THE CITY OF NEW YORK

DEPARTMENT OF HEALTH AND MENTAL HYGIENE

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2007 Alert 33:
Methicillin resistant *Staphylococcus aureus* infections in school aged children

- **Community-acquired methicillin-resistant *Staphylococcus aureus* (MRSA) skin infections in children are common. Serious illness and deaths are extremely rare.**
- **Single cases of MRSA are not reportable. Please report clusters or cases in which an increased risk of person-to-person transmission exists (see text for details).**

Please Distribute to All Clinical Staff in Internal Medicine, Surgery, Pediatrics, Infectious Diseases, Emergency Medicine, Family Medicine, Dermatology, Laboratory Medicine and Infection Control Staff. Please also share with your non-hospital based primary care colleagues.

October 31, 2007

Dear Colleagues,

The recent death of a12-year-old child in Brooklyn has raised community concern over methicillin-resistant *Staphylococcus aureus* (MRSA) infections occurring in school aged children. Although the Medical Examiner is still investigating the exact cause of death, a blood culture obtained 24 hours postmortem grew MRSA. The child was known to have had a recent skin infection. There have been no secondary MRSA infections associated with this case. **The purpose of this alert is to inform primary and acute care practitioners about community-acquired MRSA infections, offer guidance in diagnosing and treating MRSA infections, and to clarify reporting requirements to the NYC Department of Health and Mental Hygiene (DOHMH).**

Skin and soft tissue infections (SSTIs) in children are common and approximately half are due to *Staphylococcus aureus.* A study published this month reported data from nine sentinel active surveillance sites (Klevens et al. Invasive methicillin-resistant *Staphylococcus aureus* infections in the US. JAMA 2007; 298:1763-71). The study was limited to bloodstream and other sterile site MRSA infections and therefore does not include uncomplicated SSTIs. The authors estimated that 94,360 invasive MRSA cases occur in the US annually, more than were previously believed to occur. MRSA is currently reportable in only a handful of states and the true incidence of MRSA, inclusive of skin and soft tissue infections, is unknown.

The recent media attention given to this common pediatric infection may cause parents to bring children to their physician requesting examination, screening and reassurance. DOHMH conducted a survey of laboratories with high-volume pediatric hospital emergency departments in NYC to estimate the number of MRSA SSTIs in children. We estimate that there were at least 600 laboratory-confirmed MRSA cases in children 5- to 18-years old in NYC in 2006. During the same time period, no deaths due to MRSA in previously well children were found on a preliminary review of death certificates for NYC children less than 18 years of age. **Clinicians should reassure parents that while skin and soft tissue infections are common in children, serious illness is very unusual**. In the article by Klevens referenced above, the death rate among children was reported as 0.1 per 100,000 population, and the rate of invasive infection (positive culture from a sterile site) was 1.4 per 100,000 among 5- to 17-year-old children.

Transmission of MRSA is generally by direct person-to-person contact. The role of fomites or contamination of the environment in community transmission is believed to be minimal. We recommend that all exposed wounds, especially those with draining exudate or pus, be securely covered with a clean, dry bandage in public settings.

Management of MRSA Infections in School-aged Children

MRSA in school-aged children is common and covered wounds present little or no risk of transmission. Children with MRSA should not be excluded from school. MRSA outbreaks or clusters in classroom settings have not been reported. **However, outbreaks among members of sports teams, especially those with a high degree of skin to skin contact, have been reported.**

Individuals involved in contact sports (e.g., football, basketball, wrestling) should have skin and soft tissue injuries regularly viewed by parents, coaches or trainers to assure the injuries are healing normally. Any sign of infection should be promptly evaluated by a medical provider. Because of the nature of the sport, wrestlers with MRSA should not be allowed to participate until their wound has healed and the patient has received medical clearance. Athletes diagnosed with MRSA, other than wrestlers, should be evaluated on a case-by-case basis and excluded from participation only if their wounds cannot be securely covered to prevent leakage of drainage. Care should be taken to ensure that any equipment, towels or clothing which may have contact with the wound are not shared. Please reinforce with your patients that frequent hand washing and personal hygiene are fundamental to preventing MRSA infections.

Diagnosis and Treatment of SSTI

Incision and drainage (I&D) is the preferred treatment for abscesses whenever possible. Practitioners who are not able to perform I&D in their offices should assess the need for the procedure and refer the patient to either a surgeon or an emergency department where the procedure can be performed. **Antibiotic treatment often is not necessary** and the patient should be educated on general wound care. However, culture of the wound or abscess should be strongly considered, particularly if antibiotic treatment is given, the initial regimen has failed, or the infection appears to be severe. Antibiotic therapy should be guided by culture and susceptibility results. As these tests take several days, empiric therapy should consider that MRSA is increasingly recognized in community settings; data from an ongoing DOHMH investigation found that 39% of *Staphylococcus aureus* identified in cultures submitted to a large commercial outpatient laboratory in 2006 were methicillin-resistant. The sample includes patients of all ages and represents patients visiting private medical providers. The Table below presents the susceptibility profile of these isolates to commonly used antibiotics. A review article on the clinical approach to MRSA SSTI was published this summer in the New England Journal of Medicine (Daum S. Skin and soft tissue infections caused by methicillin-resistant *Staphylococcus aureus*. N Engl J Med 2007; 357:380-390).

