

Information on Staphylococcal Infections For Northern Michigan University Varsity Athletes

Antibiotic-resistant bacteria currently pose a significant health threat. Since the summer of 2002, outbreaks of skin infections caused by antibiotic-resistant bacteria have been reported in sports teams including wrestling, volleyball, and most frequently, football teams. A person on your athletic team may have already experienced an infectious disease that has not responded to antibiotics. The development of resistance to any antibiotic is dependent on many factors, including the widespread use of antibiotics, not taking all of the prescribed antibiotics, sharing antibiotics, or inappropriate prescribing. While the situation is alarming, everyone can help in the effective control and prevention of antibiotic resistant infections. This information is provided to assist you specifically in the control and prevention of staphylococcal (commonly called staph) infections. However, these measures are effective against almost all infectious diseases.

BACKGROUND

Staphylococcus aureus

Staphylococcus aureus has long been recognized as a common cause of boils and soft-tissue infections as well as more serious conditions such as pneumonia or bloodstream infections. According to the Centers for Disease Control and Prevention (CDC), twenty-five to thirty percent of adults and children in the United States are "colonized" with *Staphylococcus aureus*—the bacteria are present but do not cause illness. *Staphylococcus aureus* (commonly called staph or staph aureus) colonization usually occurs in the armpit, groin, genital area, or the inside of the nose, with the nose being the most densely colonized. Although staph bacteria are carried in the nose, it is not typically an airborne pathogen. It is also not found in dirt or mud. Most infections occur through direct physical contact of the staphylococci with a break in the skin (cut or scrape). Inanimate objects, such as clothing, bed linens, or furniture, may also be a source of infection when they become soiled with wound drainage and a non-infected person then comes into contact with the contaminated object. If there is no break in the skin, contact with infected persons or articles 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 of penicillin, cephalosporin, or other usually well-tolerated antibiotics. Times have changed and many of these staphylococci are now resistant to penicillin and other commonly used antibiotics.

Methicillin resistant *Staphylococcus aureus* (MRSA)

A MRSA (often pronounced mer-sa) infection, unlike a common *Staphylococcus aureus* infection, cannot be treated with the penicillins, including Augmentin®, dicloxacillin, or other methicillin-related antibiotics. These bacteria are also resistant to the cephalosporins. Consequently, the treatment is often longer, more expensive, and more complicated, with frequent recurrence of infections. Depending on the antibiotic resistance patterns, alternative antibiotics, such as trimethoprim/sulfamethoxazole (Bactrim®, Septra®), minocycline, or clindamycin, may be considered. For serious infections, vancomycin has become the treatment of choice, but this can only be administered intravenously and must be carefully monitored. Other newer antibiotics, such as linezolid or daptomycin, may also play a role in the treatment of serious infections, but these antibiotics, along with vancomycin, may be rendered ineffective through the development of bacterial resistance. The Centers for Disease Control and Prevention recently reported the first two cases of vancomycin-resistant *Staphylococcus aureus* infections. This underscores the need for aggressive control and prevention measures for all antibiotic resistant organisms. Originally, MRSA was confined to hospitals and long-term care facilities. In the past few years, sporadic reports of MRSA not associated with the healthcare environment have been confirmed.

Although MRSA is not a new type of infection, these infections have seldom been reported from the community. The following prevention and control measures are effective against staph infections (including MRSA) as well as many other infectious diseases.

PREVENTION STRATEGIES

HAND WASHING IS THE SINGLE MOST IMPORTANT BEHAVIOR IN PREVENTING INFECTIOUS DISEASE. HANDS MUST BE CLEAN BEFORE YOU TOUCH YOUR EYES, MOUTH, NOSE, OR ANY CUTS OR SCRAPES ON THE SKIN. WASH YOUR HANDS OR USE AN ALCOHOL-BASED HAND SANITIZER FREQUENTLY.

