

Active Bones

December 2011

Dear Reader:

This month, our focus is on methicillin-resistant *Staphylococcus aureus*, or more commonly known as MRSA. It continues to be a public health concern so we feel it is important to review the topic, as well as proper hygiene procedures. While researching MRSA updates, we discovered an interesting article on MRSA experiments aboard the space shuttle Endeavour. Many of today's technologies can be traced to space expedition innovations and research. Perhaps a MRSA vaccine will be another.

Research also is ongoing at OTRF. We're actively looking to develop better and less invasive arthroscopic methods to prevent and repair injuries and degeneration, and preserve the function of the musculoskeletal system. Like so many 501-C3 organizations, our work is dependent upon the generosity of others. I know these are difficult economic times for many people. However, should you wish to consider OTRF in your charitable giving, please speak to Dr. Chudik or a member of his staff. They can provide a charitable gifts form for you.

As always, thank you for your continued interest in OTRF.



Steven Chudik, MD
President OTRF



ORTHOPAEDIC SURGERY AND SPORTS MEDICINE
TEACHING AND RESEARCH FOUNDATION

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."



Orthopaedic Surgery and Sports Medicine Teaching and Research Foundation Helps People Stay Fit and Healthy

Steven Chudik, orthopaedic surgeon and sports medicine physician with the Steven Chudik Shoulder and Knee Injury Clinic, founded the Orthopaedic Surgery and Sports Medicine Teaching and Research Foundation (OTRF) in 2007. OTRF is a nonprofit, 501-C3 organization dedicated to funding research and education for the purpose of keeping people active and healthy.

In an effort to prevent injury and remain active, especially for young athletes, Dr. Chudik saw a growing demand by patients, athletic trainers and clinicians for up-to-date medical information and unbiased research on injury prevention, arthritis and wear and tear on the musculoskeletal systems such as joints, cartilage, tendons, ligaments, etc. To meet these needs, OTRF produces and distributes this newsletter, shares information about health performance-related issues like nutrition and fitness, hosts athletic training educational programs, conducts seminars for healthcare providers and the community and most important, funds unbiased research and development particularly in emerging areas such as arthroscopic and minimally invasive surgery for injuries to the meniscus, labrum, rotator cuff, ACL and cartilage.

However, none of this is possible without ongoing financial support. We are extremely grateful to all those who have contributed in the past. Many of the donations came from patients or their family members who benefited from Dr. Chudik's orthopaedic and sports medicine expertise. If you might be interested in helping us continue our research, please speak with Dr. Chudik or a member of his staff. Also, many companies sponsor programs that match charitable contributions made by their employees. Some even match donations made by retirees and/or spouses. Matching gift programs are a great way to double your generosity. Regardless the amount, every contribution helps make a difference.

Thank you for your interest in our newsletter, **Active Bones**, and the work of OTRF.

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