

2008 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
- Pneumonia

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: children, athletes, Aboriginal people, military recruits, 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

Report to and Discuss with Public Health

- Recurrent or repeat household infections
- Clusters of CA-MRSA infections in non-household groups such as sports teams or child care centres
- 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 dressing 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
- Provide patient MRSA information sheet

Outpatient Management of SSTI's (mild/moderate)

- Local care, I & D may be sufficient for mild disease.
- Consider topical antimicrobials for superficial lesions (review local sensitivities)
- 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 in region of high prevalence (i.e. > 15% of SA are MR)
- Adjust antibiotics based on results of culture & susceptibility testing – dicloxacillin or cephalexin 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. cloxacillin) 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

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

Antimicrobial Recommendations: See Over

2008 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 and response. **NOTE: Before treating, clinicians should consult complete drug prescribing information in the manufacturer's package insert or the CPS.**

Antimicrobials Recommended FOR CA-MRSA

Antimicrobial	Adult Dose	Paediatric 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 (& 40-60mg SMX) per kg/day in 2 doses; not to exceed adult dose
Doxycycline or minocycline*	100 mg PO bid	Not recommended for children 8 years of age or under or in pregnancy.

***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. Thus if potential mixed infections consider dual therapy (for MRSA and GAS) or clindamycin.

Clindamycin	300-450 mg PO qid	10-20 mg/kg/day in 3-4 doses; not to exceed adult dose
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If considering clindamycin, an isolate resistant to erythromycin and sensitive to clindamycin should be evaluated for inducible clindamycin resistance (MLS_B 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. *D testing is routine at the Saskatchewan Disease Control Laboratory for any MRSA isolate resistant to erythromycin and is reported as clindamycin resistant.*

Other Therapeutic Considerations

Empirical therapy: For regions with less than about 15% of the SA being MRSA, cloxacillin or cephalexin therapy is adequate if antibiotics are required and the condition is not life threatening. At present, cloxacillin or cefazolin remain appropriate empirical antibiotic choices for moderate infections (serious enough to require systemic antibiotics but not considered life threatening). If the proportion of SA being MRSA is greater than 15%, empirical therapy could include the therapy for CA-MRSA, especially for more severe infections.

Skin antiseptics with antiseptic solutions or soaps containing chlorhexidine, triclosan or other agents may be used instead of the above regimens in minor cases or in addition to any of the above regimens.

Topical antibiotics: mupirocin 2% may be used tid for 7-10 days with or without systemic antimicrobial therapy. Note that in some areas mupirocin resistance is high and its use not recommended (parts of Saskatchewan and Manitoba). Topical fucidin 2% is also an option.

Antimicrobials Not Routinely Recommended for CA-MRSA

Outpatient use of fluoroquinolones (e.g. ciprofloxacin, 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 routinely used even if the isolate is reported to be susceptible.

Single drug therapy with rifampin is not recommended.

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.

Cultures:

Not required for:

- 1) follow-up as a test for cure in the patient, or
- 2) asymptomatic family or other contacts unless recommended by infectious disease or public health.

Eradication of CA-MRSA Colonization

Efficacy of decolonization in preventing infection or transmission in the outpatient setting is not documented, and is NOT recommended except in unusual circumstances and after all hygienic measures have been completely instituted. For multiple recurrences or household transmission, reinforce infection control and hygiene measures. Consult with an infectious disease or public health specialist.

This algorithm and more information available online at <http://www.narp.ca>. The Canadian guidelines for the prevention and management of community-associated MRSA are available at: http://www.pulsus.com/infdis/17_SC/Pdf/mrsa_ed.pdf

This algorithm has been modified from one originally developed by the Georgia MRSA Task Force, Georgia DHA Division of Public Health and GUARD Coalition, October 2006.