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Methicillin Resistant *Staphylococcus aureus* (MRSA) and Sports

These guidelines are to help to prevent transmission of methicillin-resistant *Staphylococcus aureus* (MRSA) infections and control MRSA outbreaks among sports participants (which in this document will be referred to as "athletes").

BASIC INFORMATION ABOUT MRSA

The emergence of antibiotic resistant bacteria has become a significant public health concern. Due to the extensive use of antibiotics, the sharing of antibiotics and/or the failure to complete a course of antibiotics, our current arsenal of antibiotics is becoming ineffective against common bacterial infections. *Staphylococcus aureus* (commonly referred to as "staph") is a bacteria that can live on human skin of even the cleanest individuals. It can cause boils, wound infections, abscesses, cellulitis, impetigo, pneumonia and even bloodstream infections. The Centers for Disease Control and Prevention (CDC) estimate that 25%-35% of children and adults in the United States have staph colonization— staph living on them, but not harming them. Staph like to live in the nose, groin, around the anus, armpits, finger tips, tracheostomy sites, wounds and in the secretions of intubated patients. Staph spreads by direct skin-to-skin contact with an infected individual or a colonized individual or more rarely from objects contaminated by these individuals such as sheets soiled with infected wound drainage. Staph is not found in dirt or mud or carried through the air.

The emergence of MRSA

In the past, staph infections were easily treated with a short course of penicillin with very few complications. Unfortunately, staph infections quickly became resistant to penicillin. Methicillin, along with other drugs, was developed in the 1950s to address the problem. However, by the 1960s, methicillin-resistant strains of staph began to appear. By the 1980s, *Staphylococcus aureus* infections resistant to methicillin and methicillin-related drugs were becoming highly prevalent and continue to increase to this day. These resistant infections were labeled methicillin-resistant *Staphylococcus aureus* (MRSA). Fortunately, there are still different classes of antibiotics that can be used to control these infections, but resistance continues to spread to our newer drugs and threatens to exhaust our supply of effective treatments if practices are not put into place to stop irresponsible antibiotic use. MRSA started in hospitals and other medical facilities, but it has progressively become more common in the community and other institutions such as schools, day care centers, prisons and correctional institutions.

In Louisiana, it is estimated that

- 30% of the general population are carriers of Staphylococci
- 1% of the low risk population are carriers of MRSA.
- 5-20% of high risk population are carriers of MRSA (patients with multiple hospitalization, residents of long

term facilities, chronically ill patients, inmates in detention facilities...)

- This means that out of a 4,500,000 population, 1,500,000 are carriers of *S. aureus* and 45,000 are carriers of MRSA.

MRSA is a problem for people involved in sports

There are several reasons why those involved with sports are concerned about MRSA.

1. Throughout the USA, MRSA infections are becoming more common in community settings, including sports.
2. Staph (including MRSA) are spread by direct contact. In many sports settings, there are many opportunities for direct contact among athletes.

Several states, including Louisiana, have reported MRSA infections among wrestling, football teams and all contact sports teams.

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

MRSA spreads easily

Staph, including MRSA, are spread by direct skin-to-skin contact, such as shaking hands, wrestling, or other direct contact with the skin of another person. Staph are also spread by contact with items that have been touched by people with staph, like towels shared after bathing and drying off, or shared athletic equipment in the gym or on the field.

Most people who have staph or MRSA on their skin do not have infection or illness caused by staph. These people are "colonized" with staph. Staph infections start when staph gets into a cut, scrape or other break in the skin. People who have skin infections should be very careful to avoid spreading their infection to others. Steps to prevent spread are listed below.

MRSA skin infections can occur anywhere.

- Some settings have factors that make it easier for MRSA to be transmitted.
- These factors, referred to as the 5 C's, are as follows: **C**rowding, **C**ontact, **C**ontaminated items and surfaces and **C**leanliness.
- While practicing many sports, the 5 C's are common.

Symptoms of an infection caused by MRSA

MRSA is a type of staph, so the symptoms of a MRSA infection and the symptoms of an infection due to other staph are often the same. Pimples, rashes, pus-filled boils, especially when warm, painful, red or swollen, can indicate a staph skin infection. Impetigo is one example of a skin infection that can be caused by staph, including MRSA.

These skin infections commonly occur at sites of visible skin trauma, such as cuts and abrasions and areas of the body covered by hair (e.g., back of neck, groin, buttock, armpit, beard area of men).

