

# Skin Infections in Young Athletes Demand Vigilance

BY SUSAN LONDON  
Contributing Writer

VANCOUVER, B.C. — Managing skin infections in young athletes can be more challenging than in the general pediatric population, because close physical contact and use of shared equipment can lead to rapid spread of infections and outbreaks.

In addition, some athletes with skin infections must be cleared by a physician to return to play and will try to hide symptoms. “You are going to be tricked and . . . athletes are going to try to make lesions look like something else,” Dr. Andrew Gregory said at a meeting on pediatric and adolescent sports medicine sponsored by the American Academy of Pediatrics. They may try to abrade lesions with sandpaper, cover them with makeup, or bleach them.

“If methicillin-resistant *Staphylococcus aureus* [MRSA] is not in your community yet, it is going to be,” Dr. Gregory predicted, noting the prevalence of outbreaks on athletic teams in recent years.

Good hygiene is key to preventing MRSA, said Dr. Gregory of the departments of orthopaedics and pediatrics at Vanderbilt University, Nashville, Tenn.

Coaches and certified athletic trainers should encourage athletes to shower and clean their equipment regularly with soap and water and to avoid sharing equipment, clothing, towels, and razors. In addition, he recommends cleaning any shared equipment and surfaces with alcohol-based hand-sanitizing gels in training rooms, locker rooms, and bathrooms.

When MRSA is detected in one athlete, coaches and athletic trainers should talk with others on the team to see if any of them have lesions, Dr. Gregory advised. Treatment of MRSA in this population is the same as that in other children and adolescents—in-cision and drainage and antibiotic therapy appropriate for that specific community.

According to recommendations from the Centers for Disease Control and Prevention, athletes with any staphylococcal infection—including MRSA—should receive oral antibiotic therapy for a mini-



mum of 3 days of before returning to play sports involving skin-to-skin contact, he noted (see [www.cdc.gov/ncidod/dhqp/ar\\_MRSA\\_AthletesFAQ.html](http://www.cdc.gov/ncidod/dhqp/ar_MRSA_AthletesFAQ.html)).

Dr. Gregory cautioned, physicians and administrators should beware of sales pitches for products such as turf coatings that promise to protect athletes from MRSA. “There is no evidence that they do what they claim,” he said.

DR. GREGORY

Tinea infection, called tinea gladiatorum in wrestlers, was historically attributed to dirty mats, but efforts to culture the fungus from this source have failed, so it is now believed to be passed primarily by skin-to-skin contact, Dr. Gregory said. “These lesions are tough to diagnose when they are pretty small, before they get the central clearing,” he observed.

Treatment consists of topical antifungal agents as first-line therapy and oral ones as second-line therapy. Wrestlers with this infection must be withheld from practice and competition until they have had treat-

ment for 48-72 hours, and simply covering lesions is inadequate, Dr. Gregory said. He also recommended considering antifungal prophylaxis when athletes have recurrences or when outbreaks occur.

Herpes simplex I infection is spread by direct skin-to-skin contact and is also common among wrestlers, in whom the infection is called herpes gladiatorum. Typically, there are lesions on the right side of the head, related to the starting position for this sport, and it is important to prevent infection from spreading to the eye. “It is a little bit difficult to tell that this is a herpes infection initially, before you get that characteristic vesicular rash,” he commented.

Physicians should be suspicious whenever they see wrestlers with a raised erythematous rash. “The key is to recognize it early and initiate treatment,” Dr. Gregory said, with an appropriate course of an antiviral such as acyclovir. Antiviral prophylaxis should be considered for athletes with recurrences or when outbreaks occur.

Most physicians agree that wrestlers with herpes infections can return to play after all of their lesions have crusted, he said.

He reported having no conflicts of interest in association with his presentation. ■

## Stewardship Program Explores Antimicrobial Use, Resistance

BY JEFF EVANS  
Senior Writer

BETHESDA, MD. — The antimicrobial stewardship program at the health sciences center of West Virginia University, Morgantown, has been successful in reducing resistance in some pathogens, while generating more questions about others, according to Dr. Arif R. Sarwari, the program’s director.

In its first 5 years, the program at the tertiary care teaching hospital principally used prospective auditing methods and protocols for antibiotic cycling, coupled with educational strategies, to reduce the use of specific antibiotics and, in some instances, see a drop in rates of resistance.

Such results may not have been possible without the support and involvement of administrators and clinicians from different specialties, many of whom are members of the university’s Antimicrobial Review Subcommittee and participated in the creation of the program. Cooperation is necessary because the interventions needed in various departments may differ and may cross a variety of disciplines, Dr. Sarwari said at an annual conference on antimicrobial resistance sponsored by the National Foundation for Infectious Diseases.

