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**TECHNICAL INFORMATION BULLETIN NO. 30**

**To: Members, Arizona School Risk Retention Trust, Inc.**

**Re: Staphylococcus Aureus (“Staph”) and MRSA**

**Introduction**

*Staphylococcus Aureus*, often referred to as “staph,” is a bacterium that healthy people can carry on the skin or in the nose. Staph bacteria commonly cause skin infections that appear as pimples and/or boils. Staph can also produce infections in the blood, bones, and lungs.

Staph spreads through the air or via contaminated surfaces and from person to person, entering the body through breaks, punctures, or wounds in the skin. Staph bacteria are known to spread among athletes on and off the field through rough, physical play, and through the sharing of towels, whirlpools, and workout equipment.

Though staph can be treated with antibiotics, some staph have become resistant to antibiotics—including penicillin. The resistant bacterium is called *Methicillin-Resistant Staphylococcus Aureus*, or MRSA.

**Signs and Symptoms**

Manifestations of staph infection include:

Impetigo

Impetigo may occur anywhere on the body, but is most common in the area around the nose or mouth. Impetigo creates large, fluid-containing blisters that may burst, ooze, and/or develop a honey-colored crust. Impetigo may itch and can be spread by scratching. Impetigo is typically treated with a topical ointment. Depending on the severity, however, oral antibiotics may also be necessary.

Folliculitis and boils

Folliculitis is an infection of hair follicles that produces tiny, white-headed pimples at the base of hair shafts, sometimes with a small red area around each pimple. Without

treatment, folliculitis may heal within a week or so. However, if it fails to heal, it can progress to a stage involving boils.

With a boil, the staph infection spreads deeper and wider, often affecting the skin's subcutaneous tissue and the oil-producing glands. The skin will itch and become mildly painful, and the area can continue to redden and swell. Eventually, the skin above the infection becomes very tender, and a whitish "head" may appear. The head may break, and the boil may begin to drain pus, blood, or an amber-colored liquid.

Boils can occur anywhere on the skin, especially under arms and in the groin area. To help relieve pain from a boil, the affected skin may be treated with warm water soaks, a heating pad, or a hot water bottle, each for 20 minutes, three or four times a day.

Boils are occasionally treated with antibiotics, and in some cases may even need to be medically drained. Without treatment, they may heal on their own. Treatment, however, allows them to heal faster and may prevent the staph infection from spreading to other areas.

### Scalded skin syndrome

This complication most often affects newborns and children under age five. Scalded skin syndrome starts as a localized staph skin infection, but the staph bacteria produce a toxin that affects skin all over the body. An individual suffering from this condition experiences a fever, rash, and sometimes blisters. The rash begins around the mouth, and then spreads to the trunk, arms, and legs. As blisters burst and the rash passes, the top layer of skin is dislodged and the skin surface becomes red and raw, resembling a burn.

Scalded skin syndrome is a serious illness that needs to be treated and monitored in a hospital. After treatment, however, most individuals suffering from the condition experience a full recovery.

### **Preventive Measures: General<sup>1</sup>**

Factors associated with the spread of staph and MRSA skin infections include: skin-to-skin contact, openings in the skin such as cuts or abrasions, contaminated items and surfaces, crowded living conditions, and poor hygiene.

Proper personal and inter-personal hygiene are the most important practices for preventing staph and MRSA skin infections. The following specific precautions are recommended:

- Keep hands clean by washing thoroughly with soap and water.
- Keep cuts and abrasions clean and covered with proper dressing until healed.

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<sup>1</sup> The discussion of preventive measures that follows is also summarized in the appendix.

- Avoid contact with other people's wounds, or with material contaminated from wounds.
- Wash hands before eating, after playing outdoors, after playing with pets, after using the bathroom, and after blowing your nose.

Though hand-washing can play a key role in preventing staph infections from occurring, hands must be washed *correctly*:

First, wet hands with warm running water.

Then, add soap and rub hands together, making a soapy lather. Do this away from the running water for at least 10 seconds, being careful not to wash the lather away. Wash the front and back of the hands, as well as between fingers and under the nails.

Next, rinse hands well under warm running water. Let the water run into the sink, not down to the elbows. Turn off the water using a paper towel, and dispose of the towel in a proper receptacle.

Finally, dry hands thoroughly with a clean paper towel.

### **Preventive Measures: Athletics**

In the realm of athletics, a critical step in preventing the spread of any infection, including staph and MRSA, is to practice universal precautions. This means that all bodily fluids and open wounds are treated as if they were infectious. This, in turn, means that proper protection (e.g., gloves) must be used when there is a risk of exposure, and that any materials used to treat an injury/wound, or that otherwise come in contact with it, must be disposed of properly. In addition, trainers who provide wound care must have regular access to, and must regularly use, hand-washing facilities and/or alcohol-based hand sanitizers. Finally, all athletes and staff should be trained in infection-control measures, such as appropriate wound care, monitoring of skin infections, and proper hygiene, including the washing of clothing and towels.