Staph, including MRSA, can also cause more serious infections such as severe skin infection, surgical wound infections, bloodstream infections and pneumonia. The symptoms could include high fever, swelling, heat and pain around a wound, headache, fatigue and other symptoms.

Confirming MRSA

MRSA can only be diagnosed by culture and laboratory testing. The laboratory will also perform antibiotic susceptibility testing. Unfor-

tunately, misdiagnosis or delayed diagnosis of MRSA infection can result in delayed treatment and more serious complications.

Treatment of MRSA infections

Most MRSA infections are treated by good wound and skin care: keeping the area clean and dry, washing hands after caring for the area, carefully disposing of any bandages and allowing the body to heal. Almost all MRSA skin infections can be effectively treated by drainage of pus with or without antibiotics.

Sometimes treatment requires the use of antibiotics. If antibiotics are needed, it is important for the patient to use the medication as directed unless the healthcare provider says to stop. If the infection has not improved within a few days after seeing the healthcare provider, the patient should contact the provider again.

Antibiotic Resistance

MRSA is part of a larger problem of antibiotic resistance. In the long term, *Staphylococcus aureus* may become resistant to many more antibiotics. For this reason it is important that healthcare providers diagnose MRSA early and accurately, prescribe appropriate antibiotics if needed and direct patients to complete the full course of antibiotics as prescribed. At the same time, healthcare providers should be cautious about the unnecessary use of antibiotics, which can contribute to the problem of antibiotic resistance.

MANAGEMENT OF SPORTS FACILITIES and ATHLETES

Environmental cleaning

- All environmental hard surfaces that may come in contact with body fluids should be cleaned¹ and sanitized daily with an EPA-approved disinfectant, including benches, weights, workout machines, etc.
- All floors/wall padding in athletic settings should be washed daily (if room is used).
- Locker rooms, including any shower areas should be cleaned daily, if used. If soap is furnished, it should NOT be bar soap and it should be accessible from a wall dispenser.
- Towels should not be shared. If they are washed at school, they should be washed in soap and water at 71°C (160°F) minimum and dried in a hot dryer.
- Ensure that athletic areas, locker rooms and restrooms all have separate cleaning mops and buckets and that all mops (washable micro-fiber heads or disposable mop cloths preferred), and buckets are cleaned regularly.

Wrestling Room and Mats

- Wipe down padding along walls, benches and door pulls/knobs with a quaternary ammonium (quat) or bleach solution (household bleach diluted 1:100 with water) after practices/matches. Please refer to the manufacturer's directions for recommended contact times for the various disinfectants.
- Clean floors when mats are stored and before mats are used again.
- Use "dedicated" mops to clean athletic areas, and wash mop heads on a regular basis. 'Swiffer'-style mops may be used (with disposable mop cloths that are discarded after each use).
- Mat tape (to cover small holes and small tears on top and bottom surfaces of mats) may be used. Tape mats together for practice as well as for matches to cover up mat sides that are in poor condition.
- Promptly replace mat coverings when there are medium to large holes and/or large areas of excessive wear.
- Clean and sanitize mats before and after practice and matches. When mats are rolled up, all sides of mats should be cleaned before they are rolled up.

- Use "dedicated" mop heads to clean mat surfaces. Wash these mop heads on a regular basis.

Weight Room

- Replace all torn and worn out padding on weight machines.
- Place wall dispensers with 60% alcohol-based (or greater) hand sanitizer at entrances/exits inside weight room. Athletes/coaches should be instructed to use hand sanitizer when entering and leaving weight room (minimum use, may use more often). If hands are visibly dirty, they should use soap and water to wash before entering the weight room.
- Remove tape from weight bars and grips. (Metal surfaces are easier to wipe down.)
- Wipe down grips on weights and lifting belts at least daily.
- Clean floors, benches, supports, pads, light switches and door pulls/knobs daily.

Locker Rooms/Shower Rooms

- Provide wall-mounted dispensers for soap in shower room (next to showers).
- Soap dispensers should have disposable soap "unit" refills.
- Provide adequate shower facilities in new and remodeled schools.

Sports Equipment

- Schedule regular cleanings for sports equipment: balls (football, basketballs, baseballs, softballs, volley balls), racket grips, bats, gloves, pads, etc.
- Clean and sanitize sports equipment that comes in direct contact with the skin of players, such as wrestling headgear, football helmets and fencing equipment (including wires) after each use.

