Physician Guidelines for Community-Associated Methicillin-Resistant *Staphylococcus aureus* (MRSA) Skin Infections

Background

Staphylococcus aureus is a common etiologic organism in skin and soft tissue infections, and an estimated 20-30% of persons are nasal carriers of *S. aureus*. Methicillin-resistant *Staphylococcus aureus* (MRSA) are resistant to ß-lactam antibiotics, including penicillinase-resistant penicillins (methicillin, oxacillin, nafcillin) and cephalosporins. MRSA has become a well-known source of infection in hospitals and healthcare facilities. In the last few years, infections with an emerging strain of community-associated MRSA (CA-MRSA) have been reported with increasing frequency. **Unlike hospital-associated MRSA (HA-MRSA), CA-MRSA infections often occur in otherwise healthy people without traditional risk factors.**

Hospitals and laboratories in our county now report that upwards of 68% of all *S. aureus* isolates are MRSA. **CA-MRSA is now endemic in Shasta County, and must be considered even if the patient is healthy and no traditional risk factors for MRSA are present.**

Clinical Presentation

MRSA skin infections may present in a number of different forms including cellulitis, impetigo, folliculitis, abscesses (including furuncles and carbuncles), infected lacerations, myositis or necrotizing fasciitis and, rarely, are life-threatening. 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 infections have been initially misdiagnosed as “spider bites.”

Diagnosis

MRSA should be considered in the differential diagnosis of all patients presenting with skin and soft tissue infections as well as those with more severe illness compatible with *S. aureus* infection.

- **If you plan to initiate antibiotics, obtain specimens for culture and sensitivity testing before initiating treatment. This is very important both for infections not responding to therapy and to monitor the changing antibiotic-resistance pattern in CA-MRSA.**

If incision and drainage is not performed, other options include culture of spontaneously draining wounds and/or culture and biopsy of the central area of cellulitis (note: superficial culture of open wounds may yield skin-colonizing bacteria and not the true pathogen).

Management

General principles:

- The first line of treatment is incision and drainage (I & D) if possible, and local wound care. Antibiotics may not be necessary.
- Antibiotics alone without I & D are not recommended for treatment of fluctuant abscesses.
- Antibiotics should be reserved for mild infections that cannot be treated with I & D and for more serious infections.
- Antibiotic regimens should be modified based on culture, sensitivity results and clinical response. For instance, if culture grows methicillin-sensitive *S. aureus*, antibiotics for MRSA should be discontinued.

- Patients should be monitored closely for response to therapy.
- *S. aureus* isolates resistant to erythromycin and susceptible to clindamycin should be evaluated for inducible clindamycin resistance (MLSB phenotype) using a "D test."
- In addition to the above principles which apply to all cases, management should be based on severity of illness:
- For patients with mild illness where suspicion for MRSA is high, consider empiric therapy for MRSA (TMP/SMX, Doxycycline, or Clindamycin). A beta-lactam (e.g., cephalexin or dicloxacillin) may be adequate in cases where clinical presentation is cellulitis without abscess and MRSA is not strongly suspected.
- For patients with moderate illness, empirically treat for MRSA. Depending on severity of presentation, may require initial hospitalization and parenteral therapy.
- For patients who are severely or critically ill, manage as inpatient with empiric broad-spectrum parenteral antibiotics active against MRSA, including vancomycin. Consider surgical intervention. Consult infectious disease specialist if patient does not improve or alternative antibiotics (e.g., linezolid or daptomycin) are being considered.
- 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.

Prevention

- Skin infections with MRSA are transmitted by close skin-to-skin contact with another person infected with MRSA or by contact with a fomite or surface contaminated with MRSA.
- Use Standard Precautions to help prevent the spread of MRSA in a health care setting.
- Between patients, clean hands regularly with soap and warm water or an alcohol-based hand rub.
- Wear gloves when managing wounds. After removing gloves, wash hands with soap and water or an alcohol-based hand rub.
- 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 1:10 solution of diluted bleach (6 tablespoons bleach in 1 quart water).
- Launder any linens that come into patient contact in hot (>160 F) water and bleach. The heat of commercial dryers improves bacterial killing.
- The CDC website provides additional details on hand hygiene and environmental control in the healthcare setting:

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

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