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FACT SHEET FOR HEALTH CARE PROVIDERS: Community-Associated Methicillin-Resistant *Staphylococcus aureus* Skin Infections

Staphylococcus aureus is a common etiologic organism in soft tissue infections, and may be found on normal skin in nearly 20% of healthy people. Over the past several decades, infections with methicillin-resistant *Staphylococcus aureus* (MRSA) among hospitalized patients have become common. Recently, MRSA skin infections that are community-associated have been increasingly reported nationally, including fatalities. In 2002, the Los Angeles County Department of Health Services (LACDHS) received a substantial number of reports of community-associated MRSA skin infections occurring in patients of all ages without traditional risk factors for MRSA (e.g. significant exposure to health care or antibiotics). This fact sheet is meant to improve awareness among health care providers that MRSA has emerged as an important etiologic organism in community-associated soft tissue infections.

Definition:

Community-associated MRSA infections are distinguished from hospital-acquired MRSA infections by using the following criteria:

- Diagnosis of MRSA was made in the outpatient setting or by a culture positive for MRSA within 48 hours after admission to the hospital.
- The patient has no past medical history of MRSA infection.
- The patient has no past medical history in the past 1 year of:
  - Hospitalization
  - Admission to a nursing home, skilled nursing facility, or hospice
  - Dialysis
  - Surgery
  - Permanent indwelling catheters or percutaneous medical devices

Clinical Presentation:

MRSA skin infections may present in a number of forms:

- Cellulitis: Inflammation of skin
- Impetigo: Bullous (blistered) lesions or abraded skin with honey-colored crust
- Folliculitis: Infection of hair follicle (like a pimple)
- Furunculosis: Deeper infection below hair follicle
- Carbuncle: Multiple adjacent hair follicles and substructures are affected
- Abscess: Pus-filled mass below skin structures
- Infected Laceration: Pre-existing cut that has become infected

Other manifestations (i.e. blood or joint infections) have been less common, but some patients have required hospitalization for debridement or intravenous antibiotics. Some MRSA skin lesions have been initially misdiagnosed as "spider bites."

Diagnosis:

- Culture of skin lesions is especially useful in recurrent or persistent cases of skin infection, in cases of antibiotic failure, and in cases that present with advanced or aggressive infections. When antibiotics are necessary, LACDHS encourages the use of microbiologic culture to guide appropriate antibiotic selection.
- In the absence of symptomatic infection, culture for MRSA colonization is generally not necessary.

Treatment:

- The first line of treatment for soft tissue infections is incision, drainage, and local care, rather than antibiotic treatment.
- Health care providers should continue prudent management of skin lesions and selective use of antibiotics, as inappropriate antibiotic use has been associated with the development of MRSA infection.
- At this time, LACDHS has no basis to recommend a change from standard practice in the empiric antibiotic treatment of soft tissue infections. The predominant strain of MRSA found in this investigation is resistant to penicillin (including amoxicillin/clavulanate and ampicillin/sulbactam), cephalosporins, erythromycin, and fluoroquinolones. It is not clear whether resistance patterns vary by subpopulations within Los Angeles County.
- If the patient is found to have an MRSA skin infection and antibiotics are indicated, use culture to select an antibiotic the organism is susceptible to. The predominant strain in this outbreak has been susceptible to TMP/SMX (Bactrim or Septra), clindamycin, gentamicin, and rifampin. Dual antibiotic therapy (i.e., TMP/SMX plus rifampin) might be considered. According to laboratory tests by CDC, the predominant MRSA strain in this outbreak has not exhibited inducible clindamycin resistance.
- The role of MRSA decolonization with mupirocin (Bactroban), especially in the community setting, is not yet known. However, there have been reports of mupirocin resistance in the setting of widespread mupirocin use.
- At this time, expert consensus recommendations for the management of community-associated MRSA infections are not yet available; this fact sheet has been developed as interim guidance.

Prevention:

Skin infections with MRSA are thought to be transmitted by close skin to skin contact with another person infected with MRSA or by contact with a fomite or surface contaminated with MRSA.

Risk factors for MRSA skin infection might include exposure to health care settings, jails or prisons; occupations or recreational activities with regular skin to skin contact (i.e. wrestling);

exposure to someone with MRSA; exposure to antibiotics; severe illness; advanced age; and immune suppression.

- Use Standard Precautions to help prevent the spread of MRSA in a health care setting:
- Between patients, wash hands regularly with antimicrobial soap and warm water. When hands are not visibly soiled, alcohol-based hand rubs are effective and have high compliance rates in health care settings.
- Wear gloves when managing wounds. After removing gloves, wash hands with soap and water or use alcohol disinfectant.
- Carefully dispose of dressings and other materials that come into contact with blood, nasal discharge, urine, or pus from patients infected with MRSA.
- Clean surfaces of exam rooms with commercial disinfectant or a 1:100 solution of diluted bleach (1 tablespoon bleach in 1 quart water).
- Launder any linens that come into patient contact in hot water (>160°F) and bleach. The heat of commercial dryers improves bacterial killing.

The CDC website provides additional details on hand hygiene and environmental control in the health care setting:

- http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5116a1.htm
- http://www.cdc.gov/ncidod/hip/GUIDE/handwash_pre.htm

Surveillance

While MRSA is not a reportable disease, health care providers can report to LACDHS unusual clusters of patients with MRSA infections. Otherwise, health care providers can track the characteristics of skin lesions seen in their own practices to identify patterns of antibiotic resistance, which can help identify unusual trends and guide appropriate treatment decisions. Please contact LACDHS if you have questions about instituting surveillance for MRSA within your medical practice.

If you have additional questions, please contact the Acute and Communicable Disease Control Unit, Los Angeles County Department of Health Services, (213) 240-7941, acdc2@dhs.co.la.ca.us.

A fact sheet on MRSA skin infection for patients in both English and Spanish has been developed and is available for download from the Internet at http://lapublichealth.org/acd/

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