First Aid

- Hand sanitizer (60% alcohol or greater) is in first aid kit – to be used when soap & water is not available.
- When caring for any athlete injury, disposable gloves are used and hands are sanitized, both before and after providing first-aid.
- Scoops are used (not hands) to take ice out of cooler to make ice packs for injuries. Scoop is cleaned daily when in use and NOT stored in ice container.
- Single-use portions of antibiotics, salves and other ointments are removed from any larger dispensing unit prior to application. Any unused product is NOT returned to the original dispenser, but discarded.
- Athletes with open, potentially contagious wounds are kept from participating in contact sports until wounds have healed. Athletes are prohibited from wrestling until wounds have healed—even if wounds are covered.
- Athletes with potential skin infections are referred to the team physician or their own medical provider.

Coach

- Include 60% or greater alcohol-based hand sanitizer in coach's first aid kit so that coaches/trainers will always be able to sanitize hands before and after caring for each injured player when soap and water is not readily available.
- Have disposable gloves readily available in first aid kit for use when caring for the scrapes and cuts of players. Use gloves once then discard, wash hands or use hand sanitizer immediately after removing gloves.
- Check athletes for skin infections before practice or games/matches. Do not let athletes participate in wrestling if they have potentially contagious wounds, even if covered. Consider not letting athletes participate in any contact sport if they have a potentially contagious wound.
- Refer athletes with potential skin infections either to the team physician or their own medical provider. Culturing wounds should be encouraged.

- Use scoop (not hands) when taking ice out of cooler to make ice packs to treat sports injuries. Also, clean scoop daily when in use and do not store scoop in ice cooler.
- Do not have shared “drinking” water bottles; each player should have his/her own water container.
- Shower immediately after matches/games/practices when there is physical contact with the athletes.

Athlete

- Remind athletes that washing their hands with warm, soapy water frequently is one of the best things they can do to prevent MRSA and other diseases.
- Strongly encourage showering with soap and water immediately after practice/games/matches.
- Remind athletes NOT to share personal hygiene items (bar soap, towels, razors), clothing or water bottles.
- Remind athletes NOT to share antibiotics or ointments and salves.
- Remind athletes NOT to touch other peoples’ skin infections.
- Remind athletes NOT to touch face, nose or groin while in practice/matches/games.
- Ask athletes to consider refraining from cosmetic shaving.
- Ask athletes to treat any draining wound as a potential skin infection.
- Encourage athletes who use the weight room to wear workout clothing that minimizes contact with benches, weight equipment, etc.
- Remind athletes to wear practice clothes/uniforms only once, then wash them with soap and water and dry in a hot dryer.
- Remind athletes to report skin abrasions, wounds and potential skin infections to a coach/trainer and/or the school nurse.
- Ask athletes to avoid whirlpools or common tubs. Individuals with scratches or open wounds can easily infect others in this kind of environment.
- Inform parents of all these precautionary measures.

Education of Athletes/Parents

- Athletes are encouraged to follow good hygiene practices, including frequent hand washing, showering immediately following each practice or competition and NOT sharing “drinking” water bottles.
- Athletes are instructed to NOT share personal hygiene items (bar soap, razors etc.), or topical ointments, antibiotics and salves.
- Athletes are encouraged to promptly report abrasions, lacerations or skin infections to a coach/team trainer, or school nurse.
- Athletes are encouraged to refrain from cosmetic shaving and from using whirlpools or common tubs.
- Athletes who use weight room are encouraged to wear workout clothes that minimize skin contact with benches and equipment.
- Athletes are reminded to wash practice clothes/uniforms with soap and warm water and dry in a hot dryer.
- Patients are informed of infection control precautionary measures, such as the importance of hand washing, showering immediately after sports activities and washing practice clothes/uniforms after they are worn once.

Outside Groups Using High School Athletic Facilities

- Continue to ensure that custodians know schedule for outside events and are available to clean before students use any of the equipment/facilities.
- Instruct outside groups to use the “standard school-recommended” cleaning products if they are responsible for any cleaning (i.e. wrestling mats, weight room equipment, shower facilities).

General Prevention of MRSA

Early treatment is crucial in stopping these infections from causing serious harm. The location of the wound will determine which steps need to be taken to best prevent spread.

HAND WASHING or use of hand sanitizers IS THE MOST IMPORTANT STEP IN PREVENTING MOST INFECTIOUS DISEASES.

