

Community-associated (CAMRSA)/Staph Infections: A Guideline for Athletic Departments

Outbreaks of skin infections caused by antibiotic-resistant bacteria have been increasingly reported in sports teams including football, basketball, wrestling, volleyball and rowing teams. This information is provided to assist in the control and prevention of these infections. The athletic department, coach, trainers, and athletes share responsibility and must work together to ensure prevention and control of these skin infections.

BACKGROUND

Staphylococcus aureus

Staphylococcus aureus, often referred to simply as "staph," are bacteria 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) in the nose with staph bacteria. It can also be carried in the armpit, groin, or genital area. Staph bacteria are one of 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. However, staph also can cause serious infections such as pneumonia, bloodstream infections, and joint infections. Most infections occur through direct physical contact of the staphylococci with a break in the skin (cut or scrape). The staph can be spread by the infected person to someone else or to an object. Inanimate objects, such as clothing, bed linens, sports equipment, personal items (soap or wash cloths) or furniture, may be a source of infection if they become soiled with wound drainage and a non-infected person comes into contact with them. If there is no break in the skin, contact with infected persons or contaminated objects may result in colonization. Susceptibility to infection depends on factors such as immunity and general state of health. In the past, these staph infections typically have been easy to treat with an inexpensive, short course, usually well-tolerated antibiotics. Now in most communities in the U.S., over half of the staph causing skin infections are resistant to commonly used antibiotics.

Methicillin-resistant *Staphylococcus aureus* (MRSA)

MRSA is *Staphylococcus aureus* that is resistant to the penicillins, including dicloxacillin or other methicillin-related antibiotics. These bacteria are also resistant to the cephalosporins, such as Keflex®. Originally MRSA was confined to hospitals and long-term care facilities; taking antibiotics was a risk factor for infection with MRSA. Many of these hospital-associated MRSA infections caused very serious complications and were resistant to all oral antibiotics. More recently a newer, more virulent strain of MRSA has emerged in the community that causes boils, abscesses, and other soft tissue infections that is not linked to previous antibiotic use. It is called community-associated MRSA. The frequency of infections with community-associated MRSA appears to be higher than those caused by staph in the past, particularly in athletic teams. The reasons for this increase are not known, but it is clear that the community-associated MRSA strains did not originate with from the strains of MRSA that cause infections in hospitals and other healthcare facilities.

PREVENTION AND MANAGEMENT OF CAMRSA INFECTIONS

Surveillance (Monitoring and Recording Infections)

Community-associated MRSA is easily spread from person to person, either through direct contact or through contact with surfaces contaminated with the bacteria. A single infected athlete can quickly become the source of an outbreak that can affect the entire team.

Therefore it is essential that trainers and coaches know about every skin infection as soon as it occurs, and that every athlete know to be evaluated at the first sign of a possible infection.

Each team should have a designated official (such as athletic trainer) who will evaluate all skin infections and maintain a record of such infections. At the beginning of each athletic season, all team members should be told that they must report all possible skin infections, such as a red bump that is larger than a pimple, to the designated official. That official will make a determination if the student will be excluded from specific activities, and when excluded students can return to those activities. The official will maintain a record of these reports (e.g., a log) including name of athlete, position on the team, and nature of the infection including dates of onset, location of lesion, treatment, and outcome. Information on exclusion from and return to specific activities should be included (see below). This record will contain confidential medical information and should be maintained appropriately (e.g., kept in a locked cabinet). A release form agreeing to conform to these policies should be signed by the students and parents.

Hygiene

HAND WASHING IS THE SINGLE MOST IMPORTANT BEHAVIOR IN PREVENTING THE SPREAD OF INFECTIOUS DISEASE. EMPHASIZE THIS TO YOUR ATHLETES. HANDS MUST BE CLEAN BEFORE THEY TOUCH THEIR EYES, MOUTH, NOSE, OR ANY CUTS OR SCRAPES ON THE SKIN. YOU ARE THE ROLE MODEL — WASH YOUR HANDS OR USE AN ALCOHOL-BASED HAND SANITIZER FREQUENTLY. IF HANDS ARE VISIBLY SOILED, THEY MUST BE WASHED WITH SOAP AND WATER RATHER THAN AN ALCOHOL-BASED HAND SANITIZER.

HANDWASHING PROCEDURE

1. Use warm water.
2. Wet hands and wrists.
3. Use a bar or liquid soap. Antimicrobial soap is not necessary to disinfect against MRSA.
4. 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.
5. Dry hands, using a disposable paper towel or hand-dryer.

