS

- **Transmission of MRSA skin and soft tissue infections among students who participate in competitive sports is a concern.** All persons (e.g., coaches, trainers, parents/caregivers, and teammates) associated with the school's competitive sport activities and sport teams should engage in initiatives to increase awareness and adherence to the school's policies and procedures designed to prevent transmission of MRSA skin infections. Leadership and modeling by these associated persons is also essential.
- **Possible risk factors for MRSA skin and soft tissue infection among students who participate in competitive contact sports include:**
 - Physical contact/skin trauma
 - "Turf burns" (football players)
 - Contact with teammates' uncovered skin lesions
 - Sharing protective equipment, clothing, or towels
 - Sharing sports equipment
 - Sharing personal hygiene items
 - Reuse of unlaundered towels
 - Inadequate supply of dispensable soap for hand washing or showering
 - Poor personal hygiene practices
 - Poor environmental cleaning of locker rooms/sport rooms

Skin infections must be recognized promptly and steps must be taken to limit the spread of infection to others. Students with any open, weeping, or pustular lesions on the skin should be immediately referred to their primary care provider for appropriate medical management. These wounds must be kept covered to prevent infectious material from contacting other surface or the skin of other persons.

Schools should consider developing policies related to CA-MRSA infected students and student athletes and may wish to review various CDC-published reports and guidelines for the prevention of staphylococcal infections.

ADDITIONAL RESOURCES:

CA-MRSA Information for the Public. Centers for Disease Control and Prevention. Available at: http://www.cdc.gov/ncidod/hip/ARESIST/ca_mrsa_public.htm

Information on MRSA in healthcare settings. Centers for Disease Control and Prevention. Available at: www.cdc.gov/ncidod/dhqp/ar_MRSA_spotlight_2006.html

The changing epidemiology of Staphylococcus aureus? Emerg Infect Dis. 2001;7(2):178-82. Available at: <http://www.cdc.gov/ncidod/eid/vol7no2/chambers.htm>

Centers for Disease Control and Prevention. Methicillin-resistant *Staphylococcus aureus* infections among competitive sports participants--Colorado, Indiana, Pennsylvania, and Los Angeles County, 2000-2003. MMWR Morb Mortal Wkly Rep. 2003;52(33):793-5. Available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5233a4.htm>

National Collegiate Athletic Association. Skin infections in wrestling. In: NCAA Sports Medicine Handbook 2005-06. Available at: http://www.ncaa.org/library/sports_sciences/sports_med_handbook/2005-06/2005-06_sports_medicine_handbook.pdf

Boyce JM, Pittet D; Healthcare Infection Control Practices Advisory Committee; HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force. Guideline for Hand Hygiene in Health-Care Settings. Recommendations of the Healthcare Infection Control Practices Advisory Committee and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force. Society for Healthcare Epidemiology of America/Association for Professionals in Infection Control/Infectious Diseases Society of America. MMWR Recommend Rep. 2002 Oct 25;51(RR-16):1-45. Available at: <http://www.cdc.gov/mmwr/PDF/rr/rr5116.pdf>

Begier EM, Frenette K, Barrett NL, Mshar P, Petit S, Boxrud DJ, et al. A high-morbidity outbreak of methicillin-resistant *Staphylococcus aureus* among players on a college football team, facilitated by cosmetic body shaving and turf burns. Clin Infect Dis. 2004;39(10):1446-53.

The Centers for Disease Control and Prevention (CDC)

- www.cdc.gov/ncidod/dhqp/pdf/ar/CAMRSA_ExpMtgStrategies.pdf

(for strategies for clinical management of MRSA in the community)

Association for Professionals in Infection Control and Epidemiology (APIC)

- www.apic.org/Content/NavigationMenu/GovernmentAdvocacy/MethicillinResistantStaphylococcusAureusMRSA/Resources/MRSAguide.pdf

(for guidance on reducing transmission of MRSA)

For additional information, resources, questions/concerns, or to report a suspected cluster/outbreak of MRSA, please contact Paige Bordwine, District Epidemiologist, J. Henry Hershey, MD, MPH, Director, New River Health District, at 381-7100 Ext. 152 or Ext. 156, respectively.