Personal Protection from getting MRSA

You can protect yourself by:

- practicing good hygiene (e.g., keeping your hands clean by washing with soap and water or using an alcohol-based hand sanitizer and showering immediately after participating in exercise)
- covering skin trauma such as abrasions or cuts with a clean dry bandage until healed
- avoiding sharing personal items (e.g., towels, razors) that come into contact with your bare skin; using a barrier (e.g., clothing or a towel) between your skin and shared equipment such as weight-training benches
- maintaining a clean environment by establishing cleaning procedures for frequently touched surfaces and surfaces that come into direct contact with people’s skin.

Correct hand washing technique:

When using soap and water:

1. Wet hands with warm running water.
2. Apply liquid soap to palm of hand.
3. Vigorously rub hands together working soap into a lather and covering all surface of wrists, hands, fingers and under fingernails for at least 15 seconds.
4. Rinse hands with water and dry thoroughly with a clean disposable towel.
5. Turn off faucet with a towel.

When using alcohol-based hand rub:

1. Apply product to palm of one hand (see product instructions for amount).
2. Rub hands together, covering all surfaces of hands, fingers and nails thoroughly.
3. Continue to rub until hands are completely dry.

When to wash:

- After any contact with your nose, mouth, eyes, ears, groin, anus, blood, or bodily fluids (includes, sneezing, coughing, blowing your nose, rubbing eyes, eating, using the restroom, etc.).
- Before and after direct contact with another person or their belongings especially if infected or a known carrier.
- Wash hands before coming into and leaving the sports facility.
- Anytime hands are visibly dirty or soiled.

Some other recommendations include:

- Draining wounds should be kept covered.
- Other persons should not come into contact with an athlete’s infection or wound.
- Non-contact activities are permissible if the wound is covered at all times and the athlete practices good hygiene—frequent hand washing, showering and wearing clean clothes.
- Contact activities should be suspended until the wound is completely healed
- Clothes and other laundry should be washed normally with hot water and normal detergents. Laundry should be dried on the hottest setting.
- Discourage the sharing of personal care items, towels, sheets, etc.
- Use liquid soap instead of shared bar soap that is mild and non-irritating.

- Keep nails neatly trimmed short and free of debris under the nail.
- Do not add soap to a partially empty soap container. This can lead to bacterial contamination.
- Use moisturizers or hand lotions to keep skin healthy.
- Clean the facility and used recreational equipment daily with a commercial disinfectant or a daily prepared solution of 1:100 bleach and water mix (1 tablespoon bleach in 1 quart of water).

Preventing spread to others

- Cover your wound. Keep wounds that are draining or have pus covered with clean, dry bandages until healed. Follow your health-care provider's instructions on proper care of the wound. Pus from infected wounds can contain staph, including MRSA, so keeping the infection covered will help prevent the spread to others. Bandages and tape can be discarded with the regular trash.
- Clean your hands frequently. You, your family and others in close contact should wash their hands frequently with soap and water or use an alcohol-based hand sanitizer, especially after changing the bandage or touching the infected wound.
- Do not share personal items. Avoid sharing personal items, such as towels, washcloths, razors, clothing, or uniforms that may have had contact with the infected wound or bandage. Wash sheets, towels and clothes that become soiled with water and laundry detergent. Use a dryer to dry clothes completely.

Practical Advice for Teachers

- If you observe children with open draining wounds or infections, refer the child to the school nurse.
- Enforce hand hygiene with soap and water or alcohol-based hand sanitizers (if available) before eating and after using the bathroom.

Advice for School Health Personnel

- Students with skin infections may need to be referred to a licensed health care provider for diagnosis and treatment. School health personnel should notify parents/guardians when possible skin infections are detected.
- Use standard precautions (e.g., hand hygiene before and after contact, wearing gloves) when caring for non-intact skin or potential infections.
- Use barriers such as gowns, masks and eye protection if splashing of body fluids is anticipated.

Need More Information:

Always address any concerns or questions about correct treatment to your healthcare provider.

More information can also be obtained from your parish health unit, or the Infectious Disease Epidemiology Section of the Louisiana Office of Public Health and the Centers for Disease Control and Prevention (CDC) websites listed below.

Louisiana Office of Public Health Infectious Disease Epidemiology
[http:// www.infectiousdisease.dhh.louisiana.gov](http://www.infectiousdisease.dhh.louisiana.gov)

CDC Get Smart Program
<http://www.cdc.gov/drugresistance/community/index.htm>