MRSA in Schools: What You Need To Know To Protect Yourself and Your Children

With the beginning of a new school year and sports season upon us, there is an emerging infection control issue that is sweeping the nation among school aged children and in particular among athletes. Last autumn, Nicholas Johnson, a healthy, 12-year-old football player from Stafford, Texas was sent to the doctor with a minor shoulder injury. Nicholas would spend the next five weeks in the hospital battling for his life. "He was like a stroke victim when he came out of the hospital," said Nicholas' mother, Janet. "He was on a ventilator for 12 days. It was the scariest thing I ever went through."[1] Nicholas was infected by a deadly new bacterium named MRSA or methicillin resistant *Staphylococcus aureus* that is plaguing the United States.

According to the Centers for Disease Control and Prevention (CDC), *Staphylococcus aureus*, commonly known as "Staph," are bacteria frequently carried on the skin or in the nose of 25 to 35 percent of healthy people.[2] In most cases, the presence of these bacteria is normal and does not present a health concern. But sometimes, Staph can invade the body through an open wound and cause an infection. In most cases, these infections are minor and can be treated with antibiotics. Methicillin is type of antibiotic used to treat staph infections. In some cases, the bacteria may become resistant to methicillin and may become more difficult to treat, thus the emergence of MRSA.

The emergence of MRSA outside the hospital is a threat doctors have worried about for years. Often called a "superbug," MRSA is a germ that commonly used antibiotics won't kill.[1] In fact, many doctors believe the overuse of antibiotics is one contributing factor to their virulence. Emerging infectious diseases are the third-leading cause of death in the United States.[3] MRSA can cause skin infections that may look like a pimple or boil and can be red, swollen, painful, or have pus or other drainage. In many cases, it is often initially mistaken for a spider bite. More serious life-threatening infections may include surgical wound infections, bloodstream infections and pneumonia if not treated.

A New Arena for Infection

In the past, Staph infections such as MRSA, have been attributed to persons with weakened immune systems such as those being treated in hospitals and nursing homes. More recent data, however, suggests the increasing amount of MRSA infections are community-associated (CA-MRSA) and acquired by persons who **have not** been recently (within the past year) hospitalized or had a medical procedure.[2] Although the actual prevalence of community-acquired MRSA infections cannot be accurately determined at this time, it has been estimated that up to 40% of adult cases alone may be acquired outside the hospital setting.[4]

The Centers for Disease Control and Prevention has investigated clusters of CA-MRSA skin infections among school-aged children, particularly athletes. In 1999, 4 pediatric deaths from MRSA infection were reported among children aged 12 months to 13 years in Minnesota and North Dakota.[5] Factors that have been associated with the spread of CA-MRSA skin infections include: close skin-to-skin contact, openings in the skin such as cuts or abrasions, contaminated items and surfaces, and crowded living conditions such as dormitories. MRSA almost always spreads by direct physical contact with the bacteria. This may include contact with an infected person or by touching objects contaminated with the bacteria, such as towels, sheets, wound dressings, hands, clothes or sports equipment. If MRSA is in the nose or lung it may be passed around by droplets spread from mouth and nose.

Studies have shown that MRSA is capable of prolonged survival on everyday surfaces, with bacteria growths evident 24 hours after contamination.[6] Some potentially harmful bacteria can survive for

prolonged periods of time on the keyboards and keyboard covers of computers, and experts advise periodic cleaning of the equipment, and hand washing after every computer use.

Prevention

There are many things that we can do to prevent the spread of MRSA in our schools and our communities. As basic as it may sound, stressing the importance of good hygiene is vital in preventing the spread of MRSA in our schools and locker rooms. "These infectious agents are resistant to some of our strongest drugs, but they do not resist hand washing," said Dr. Dan Jernigan, a medical epidemiologist with the CDC. "It's funny that even with the technology we have, the simple interventions … remain the most effective way to prevent disease." [1]

Prevention for the Spread of MRSA in Day Care and Primary School Environments:

1. Cots, toys and diaper cleaning changing surfaces should be cleaned and sanitized thoroughly on a regular basis with a phenol or chlorine wipe such as liquid Lysol.

