2006 Georgia Guidelines for Management of Suspected Community-Acquired Methicillin-Resistant *Staphylococcus aureus* (CA-MRSA) Skin and Soft Tissue Infections (SSTIs)

Case Definition CA-MRSA

- Diagnosis of MRSA made in outpatient setting or by isolation of MRSA within 48 hours of hospital admission **and**
- No history (within past 12 months) of: hospitalization, surgery, dialysis, long term care residence, indwelling catheter or percutaneous medical devices

Clinical Presentation CA-MRSA SSTI

Common:

- Often mistaken for insect or spider bite
- Pustule, furuncle (boil), carbuncle, abscess

Also seen:

- Cellulitis, impetigo
- Infected wounds: red, swollen, painful

Risk Factors Associated with CA-MRSA

- The main risk factors are prior infection or contact with someone who has CA-MRSA. Prior antimicrobial use may also increase risk
- CDC defines conditions promoting CA-MRSA spread as "the 5 C's": Crowding, frequent skin Contact, Compromised skin, sharing Contaminated personal care items, lack of Cleanliness
- Groups known to have elevated risk include: athletes, military recruits, children, men who have sex with men, prisoners, users of methamphetamine or injected street drugs
- Many persons with CA-MRSA are not in these risk groups

Public Health Notification (1-866-PUB-HLTH or http://health.state.ga.us/epi/disease/report.asp)

- Ask about similar cases of SSTI in household or other close contacts
- Report clusters of CA-MRSA infections in non-household groups such as sports teams or child care centers
- Report CA-MRSA resulting in death or severe disease: invasive (sterile site) infection, ICU care, or requiring major surgery

Incision & Drainage (I & D) of Abscess with Culture

- ***I & D is considered primary therapy for purulent SSTI (furuncle, abscess)***
- Culture is recommended to guide individual therapy and to assess local disease trends and resistance patterns

Culture & Antimicrobial Susceptibility Testing

If erythromycin-resistant, clindamycin-susceptible, obtain "D-test" prior to clindamycin use (see over)

Patient Education

- Counsel patients to contain infection with adequate hygiene and clean, dry dressings that completely cover lesions
- Reinforce frequent hand hygiene and safe dressing disposal
- Advise patient not to share towels, bar soap, or other personal hygiene items. Disinfect surfaces that contact bare skin
- Advise patient to return if systemic symptoms develop, or no better in 48 hours
- Downloadable advice for patients is available at **http://health.state.ga.us/MRSA/**

Outpatient Management of SSTIs (mild/moderate)

- Local care, I & D may be sufficient for mild disease. (Lee MD et al. PIDJ 2004; 23:123-7)
- Consider topical antimicrobials
- The decision to use systemic antimicrobials for SSTI requires clinical judgment regarding severity, size, location, and rapidity of lesion onset, presence of associated cellulitis, systemic illness, patient co-morbidities, and response to drainage alone
- If oral antibiotics used for purulent SSTI, include therapy active against MRSA based on high prevalence in Georgia (King et al., Ann Intern Med 2006;144:309-17)
- Adjust antibiotics based on results of culture & susceptibility testing
  - Cephalexin or dicloxacillin preferred for documented MSSA infection
- Monitor response to therapy

Hospital Management (severe, unstable co-morbidities)

- Empiric therapy for serious staphylococcal infections should include IV antimicrobial active against MRSA (e.g.vancomycin). Some recommend additional coverage optimal for MSSA (e.g. nafcillin) in severely ill, particularly meningitis
- Adjust antibiotics based on results of culture & susceptibility testing
- Monitor response to therapy
- Consult ID specialist if no improvement and consider alternative agents
- Switch to oral therapy based on susceptibility testing if afebrile for 24 hours, clinically improved, not bacteremic, able to take po, and close follow-up is possible. If blood cultures grow MRSA prolonged IV therapy is necessary

MRSA: Methicillin-resistant S. aureus (MRSA is resistant to all penicillins, cephalosporins, and carbapenems)
MSSA: Methicillin-susceptible S. aureus

Antimicrobial Recommendations: See Over

2006 Georgia Guideline for Empiric Oral Antimicrobial Treatment of Outpatients with Suspected CA-MRSA Skin and Soft Tissue Infections (SSTIs)

