

MRSA – Is It A Public Health Risk?

In response to the recent coverage in the area with many publicized cases of methicillin-resistant *Staphylococcus aureus* (MRSA), it is necessary to present a more realistic look at this type of prevalent staphylococcal infection.

In 1947, four years after penicillin began being mass produced, there were documented cases of *Staphylococcus aureus* being resistant to penicillin. Methicillin is a derivative of penicillin, and when talked about in terms of resistance, Methicillin resistance means resistance to all penicillin derivatives. Methicillin-resistant *Staphylococcus aureus* has been seen since the 1960's. MRSA was originally found in the hospital setting, being most prevalent in patients that had a history of hospitalization, recent surgery, long-term-care residence, and previous MRSA infection or colonization.

MRSA is a very potent bacterial infection, which if left untreated can cause significant health problems. The strains of MRSA which are seen in hospitals are more severe than the strains that have been occurring in the community. The most common manifestation of a MRSA infection out of the hospital is skin and soft tissue infections (SSTIs). This initially may manifest as a "spider bite," a small pimple looking area which is more painful than a normal pimple would be, and is also extremely red. Any skin lesion that presents in this manner, in a strange location, such as on legs or arms should be seen by a physician immediately for identification. The "spider bite" presentation if left untreated can progress into a boil or a large hair follicle infection (furuncle). Many of these larger skin infections may require a physician to drain the wound and then culture the drainage to determine which antibiotic would be the best suited to treat that specific bacteria. MRSA can be potentially dangerous because it possesses a chemical (coagulase) which causes the bacteria to wall itself off in the body, and prevents blood flow from getting to the site of infection. This means antibiotics and white blood cells have a difficult time getting to the infection to kill the bacteria.

Despite the potential severe consequences, MRSA infections can be treated extremely effectively without any serious complications. The key to handling MRSA is prevention. The foundation of infectious disease prevention is personal hygiene. If individuals, especially those in group settings such as athletes, college students living in dormitories, people sharing any kind of equipment (health clubs), are aware of their risk and implement simple steps to maintain personal and environmental cleanliness, the risk of acquiring a MRSA or other skin infections is greatly reduced. Washing hands and dirty clothes (gym clothes) frequently, and making sure that equipment that is used by many individuals is consistently cleaned is crucial in preventing MRSA outbreaks. MRSA has also been seen more frequently in the athletics setting. The University of Southern California reported 14 cases between 2002 and 2004 on their football team alone! When wounds on the skin are present, it is important for that individual to cover the wound properly in order to reduce the risk of contact with MRSA or other pathogens. Awareness is important when beginning prompt and effective treatment. Athletes and students should report any strange looking skin lesion to the school nurse or athletic trainer for proper wound care and to initiate physician treatment. With proper wound coverage, an individual with a MRSA infection that is not complicated, may not need to be excluded from school or athletics. Complications with MRSA skin infections can occur when treatment is delayed, and when individuals are not compliant with the

treatment program. Patients must be sure to take their antibiotics as directed, and to finish their entire prescription, even when the symptoms clear. It is essential that patients follow the treatment program rigorously in order to prevent further antibiotic resistance or recurrent infections.

When recognized and treated promptly, MRSA infections can resolve quickly and without concern. It is important for individuals at risk (those who were hospitalized, and people in group settings where skin contact occurs) to be proactive enough to practice good hygiene. With frequent hand washings, or using alcohol based hand cleansers, the risk of acquiring a MRSA infection decreases substantially. Even with a reported MRSA infection at work, or in schools, it is not necessary to postpone activity. As long as the individual(s) are being treated properly, and adequate hygiene and facility maintenance are being practiced, the probability of acquiring the infection is very small.