The antimicrobial stewardship program began in 2003 and follows many of the recommendations formulated in guidelines issued by the Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America (Clin. Infect. Dis. 2007;44:159-77), said Dr. Sarwari, who is a member of the committee.

It is unclear which combinations of modalities for reducing antimicrobial resistance work best, and “until I have 15 different institutions using 15 different combinations and putting their results out there, how do I know which one works and which one doesn’t? This was our attempt to put out what we think is a sensible approach,” Dr. Sarwari said in an interview.

Although many hospitals have programs to monitor and reduce antimicrobial resistance, most simply restrict the use of certain agents by having one person who approves or denies their use. But West Virginia University prospectively audits antimicrobial use and resistance

every 6 months, and implements changes through educational interventions.

This helps to avoid an “us versus them” phenomenon and should help to sustain the program over the long term, Dr. Sarwari said. “Unless you have a buy-in from the end users, this will not work.”

Although it was relatively simple to decide to define antimicrobial use through the measurement of defined daily doses per 1,000 patient-days, it took about 6 months of effort to convert data that are captured for billing purposes into data that can be used longitudinally, he said. To inform hospital administrators, the program also tracked the proportion of the pharmacy budget spent on antimicrobial drugs.

Educational programs were established to encourage or discourage the use of select antimicrobial agents, while strategies to promote the use of alcohol-based hand sanitizers were put in place. In addition, the committee made a pocket-card guide available on an educational Web site. The card featured choices of antimicrobials for various clinical scenarios, listed the susceptible proportion of microorganisms that had been identified for that particular year, and gave the top three choices of antimicrobial agents for a particular pathogen (as perceived by the institution). It also noted if a pathogen had shown a 10% or greater rise in resistance to particular drugs during the past year.

Interventions centered on the principle of cycling the selection of antimicrobial drugs based on local surveillance of resistance rates, and were tailored for different units of the hospital. For example, with help from ICU intensivists, the committee developed a ventilator-assisted pneumonia protocol that incorporated a strategy of de-escalating antibiotic therapy from broader to more specific pathogen coverage, and the bone marrow transplant unit created a febrile neutropenia protocol.

The committee members decided not to keep a very restricted formulary except for quinolones, because more than half of the *Pseudomonas* strains in the ICU were resistant to ciprofloxacin, Dr. Sarwari said.

During the first 5 years of the stewardship program (2003-2007), the number of defined daily doses per 1,000 patient-days of quinolones declined by 81%; the same de-

defined measure of ceftazidime declined by 37%, he said. The committee saw a concomitant rise in the use of agents that were designated to replace quinolones and ceftazidime (aminoglycosides and cefepime, respectively). At the same time, the antimicrobial drug proportion of the pharmacy procurement budget declined from 16% to 8%.

Changes in drug resistance during the period yielded “mixed results,” Dr. Sarwari said. During 2004-2006, rates of ciprofloxacin resistance for *Pseudomonas* declined from 38% to 22% and for *Acinetobacter* from 25% to 0%. In 2007, these rates rose again to 34% and 16%, respectively. In the same time period, resistance to ciprofloxacin gradually increased in *Escherichia coli* from 7% to 20%. *Klebsiella* resistance to ceftazidime remained stable at about 5%.

The proportion of nosocomial bacteremia cases caused by methicillin-resistant *Staphylococcus aureus* declined from 20% to 10%, whereas rates for bacteremia caused by vancomycin-resistant enterococci held steady at about 7%.

It is possible that in some cases the replacement agents continued to foster resistance to the antibiotics the hospital had stopped using, Dr. Sarwari suggested. Although this theory to explain the findings is not new, future studies may be able to discern how the use of one antibiotic affects resistance to another drug or class of drugs.

In a separate poster presentation, Dr. Sarwari and his coinvestigators reported that antibiotic use and resistance rates in an ICU were similar to the results for the hospital as a whole.

Dr. Sarwari said he thinks that a program similar to WVU’s could work well at small community-based hospitals, especially if they incorporated only the most important elements of the program.

The hospital’s antimicrobial stewardship program “appears to be reasonably successful in affecting institutional use and resistance, but I’m not sure it has [had much] influence on the problem of imported resistance,” Dr. Sarwari said.

In the future, “the big thing we want to try to introduce is some form of molecular microbiology to better get a sense of how many resistant bugs are new strains versus the same strains being passed around due to poor infection control.”

Dr. Sarwari disclosed no conflicts of interest. ■