6. Provide and encourage the use of alcohol-based hand sanitizers to wash hands in places where hand-washing facilities are not available or to wash hands immediately if personnel or athletes come in contact with any body fluid on the playing field.

All should wash their hands as described above:

- After sneezing, blowing or touching the nose;
- After using the toilet;
- Before and after practice, games, working out, or whenever there is bare skin contact with others or with shared surfaces or equipment.

Personal Hygiene

- **Show with soap and water as soon as possible after direct contact sports.**
- Dry using a clean, dry towel.
- Do not share towels (even on the sidelines of games), soap, or other personal care items.

Laundry and Linens

- When handling dirty laundry or clothing, it should be held away from the body to keep the handler from contaminating their clothing.
- Prewash or rinse items that have been grossly contaminated with body fluids.
- Wash towels, uniforms, scrimmage shirts, and any other laundry in hot water ($\geq 160^{\circ}\text{F}$ for at least 25 minutes) and ordinary detergent and dry on the hottest cycle the fabric will tolerate. Items that can be bleached should be bleached. Alternatively, shared linens may be washed at a lower temperature if an oxygenated detergent is used.
- Dry linens with a mechanical dryer. Distribute towels, uniforms, etc. only when they are completely dry.
- Inform parents of these precautions if laundry is sent home (laundry must be in an impervious container or plastic bag for transporting home). Laundry should be done following instructions in the athlete handbook.

Athletic Equipment

- Athletes should use a towel or clothing to act as a barrier between surfaces of shared equipment and bare skin.
- Disinfect frequently touched areas on shared equipment and in the athletic area daily using a commercial Environmental Protection Agency (EPA)-registered detergent disinfectant with a label claim for *Staphylococcus aureus*, or a fresh

(mixed daily) solution of one part bleach and 100 parts water (1 tablespoon bleach in one quart of water). For disinfection to occur, the surface must be clean, and there must be 10 minutes wet contact time.

- Equipment that comes into contact with bare skin such as training tables should be thoroughly cleaned between each use. Consider making spray bottles of disinfectant active against *Staphylococcus aureus* available for use; provide instructions for safe use. Alternately, containers of disinfectant wipes may be used.
- Treatment tables used for infected athletes should be covered before each use (see below).
- Repair or dispose of equipment and furniture with damaged surfaces that cannot be adequately cleaned.
- Athletes with open wounds, whether covered or not, should not use athletic facility ice tubs or whirlpools, and should be discouraged from using private hot tubs. If they use a whirlpool or tub, the equipment must be cleaned and disinfected immediately after use following manufacturer's recommendations for disinfection.
- Participate in an ongoing assessment and training for appropriate cleaning and disinfection practices at the facility.

Outbreaks

If more than one athlete develops a staph infection during the course of a season, the possibility of an outbreak should be considered, and should be reported to the local health department. If an outbreak is suspected additional measures should be considered, including cultures of uninfected athletes to detect those carrying the bacteria without illness (colonized), and eradication of MRSA colonization (decolonization). Culturing should only be done in consultation with the local and State health departments.

RECOMMENDATIONS FOR CARE OF DRAINING WOUNDS:

Consider a wound infectious if there is any purulent drainage (pus) from the wound, especially if accompanied by fever, redness or tenderness around the wound or if the person is receiving treatment for a wound that had pus drainage. Once the wound has no drainage, and the treating clinician and/or a representative from the athletic department clears the athlete, the person can be considered non-infectious. Additional information is available for physicians (see last page).

INITIAL PRECAUTIONS:

- Treat any draining wound as a potential MRSA infection.
- Separate the infected athlete from direct physical contact with other students.

- The student with an active infection, as indicated above, must be evaluated by a physician or other advanced practice clinician (Nurse Practitioner or Physicians' Assistant).
- Inform the clinician of the possibility of MRSA.
- Treat uncultured wounds as MRSA.
- Wounds that contain significant amounts of pus and which are not yet draining should be evaluated by a clinician to see if medical drainage of the pus is indicated. Significant amount of pus can render antibiotics ineffective at the wound site.

PARTICIPATION IN SPORTS:

- An athlete who has a draining wound and is in a sport where there is regular physical contact with others should be evaluated by a physician or qualified health provider for participation in that sport. Considerations for continuing participation in the sport while the wound is still leaking fluid would include:
 - Ability to completely contain the drainage with a clean, dry bandage;
 - Stability of equipment/padding that covers the wound;
 - Amount of drainage;
 - Location of the draining wound; and/or
 - The nature of the contact. Frequent pressure on a bandaged wound (for example, against a piece of athletic equipment) may both delay healing and contaminate the point of contact.

