

Fact Sheet: Methicillin-Resistant Staphylococcus aureus in the Community (CA-MRSA)

This document is current to January 2011, and is not updated. It was prepared at a time when the Provincial Infectious Diseases Advisory Committee ("PIDAC") reported directly to the Minister of Health and Long-Term Care and Chief Medical Officer of Health. Note that effective April 1, 2011, the responsibility for and functions of PIDAC were transferred to the Ontario Agency for Health Protection and Promotion ("Agency"), and that PIDAC now reports to that Agency. You may wish to consult www.pidac.ca or the Agency's website at www.oahpp.ca for more information.

FACT SHEET

Methicillin-Resistant *Staphylococcus aureus* in the Community (CA-MRSA)

Definition

- *Staphylococcus aureus* resistant to all of the beta-lactam classes of antibiotics (such as penicillins, penicillinase-resistant penicillins (e.g., cloxacillin) and cephalosporins).
- Community Associated or CA-MRSA refers to strains linked to colonization and transmission in the community.

Epidemiology

- CA-MRSA detection is growing globally.
- Higher risk populations vary geographically and include: young adults, children <2 years, athletes in contact sports, those with chronic dermatological conditions, those living in congregate or overcrowded conditions or of lower socioeconomic status, injection drug users, patients with recent or recurrent antibiotic use, aboriginals, men who have sex with men, military personnel, and residents of correctional facilities.
- CA-MRSA may still occur in persons with no apparent risk factors.
- In some areas of the United States, the majority of skin and soft tissue *S. aureus* infections are CA-MRSA.
- The epidemiology and management of MRSA in the community may evolve quickly. This was the case in parts of the United States. Close monitoring of the local epidemiology, if available, is important.

Transmission and Virulence

- Transmission occurs through direct contact between persons or through contact with contaminated objects or surfaces.
- Some CA-MRSA strains produce toxins associated with more severe systemic and local disease, however the aetiology of MRSA's increased virulence in the community remains an ongoing debate.

Diagnosis and Treatment (*See Algorithm*)

Mild and Moderate Disease Presentation

- Minor skin and soft tissue infections (SSTIs) do not need to be routinely cultured for MRSA.
- Cultures may be indicated if MRSA is suspected based on patient characteristics (see algorithm).
- Cornerstones of CA-MRSA management are incision and drainage of purulent lesions and proper follow-up wound care.
- Systemic antibiotic treatment IS NOT recommended for minor SSTIs or small abscesses without cellulitis except in young infants and the immunocompromised.
- Systemic antibiotic treatment is recommended for small abscesses with cellulitis and for larger abscesses (see algorithm for choice of antibiotics).

Severe or Unusual Disease Presentation

- Extensive cellulitis or multiple abscesses with associated systemic features.
- Necrotizing pneumonia, often with an influenza-like prodrome leading to shock or respiratory failure.
- Endocarditis
- Other presentations of MRSA may include osteomyelitis, pyomyositis, necrotizing fasciitis, septic thrombophlebitis, and sepsis syndrome.

Prevention of MRSA Transmission

- Requires consistent application and reinforcement of good hygienic practices and judicious use of antibiotics.
- If skin lesions are present instruct the patient to:
 - Cover lesions to contain drainage or exudates;
 - Not share personal products that are in contact with the skin; for example: deodorant, razors, toothbrushes, towels, nail files, combs and brushes
 - Not share unwashed towels;
 - Discard contaminated waste, including used dressings, in a safe and timely manner (e.g., into a garbage pail lined with a plastic bag, so the bag can be removed and tied without re-contaminating hands);
 - Wash hands with soap and water or use alcohol-based hand rub after touching any skin lesions and potentially infected materials, such as soiled dressings.
- After the patient leaves the examining room, immediately wipe all surfaces and patient care equipment (blood pressure cuff, stethoscope, etc.) that have been in contact with the patient, with a chlorine bleach solution of 1:100 concentration, or an approved hospital grade disinfectant such as a quaternary ammonium or hydrogen peroxide solution.
 - Hospital grade disinfectant wipes with approved hospital grade disinfectants in easy dispense containers are also available (for more information, contact your local public health unit or Regional Infection Control Network).