Colonization by *Staphylococcus aureus* may occur in 20-25% of healthy people; fewer than 1% are colonized by MRSA. Treatment of colonization is not generally recommended as carriage may be transient. Unless a patient has recurrent MRSA infections there is no indication for routine nasal screening. Consultation with an infectious disease specialist before treating colonization is recommended.

MRSA pneumonia is a well-known and potentially fatal complication of influenza infection, including in children. Consider influenza vaccine for your patients at increased risk for influenza-related morbidity and mortality. There is no shortage of vaccine this year. The following pediatric groups should be targeted for influenza vaccination:

- All children 6 months to 5 years.
- All persons 6 months and older with chronic medical conditions, including heart disease, pulmonary disorders (including asthma), diabetes, kidney disease, hemoglobinopathies and compromised immune systems (HIV or immunosuppressive therapy).

For more information on indications for influenza vaccine please visit:
http://www.nyc.gov/html/doh/html/imm/fluhome.shtml

Environmental Cleaning Considerations for MRSA

No special disinfection measures are recommended for schools or offices to eliminate *Staphylococcus aureus* or MRSA from the environment. Humans are the natural reservoir and the organism is ubiquitous. Proper skin care and personal hygiene are the recommended measures to control MRSA in non-healthcare settings. Specific guidance on EPA-registered disinfectants effective against MRSA is available at: http://www.epa.gov/oppad001/list_h_mrsa_vre.pdf

Reporting of MRSA

Please report clusters of MRSA (2 or more confirmed cases with a common association) to DOHMH. Single confirmed cases of *Staphylococcus aureus* and MRSA are not reportable except under the following high-risk categories:

- Children and young adults involved in inter-scholastic, inter-collegiate and competitive sports teams where either shared equipment or use of locker room facilities exists.
- Children in daycare.
- Persons living in congregate settings (e.g., shelters).
- Any unusual circumstances in which wound drainage cannot be contained or a risk of contamination to others exists.
- Any unusual manifestation of disease (e.g., death in a child).

The Department has proposed adding MRSA to the list of reportable diseases. We are **only** asking that laboratories be required to report MRSA through the New York State Electronic Clinical Laboratory Reporting System. Medical providers are **not** being asked to report individual MRSA cases except, as noted above, clusters or individual cases with high risk for exposure to others. MRSA reporting will assist the Department to quantify the burden of illness in NYC, track trends, perform investigations to learn about risk factors and develop prevention messages. A proposal was submitted to the Board of Health on October 24, 2007 and is presently open for public comment until November 28, 2007.

For more information or to comment on the proposal, please visit our website at: http://www.nyc.gov/html/doh/html/notice/notice.shtml

Table- Antibiotic susceptibility profile of community and healthcare-associated MRSA from skin and soft tissue infections diagnosed by a commercial outpatient laboratory, all ages, NYC, 2006

Antibiotic	Percent Susceptible	
	Healthcare associated-MRSA (%) (Healthcare exposure defined as hospitalization, surgery or dialysis in the 3 months prior to onset of infection) N=105	Community associated-MRSA (%) (Patients without healthcare exposure) N=567
Ciprofloxacin	21	30
Clindamycin[1]	43	62
Erythromycin	12	11
Tetracycline	90	82
Trimethoprim-Sulfamethoxazole	99	99

[1] Clinicians should check with their laboratories to ensure that the D-test to examine for inducible clindamycin resistance is performed

Additional information may be found at the Centers for Disease Control and Prevention website:
http://www.cdc.gov/ncidod/dhqp/ar_mrsa_ca.html

The CDC, American Medical Association, and Infectious Diseases Society of America flyer on clinical management of skin and soft tissue infections:
http://www.cdc.gov/ncidod/dhqp/ar_mrsa_ca_skin.html

Strategies for Clinical Management of MRSA in the Community, the summary of an expert panel convened by CDC is available at:
http://www.cdc.gov/ncidod/dhqp/pdf/ar/CAMRSA_ExpMtgStrategies.pdf

CDC's Get Smart Campaign Promoting the Judicious Use of Antibiotics
http://www.cdc.gov/drugresistance/community/

To report a cluster or confirmed high-transmission risk MRSA case, consult on infection control practices, or to obtain additional information, please contact the Bureau of Communicable Disease at:

During business hours:	212-788-9830
After hours, contact the Poison Control Center:	212-764-7667 or 1-800-222-1222 and ask for the Doctor on Call

We appreciate your assistance in addressing the emerging problem of community acquired MRSA in New York City.

Sincerely,

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