TREATMENT:

- The physician should perform a culture and susceptibility test to determine what bacteria the athlete has and what antibiotic will be the most effective with the fewest side effects. If the physician determines that the athlete does not have a bacterial infection, the athlete will not receive an antibiotic as antibiotics are not effective for nonbacterial infections. Also many of the community-associated MRSA infections, while caused by bacteria, may not require antibiotics for treatment: good wound care could be sufficient to clear the infection. If an antibiotic is prescribed, it is essential that the athlete take all medication even after the infection seems to have healed. Athletes may participate in sports even while on antibiotics. If a topical ointment is prescribed, it should be applied as directed. Note that athletes should be educated that ointments or antibiotics must not be shared.
- The athlete should follow all other directions as instructed by the responsible clinician. The clinician must be informed if the athlete does not respond to treatment, and consideration be given to not clearing the non-compliant athlete.

HOW TO TAKE CARE OF WOUNDS AT HOME:

- The wound must remain covered. The dressing must be changed at least twice a day or more frequently if drainage is apparent or as directed by the clinician. Consider using clean, disposable, nonsterile gloves to change bandages.
- The athlete must wash hands frequently, especially before and after changing band-aids, bandages, or wound dressings.
- Isopropyl alcohol and friction should be used to disinfect reusable materials, such as scissors or tweezers.
- Reusable equipment that come in contact with the wound must be disinfected with a fresh (daily) mix of one tablespoon of household bleach to one quart of water or a phenol-containing product such as Lysol® or Pinesol®. Contact time of the item in the disinfectant solution should be limited to manufacturer's recommendations so as to not corrode the reusable item. A phenol-containing spray can also be used to disinfect any cloth or upholstered surface.
- Place disposable items that have come in contact with the infected site, including soiled dressings, in a separate trash bag and close the bag before placing in the common garbage or household trash.

PREVENTION OF SPREAD TO OTHERS AT HOME

- Family members, other close contacts should wash their hands frequently with soap and warm water, especially if they change the athlete's bandages or touch the infected area or anything that might have come in contact with the infected area.
- Laundry should be carried away from the body in a plastic or other lined bag that will not allow wet articles to drain through.
- All clothing, towels, linens that come in contact with the wound should be handled separately from those of other members of the household. This includes using a separate hamper or laundry bag.
- Articles that come in contact with the wound should be washed in the hottest water the fabric will tolerate with the usual detergent.
- Clothing should be dried thoroughly using the hottest setting the fabric will tolerate.
- Change towels and linens daily if possible.
- The athlete should be instructed to not share personal items (e.g., towels, washcloths, razors, clothing, or uniforms) or other items that may have been contaminated by wound drainage with family members or housemates.
- Utensils and dishes do not require special handling. They should be washed in the usual manner with soap and hot tap water or using a standard home dishwasher.

HOW TO TAKE CARE OF WOUNDS AT SCHOOL:

- Instruct the athlete to carry and use an alcohol-based hand sanitizer when soap and water are not available.
- Clean and disinfect sports equipment or any part of the athletic area that comes in contact with the wound with commercial disinfectant or fresh solution of diluted bleach before any other athlete comes in contact with the equipment or area.
- Athletic trainers or others who care for the wound should use clean non-sterile gloves.
- Put on clean gloves just before touching broken skin.
- Remove gloves promptly after use and discard.
- Wash hands immediately after contact with the wound even if gloves were worn.
- Wash hands between tasks and procedures on the same athlete to prevent cross-contamination of different body sites.
- Cover treatment tables. Discard or launder coverings after each use, and disinfect the treatment table.
- Place disposable items that have come in contact with the infected site in a separate trash bag and close the bag before placing in the common garbage.
- Do not give other team members prophylactic antibiotics.

Additional information for Clinicians

“Evaluation & Management of Community Associated Methicillin Resistant Staphylococcus aureus Skin and Soft Tissue Infections in Outpatient Setting” is available from the Washington State Department of Health at http://www.doh.wa.gov/Topics/Antibiotics/providers_MRSA_guidelines.htm.

Acknowledgement

The source for most of this material was “Information on Staphylococcal Infections for School Athletic Departments” by the Texas Department of State Health Services, Infectious Disease Control Unit, http://www.tdh.state.tx.us/ideas/antibiotic_resistance/mrsa/athletics/departments/

Additional information was used from the Los Angeles County Department of Health Services Guideline for Reducing the Spread of Staph in Non-Healthcare Settings, <http://lapublichealth.org/acd/MRSA.htm>, with review and suggestions by Elizabeth Bancroft, M.D., Los Angeles County Department of Health Services.