Screening and Decolonization

- Routine screening for colonization of nares or other sites is NOT recommended.
- Decolonization should be considered only in exceptional circumstances, such as recurrent infections and transmission within a family. This should be done in consultation with an infectious disease specialist.

For more information

1. Guidelines for the prevention and management of community-associated methicillin-resistant *Staphylococcus aureus*: A perspective for Canadian health care practitioners. http://www.ccar-ccra.com/english/pdfs/R06-716_barton_9745.pdf
2. Gorwitz RJ. A review of community-associated methicillin-resistant *Staphylococcus aureus* skin and soft tissue infections. *Pediatr. Infect. Dis. J.* 2008 Jan;27(1):1-7.
3. Infection Control in the Physician's Office, College of Physicians and Surgeons of Ontario, 2004 available at <http://www.cpso.on.ca/policies/guidelines/default.aspx?id=1766>

Outpatient Management of Skin and Soft Tissue Infections (SSTIs) in Healthy Adults*

Does One or More of the Following Apply to Your Patient?

- ▶ Belongs to a “population at higher risk”
- ▶ Recurrent abscesses/household clusters of abscesses
- ▶ Poor response to beta-lactam classes of antibiotics (such as penicillins, penicillinase-resistant penicillins (e.g. cloxacillin and cephalosporins)
- ▶ History of recent antibiotic treatment
- ▶ Previous MRSA infection

Populations at Higher Risk

- ◆ Children, especially under 2 years
- ◆ Classroom contacts of an MRSA case
- ◆ Athletes, particularly in contact sports
- ◆ Persons living in congregate or crowded settings
- ◆ Persons exposed to colonized pets, including veterinary workers
- ◆ Persons with chronic skin disorders
- ◆ Men who have sex with men
- ◆ Persons of lower socioeconomic status
- ◆ Aboriginals
- ◆ Injection drug users
- ◆ Persons with MRSA carriage

If YES, suspect MRSA

Culture IF:

CA-MRSA suspected based on above criteria,
or Recurrent infection, two or more in <6 months,
or Known spread to others,
or Severe infection, including hospitalization,
or Not responding to usual treatment.

Mild disease (including confirmed MRSA)

Folliculitis, furuncles, or small abscesses without cellulitis):

DO NOT give systemic antibiotics for minor SSTIs or small abscesses

DO treat with one or more of the following:

- Local therapy using hot soaks
- Incision and drainage without antimicrobial therapy
- Topical mupirocin or bacitracin

Moderate disease (suspected or confirmed MRSA**) (cellulitis or moderate abscesses without systemic features):

- TMP-SMX DS, one tablet po q12h
- OR
- Doxycycline 100 mg po q12h***
- OR
- Clindamycin 150-450 mg po q6h (only if susceptibility is confirmed)
- Modify treatment as per antimicrobial susceptibility testing
- Close follow-up of clinical outcomes is imperative

Severe disease (suspected or confirmed MRSA)

(extensive cellulitis, large or multiple abscesses, associated systemic features)

- Treat in consultation with an infectious disease specialist

If NO, suspect methicillin-sensitive *S.aureus* (MSSA)

Do not culture IF:

Minor SSTI or no history of MRSA

Mild, moderate or severe MSSA:

Empiric antibiotic therapy based on clinical severity and local susceptibilities

* See PIDAC fact sheet – Methicillin Resistant *Staphylococcus aureus* in the Community (CA-MRSA)

** All doses listed are for adults

*** Do not treat pregnant women or children less than 8 years of age with doxycycline

Note: treatment should be modified as per antimicrobial susceptibility testing.