2. Parents and children should wash hands or use an alcohol-based hand sanitizer immediately upon entering the facility or classroom in the morning or after outside play.

3. Cuts and scrapes should be cleaned with soap and water and covered with a bandage until healed. Caregivers should always use gloves when applying or changing bandages and wash hands immediately afterwards.

4. At school, children should not be permitted to share personal items such as blankets, mats, or clothing.

Prevention for the Spread of MRSA in Secondary School and Athletic Environments:

1. Keep your hands clean by washing thoroughly with soap and water or using an alcohol-based hand sanitizer. Use the 15 second rule while washing hands, this is just enough time to sing the alphabet song.

2. Avoid sharing personal and skin care items such as clothing and balms or moisturizers.

3. Keep cuts and scrapes clean and covered with a bandage until healed.

4. Avoid contact with other people's wounds or bandages, and wash hands immediately after changing a bandage.

5. Seek medical attention immediately if a wound does not heal properly or appears to be infected.

6. Students and teachers should be encouraged to report known or suspected MRSA infections to the school nurse.

7. It is recommended that keyboards be disinfected daily for 5 seconds with chlorine or phenol based wipe such as liquid Lysol.

Prevention for the Spread of MRSA in Athletic Environments:

1. Showering with soap after every practice or tournament. In team locations where soap is often shared, switch to a liquid soap.

2. Avoid sharing personal items such as towels, washcloths, razors, clothing, or uniforms. Never wipe your face with a towel used on athletic equipment.

3. Avoid sharing balms, lubricants, and moisturizers.

4. Wash uniforms, clothes, towels, and sheets that become soiled with water and laundry detergent. Drying clothes in a hot dryer, rather than air-drying, also helps kill bacteria in clothes.

5. Non-washable gear (e.g. head protectors), should be wiped down with a phenol or chlorine based wipe such as liquid Lysol after each use.

6. Athletic equipment such as wrestling or gymnastics mats should be wiped down regularly with an antibacterial solution such as diluted Liquid Lysol.

7. Lockers and benches should be sanitized on a regular basis using disinfectant cleaners.

8. Do not share whirlpools with other team members.

9. Whirlpools in athletic rooms must be emptied and disinfected between uses.

10. Do not shave body skin for wound care or cosmetic reasons.

Treatment

If you think you or someone you know may have a Staph or MRSA infection, you should see a healthcare provider immediately.[2] Early detection and treatment are key in minimizing the potential damage of MRSA. Most Staph and MRSA infections are treatable with specific powerful antibiotics. If you are prescribed an antibiotic it is crucial to complete the full course of antibiotics. Do not stop taking the antibiotic even if the infection is getting better, unless your doctor tells you to stop taking it. Never save unfinished antibiotics to take at a later time or share antibiotics with other people. This may increase your susceptibility to infection in the future. Many MRSA skin infections may be treated by draining the abscess or boil and should only be done by a healthcare provider.

It is extremely important to contact your physician again if the infection is not getting better after a few days. Misdiagnosis of MRSA or antibiotic resistance can lead to higher chance of a life-threatening outcome. If other people you know or live with get the same infection tell them to go to their healthcare provider. It is possible to have a Staph or MRSA skin infection come back after initial treatments.[2] In order to prevent this, follow your healthcare provider's directions while you have the infection and follow the prevention steps after the infection is gone.

For more information on CA-MRSA visit the website for the Centers for Disease Control and Prevention (CDC) at http://www.cdc.gov/ncidod/hip/ARESIST/ca_mrsa_public.htm

For a downloadable video on MRSA prevention in athletic settings visit the website http://www.publichealthgrandrounds.unc.edu/antimicrob_resist/handouts.htm

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