Selection of empiric therapy should be guided by local *S. aureus* susceptibility and modified based on results of culture and susceptibility testing. The duration of therapy for most SSTI is 7-10 days, but may vary depending on severity of infection and clinical response. ***NOTE: Before treating, clinicians should consult complete drug prescribing information in the manufacturer's package insert or the PDR.***

Antimicrobials Recommended for CA-MRSA*

Antimicrobial	Adult Dose	Pediatric Dose
Trimethoprim-sulfamethoxazole* (TMP-SMX)	1-2 DS tablets (160 mg TMP/800 mg SMX) PO q 8-12h	Base dose on TMP: 8-12 mg TMP (& 40-60 mg SMX) per kg/day in 2 doses; not to exceed adult dose
Doxycycline or minocycline*	100 mg PO bid	***Not recommended for pediatric use or in pregnancy- suggest consultation with infectious disease specialist before use.***
*** If Group A streptococcal (GAS) infection is suspected, (e.g. rapid onset, lymphangitic streaking, regional lymphadenopathy) oral therapy should include an agent active against this organism (β-lactam, macrolide, clindamycin). Tetracyclines and trimethoprim-sulfamethoxazole, although active against many MRSA, are NOT RECOMMENDED treatments for suspected GAS infections.**		
Clindamycin	300-450 mg PO qid	10-20 mg/kg/day in 3-4 doses; not to exceed adult dose

If considering clindamycin, isolates resistant to erythromycin and sensitive to clindamycin should be evaluated for inducible clindamycin resistance (MLSb phenotype) using the "D test." Consult with your reference laboratory to determine if "D testing" is routine or must be specifically requested. If inducible resistance is present, an alternative agent to clindamycin should be considered, especially when treating severe or deep infection.

Other Therapeutic Considerations

Rifampin may be used in combination with TMP-SMX, doxycycline, OR clindamycin, for recurrent MRSA infection despite appropriate therapy. ***Never use rifampin monotherapy, due to the rapid emergence of resistance. Rifampin interacts with methadone,oral hypoglycemics, hormonal contraceptives, anticoagulants, protease inhibitors, phenytoin, theophylline, cardiac glycosides and other drugs.***

Rifampin (with other agents)	300 mg PO bid x 5 days	10-12 mg/kg/day in 2 doses not to exceed 600 mg mg/d x 5 days)

Topical mupirocin may be used tid for 7-10 days with or without systemic antimicrobial therapy.

Skin antisepsis with chlorhexidine or other agents may be used in addition any of the above regimens.

Antimicrobials Not Rountinely Recommended for CA-MRSA

Outpatient use of fluoroquinolones (e.g., ciprofloxin, levofloxacin, moxifloxacin, gatifloxacin) or macrolides (e.g., erythromycin, clarithromycin, azithromycin, and telithromycin) is **NOT RECOMMENDED** for treatment of MRSA. Resistance to fluoroquinolones can develop on therapy, so these agents should not be rountinely used even if the isolate is reported to be susceptible.

Outpatient use of linezolid in SSTI: Linezolid is costly, has great potential for inappropriate use, and has significant toxicity. Although it is 100% bioavailable and effective in SSTI, it is not recommended for empiric treatment or routine use because of these concerns. In addition, overuse of this valuable drug could lead to resistance and diminished effectiveness. It is strongly recommended that linezolid only be used after consultation with an infectious disease specialist to determine if alternative antimicrobials would be more appropriate.

Eradication of CA-MRSA Colonization

Efficacy of decolonization in preventing infection or transmission in the outpatient setting is not documented, and is NOT routinely recommended. Consultation with an infectious disease specialist is recommended before eradication of colonization is initiated. For multiple recurrences or household transmission, reinforce infection control and (though data are lacking) consider short course regimen of skin antisepsis and nasal mupirocin.

This algorithm and more information available online at http://health.state.ga.us/MRSA
General information is available at www.cdc.gov/ncidod/dhqp/ar_mrsa_ca.html
CDC guidance for clinicians is available at www.cdc.gov/ncidod/dhqp/pdf/ar/CAMRSA_ExpMtgStrategies.pdf

Modified from "Interim Guidelines for Management of Suspected *Staphylococcus aureus* Skin and Soft Tissue Infections" from Infectious Diseases Society of Washington, Tacoma/Pierce County Health Department, Public Health-Seattle and King County, and Washington State Department of Health, September 2004, "Strategies for Clinical Management of MRSA in the Community: Summary of an Experts' Meeting Convened by the Centers for Disease Control and Prevention" March 2006, and NC Consensus Guidelines.

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