The following are some additional, basic steps to help prevent the spread of skin infections in a sporting/athletic environment:

Towels should not be shared and must be washed after each use.

Athletes should shower after practice, after competition, and prior to using communal whirlpools. Showers and whirlpools should be sanitized frequently, and users should wear shower clogs or similar footwear.

Mats, weight benches, training equipment, and other surfaces should be cleaned with an appropriate germicide prior to and following each use. Proprietary cleansing solutions or diluted bleach (a 1:10 ratio of bleach to water) are generally effective.

Minor abrasions and superficial wounds should be cared for with soap and water cleansing, topical antibacterial lubricant preparations, and bandaging, as necessary.

Water bottles, drinking hoses, ice buckets, and ice machines should be protected against contamination. Examples of recommended practices include: (1) the use of drinking fountains designed so that water does not drop from a drinker's mouth back to the water source; and (2) individually owned, name-labeled water bottles. (Bottles should not be shared.) Additionally, access to ice chests must be restricted to designated personnel, and scoops used to remove ice should be sanitized frequently and stored outside of the ice machine. (Hand contact with the ice must be avoided.)<sup>2</sup>

Clothing and equipment should be routinely cleaned, should be in good repair, and should be appropriate for the activity. Clothing, personal equipment, and towels should *not* be shared among individuals. Practice clothing should be laundered and dried daily, and equipment that directly touches skin, such as wrestling headgear, should also be sanitized daily.

### **Conclusion**

Staph and MRSA infections are relatively common, but they need not be considered unmanageable. If the entire school “team”—teachers, staff, coaches, trainers, health office personnel, students, and student-athletes—is dedicated to education, prevention, early detection, and proper care and treatment, infectious outbreaks can be kept to a minimum.

If you have questions regarding staph or MRSA infections, please contact Member Services at (800) 266-4911 or (602) 266-4911, or via email at [the-trust@the-trust.org](mailto:the-trust@the-trust.org).

### **Additional Resources**

Additional information regarding Staphylococcus Aureus and MRSA can be found online at the links listed below.

The Arizona Department of Health: <http://goo.gl/6qP4L>, retrieved on October 7, 2013.

The Centers for Disease Control and Prevention: <http://www.cdc.gov/mrsa/index.html>, retrieved on October 7, 2013.

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<sup>2</sup> The Maricopa County Environmental Services Department now requires a review of schools' hydration equipment, facilities, and procedures to ensure that they are safe for use. The review process is initiated by the school through the submission of a Remodel application. Additional information on this process is available through Maricopa County online at <http://goo.gl/P1mUu>. Trust members located outside of Maricopa County should check with the local county regulatory authority to determine whether any changes have been made in their requirements governing student hydration systems.

WebMD: <http://www.webmd.com/skin-problems-and-treatments/staph-infection-cellulitis>, retrieved on October 7, 2013.

Mayo Clinic: <http://www.mayoclinic.com/health/staph-infections/DS00973>, retrieved on October 7, 2013.

## **Appendix. Staph and MRSA Preventive Measures**

### General preventive measures

- Keep hands clean by washing—thoroughly and properly—with soap and water.
- Keep cuts and abrasions clean and covered with proper dressing until healed.
- Avoid contact with other people's wounds, or with material contaminated from wounds.
- Wash hands—thoroughly and properly—before eating, after playing outdoors, after playing with pets, after using the bathroom, and after blowing your nose.

### Preventive measures for athletic programs/activities

- Practice universal precautions: Treat all bodily fluids and open wounds as if they were infectious.
- Wear proper skin and eye protection whenever there is a risk of exposure or infection.
- Properly dispose of materials used to treat an injury or wound, or that otherwise come in contact with it.
- Require frequent, thorough hand-washing (or hand sanitization) for trainers and other individuals who provide wound care.
- Insist that athletes shower after practice, after competition, and prior to using communal whirlpools.
- Prohibit towel-sharing, and wash towels after each use.
- Sanitize showers and whirlpools frequently, and require that users wear shower clogs or similar footwear.
- Clean mats, weight benches, training equipment, and other surfaces before and after each use.
- Treat minor abrasions and superficial wounds with soap and water, topical antibacterial lubricant preparations, and bandaging, as necessary.
- Protect water bottles, drinking hoses, ice buckets, and ice machines against contamination. Examples:
  - ◆ use drinking fountains designed so that water does not drop from a drinker's mouth back to the water source;
  - ◆ use individually owned, name-labeled water bottles (bottles should not be shared);

- ◆ restrict ice chest access to designated personnel, and frequently sanitize ice scoops (make clear that hand contact with the ice is unacceptable).
- Prohibit the sharing of clothing and personal equipment.
- Launder practice clothing daily, and sanitize daily any equipment that directly touches the skin (such as wrestling headgear).

Finally, train staff, athletes, and volunteers in the foregoing infection control measures.