

MRSA Update

The media spotlight on the "superbug" methicillin-resistant Staphylococcus aureus (MRSA) persists. Although more is known about it every day, MRSA continues to be a health concern. It is responsible for approximately 60 percent of all skin infections seen in hospital emergency rooms and 19,000 deaths annually.

Staphylococcus aureus (staph) is a bacteria normally found on the skin or in the nose of 20 to 30 percent of healthy individuals. When staph is present without causing symptoms it is called colonization. If symptoms are present, it is considered an infection. MRSA is a strain of staph that is resistant to methicillin, an antibiotic in the same class as penicillin.



MRSA infections occur when an organism penetrates the skin, usually through a small wound. MRSA can be recognized by tender, red and irritated skin. It often looks like a pimple or abscess. Most cases resolve quickly with incision and drainage performed in a physician's office and antibiotics. The concern is that in some people MRSA can spread rapidly. A minority of people become so ill they require hospitalization. MRSA is rarely fatal in healthy individuals. Prompt recognition and treatment are important to avoid serious complications.

MRSA usually is found in people who have been hospitalized or treated recently at a healthcare facility. Community-associated MRSA (CA-MRSA) infections generally appear in healthy people who have **NOT** been hospitalized or had a medical procedure within the past year. CA-MRSA outbreaks typically develop in people who live or work in crowded settings, or routinely share contaminated items. Poor personal hygiene practices and/or lack of proper cleaning and disinfecting of equipment surfaces are considered to be contributors to the spread of CA-MRSA among athletes.

To address this, the Centers for Disease Control and Prevention issued guidelines in 1981 and updated them in 2008 to help educate the public about the potential risks of MRSA. These updated guidelines include:

Practice good hand hygiene

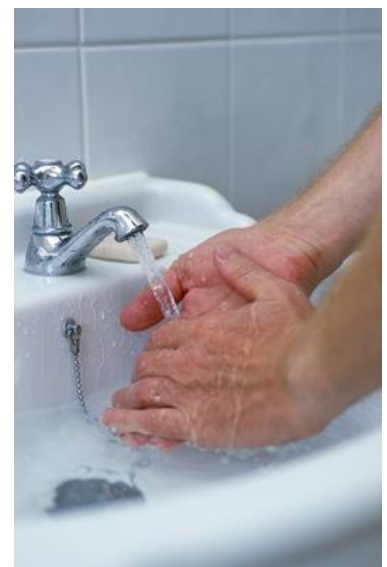
- Wash thoroughly with soap and warm water or use an alcohol-based hand sanitizer with at least 60 percent alcohol content if hands are not visibly dirty.
- At a minimum, hands should be cleaned before and after playing sports and activities with shared equipment such as weight-training equipment, when caring for wounds including changing bandages, and after using the toilet.

Avoid whirlpools or common tubs

Avoid sharing towels, razors and daily athletic gear

- Shower immediately after exercising and DO NOT share bar soap or towels.
- Wash uniforms and workout clothes after each use and dry them completely in a dryer, if possible.

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Maintain clean facilities and equipment

- Establish routine cleaning schedules for shared equipment.
- Never assume surfaces have been cleaned. Take precautions to use barriers like a towel or clothing between the skin and surface especially on exercise equipment and on benches in saunas and steam rooms.

Care and cover skin lesions appropriately before participation

- Avoid contact with other people's wounds or material contaminated from wounds.
- Always practice hand hygiene before and after changing bandages and after throwing them in the trash.
- Keep wounds and skin infections properly covered until healed. Affected areas should be covered by a securely attached bandage or dressing that will contain drainage and remain intact throughout the activity.
- If the wound cannot be properly covered, consider excluding the athlete from practice or competition until affected area is healed or can be properly covered.

Inform or refer to appropriate healthcare personnel for all active skin lesions and skin infections that do not respond to initial therapy

- Train student athletes, coaches and athletic trainers to recognize potentially infected wounds and seek first aid.
- Encourage coaches and sports medical staff to regularly assess for skin lesions.
- Encourage healthcare professionals to seek bacterial cultures to establish a diagnosis.

MRSA experiments fly on last space shuttle mission to help find a vaccine



NASA astronauts aboard space shuttle Endeavour's final mission to the International Space Station (ISS) in June 2011 completed a research payload for Astrogenetix, a commercial biotech company in Austin, Texas. The research focused on changes that occur to methicillin-resistant Staphylococcus aureus (MRSA) and Salmonella in microgravity to identify possible vaccines. Previous spaceflight results successfully identified genes in MRSA associated with the virus.

"By understanding the specific biological changes that cause the development of more virulent bacteria we can develop better therapeutics and vaccines," said Dr. Jeanne Becker, chief science officer for Astrogenetix. "We can now begin to target these changes specifically caused by microgravity and better control diseases."

With the data obtained from the space shuttle missions, Astrogenetix intends to enter the Food and Drug Administration's (FDA) clinical trial process trials within the next year. According to a company spokesperson, commercial vaccine availability will depend upon the FDA approval process which could take several years.

"Until there is a MRSA vaccine or improved antibiotics, it is important to follow guidelines (like those previously mentioned) that encourage good personal hygiene at home, at work and at athletic facilities," said Steven Chudik, orthopaedic surgeon, sports medicine physician and founder of the Orthopaedic Surgery and Sports Medicine Teaching and Research Foundation. "This currently is our best defense against spreading MRSA infections."