HANDWASHING PROCEDURE

- Use warm water
- Wet hands and wrists
- Using a bar or liquid soap
- Work soap into a lather and wash between fingers, up to wrists, and under fingernails for at least 15 seconds
- Dry, using a clean cloth towel or paper towel
- Provide and encourage the use of alcohol-based hand sanitizers to wash hands immediately if they come in contact with any body fluid on the playing field or at other places where hand-washing facilities are not available

Wash your hands as described above:

- After sneezing, blowing, or touching the nose
- After using the toilet
- Before leaving the athletic area

OTHER PRECAUTIONS:

- Do not share towels, soap, or other personal care items
- **Shower 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 at game
- Ointments or antibiotics must not be shared
- Prewash or rinse items that have been grossly contaminated with body fluids
- Wash towels, uniforms, scrimmage shirts, and any other laundry in hot water and ordinary detergent and dry on the hottest cycle
- Inform parents of these precautions if laundry is sent home (laundry must be in an impervious container or plastic bag for transporting home)
- Clean the athletic area and sports equipment at least weekly using a commercial disinfectant or a fresh (mixed daily) solution of one part bleach and 100 parts water (1 tablespoon bleach in one quart of water)
- You must inform the athletic trainer if you have a skin infection and will not participate in contact activities until the athletic trainer has approved your return to the activity.

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/or treating physician clears the athlete, the person can be considered non-infectious.

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 athletic trainer
- Inform the physician of the possibility of MRSA
- Treat uncultured wounds as MRSA

WITH THE ATHLETE'S PHYSICIAN:

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, he or she will not receive an antibiotic. Antibiotics are not effective for nonbacterial infections. If an antibiotic is prescribed, the athlete must take all medication even after the infection seems to have healed. If a topical ointment is prescribed, it should be applied as directed. The athlete should follow all other directions as instructed by the physician. The physician must be informed if the athlete does not respond to treatment.

HOW TO TAKE CARE OF WOUNDS AT HOME:

- **The athlete must avoid direct contact with others until the wound is no longer draining and/or has been instructed by a physician to resume usual activities**
- Wounds that contain significant amounts of pus and which are not yet draining should be evaluated by a physician or qualified health provider to see if medical drainage of the pus is indicated. Significant amount of pus can render antibiotics ineffective, since there may be no circulation to carry the antibiotics to the site of infection.
- The wound must remain covered. The dressing must be changed at least twice a day or more frequently if drainage is apparent. Soiled dressings may be disposed of in household trash
- The athlete must wash hands frequently, especially before and after changing band-aids, bandages, or wound dressings
- Isopropyl alcohol should be used to disinfect reusable materials, such as scissors or tweezers
- All items 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®. A phenol-containing spray can also be used to disinfect any cloth or upholstered surface
- The athlete must have a designated chair or area for sitting. It should have a hard surface or an easily cleaned plastic or similar cover for easy disinfection. No one else should sit here until the person's wound has healed. The chair should be disinfected after the athlete sits on it.
- Utensils and dishes should be washed in the usual manner with soap and hot water or using a standard home dishwasher
- 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, and 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
- Articles that come in contact with the wound should be washed in hot water with the usual detergent
- Clothing should be dried thoroughly using the hottest possible setting
- Change towels and linens daily if possible

AT SCHOOL:

- Instruct the athlete to carry and use an alcohol-based hand sanitizer when soap and water are not available. Do not allow athletes with draining wounds or infections to participate in practice or games until the wound has stopped draining (subject to discretion of treating physician). Because MRSA may be difficult to treat, this may be a few weeks or longer
- Permit the athlete to participate in non-contact activities if wounds are covered and the infected person observes good hygienic practices—washing hands, showering, and laundering clothes
- Clean 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 before touching uncontaminated items and environmental surfaces and before treating another athlete
- 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.
- 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 SOURCES OF INFORMATION

When in doubt of the correct procedure to follow, contact one of the staff athletic trainers in either the BEC, PEIF, or Superior Dome.