

Section 5: **Antibiotic Resistant Organisms**

Policy number: **5.1**

Subject: **Methicillin-Resistant *Staphylococcus aureus* (MRSA)**

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1 PURPOSE

- 1.1 Antibiotic resistance is a serious threat to the treatment of infectious diseases. With the rise in Methicillin-Resistant *Staphylococcus aureus* (MRSA) and Community Associated MRSA (CA-MRSA), has come the need for measures to prevent and control the spread of these microorganisms. Since the usual method of acquisition of MRSA and CA-MRSA, is via direct or indirect contact, it is possible to prevent these infections by instituting a set of practices and procedures that will prevent transmission of MRSA and CA-MRSA to clients. Such prevention and control efforts are necessary to protect the health and improve outcomes for clients but also to lessen the burden of MRSA and CA-MRSA on health care systems.

2 POLICY

- 2.1 In the community and home care settings, routine practices must be practiced with all clients at all times regardless of whether a client is known to have an Antibiotic Resistant Organism (ARO). If a client is known to be colonized with MRSA, or a client residing within the community is known to have CA-MRSA, all staff must implement Contact Precautions in addition to routine practices for all direct client care. (See Glossary for definition of Direct Care).

3 PROCEDURE

- 3.1 What is MRSA?
- 3.1.1 *Staphylococcus aureus* is a bacterium that periodically lives on the skin and mucous membranes of healthy people without causing illness (i.e. colonization)
 - 3.1.2 Occasionally *S. aureus* can cause an infection
 - 3.1.3 When *S. aureus* develops resistance to the beta-lactam class of antibiotics (e.g. cloxicillin) it is called methicillin-resistant *Staphylococcus aureus* (MRSA)
 - 3.1.4 MRSA may be either health care-associated or community associated (CA-MRSA)
- 3.2 Types of MRSA
- 3.2.1 Hospital-Associated MRSA (HA-MRSA)

- 3.2.2 Hospital acquired MRSA strains circulate and are transmitted to individuals within health care facilities
- 3.2.3 Community-Associated MRSA (CA-MRSA)
- 3.2.4 Strains linked to colonization and transmission in the community
- 3.2.5 Usually found in individuals who develop infections in the community and who have not had recent exposure to the health care system (Refer to FNIHB-OR CA-MRSA Tool Kit for Health Care Providers)

3.3 Risk Factors for MRSA

- 3.3.1 Increased risk for acquiring Antibiotic-Resistant Organisms (AROs) such as MRSA is related to both the individual client's own host risk factors as well as to the amount of time that is spent in a setting where they are exposed to these microorganisms. Both of these factors must be taken into consideration in order to assess an individual's acquisition risk.
- 3.3.2 Risk factors for HA-MRSA include:
 - 3.3.2.1 Previous colonization or infection with MRSA
 - 3.3.2.2 Greater than 12 hours in any health care facility in the past 12 months
 - 3.3.2.3 Recent exposure to unit/area of a health care facility having an MRSA outbreak
 - 3.3.2.4 Health care in another country in the past 12 months
 - 3.3.2.5 Stay in an intensive care, transplant, or burn unit
 - 3.3.2.6 Increased age
 - 3.3.2.7 Extended stay in an acute care facility
 - 3.3.2.8 Previous or recurrent hospitalizations
 - 3.3.2.9 Invasive procedures
 - 3.3.2.10 Presence of invasive indwelling devices
 - 3.3.2.11 Recent antibiotic use
 - 3.3.2.12 Presence of a surgical wound, decubitus ulcer or other chronic wound
 - 3.3.2.13 Contact with or proximity to a client colonized or infecting with MRSA who had draining skin lesions or wounds not covered by dressings or copious uncontrolled respiratory secretions
 - 3.3.2.14 Malnutrition, immunosuppression (age, medication or condition-related i.e. HIV)
 - 3.3.2.15 Debilitated and/or bed bound and requiring extensive hands on care

3.3.3 Risk Factors for CA-MRSA

- 3.3.3.1 Children, especially under 2 years
- 3.3.3.2 Aboriginal people and African-Americans
- 3.3.3.3 Classroom contacts of MRSA case
- 3.3.3.4 Athletes, particularly in contact sports
- 3.3.3.5 Persons living in congregate or crowded settings (military personnel, inmates in correctional facilities)
- 3.3.3.6 Persons exposed to colonized pets, including veterinary workers
- 3.3.3.7 Men who have sex with men
- 3.3.3.8 Injection drug users
- 3.3.3.9 Persons with past MRSA infection or MRSA carriage
- 3.3.3.10 Persons with chronic skin disorders
- 3.3.3.11 Persons of lower socioeconomic status
- 3.3.3.12 Recurrent or recent antibiotic treatment
- 3.3.3.13 Recurrent or abscesses/household clusters of abscesses

3.4 MRSA Transmission

- 3.4.1 Spread occurs through direct contact between an infected person and an uninfected person, or by indirect contact through touching contaminated objects or surfaces that are part of the infected person's environment
- 3.4.2 Most commonly spread via the transiently colonized hands of health care workers who acquire it from contact with colonized or infected clients, or after handling contaminated material or equipment
- 3.4.3 Hand hygiene and environmental surface cleaning are important measures to prevent transmission
- 3.4.4 There is evidence that some individuals may act as "*super-shedders*" of MRSA when co-infected with a respiratory virus and that they can spread MRSA via respiratory droplets (the "*cloud*" phenomenon)
- 3.4.5 Spread within the community may be increased when the following risk factors are present:
 - 3.4.5.1 Crowded conditions
 - 3.4.5.2 Close contact

- 3.4.5.3 Lack of cleanliness
- 3.4.5.4 Sharing common personal items
- 3.4.5.5 Having compromised or broken skin
- 3.4.6 Staff Acquisition of MRSA
 - 3.4.6.1 Risk is low and is significantly reduced if staff follow Routine Practices, perform hand hygiene and wear PPE appropriately according to the “risk assessment”.
 - 3.4.6.2 Most experts believe that with adequate adherence to hand hygiene and Routine Practices, there is no risk of staff acquisition of MRSA.
- 3.4.7 Prevention of MRSA Transmission
 - 3.4.7.1 Contact precautions in addition to Routine Practices should be used in the management of CA-MRSA. (Refer to Policy 4.2: Contact Precautions; Refer to Appendix 12: PIDAC Routine Practices Fact Sheet; Appendix 24: PIDAC Contact Precautions Fact Sheet; Appendix 5: 4 Moments for Hand Hygiene; Appendix 25: CA-MRSA Fact Sheet; Appendix 21: Recommended Steps for Putting On and Taking Off Personal Protective Equipment and Appendix 41: Management of AROs in Various Health Care Settings.)
 - 3.4.7.2 Requires consistent application and reinforcement of good hygienic practices and judicious use of antibiotics.
 - 3.4.7.3 If skin lesions are present instruct the patient to:
 - 3.4.7.3.1 Cover lesions to contain drainage or exudates
 - 3.4.7.3.2 Not share personal products that are in contact with the skin (e.g. deodorant, razors, toothbrushes, towels, nail files, combs and brushes)
 - 3.4.7.3.3 Not share unwashed towels
 - 3.4.7.3.4 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)
 - 3.4.7.3.5 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 as per the 4 Moments for Hand Hygiene (Refer to Appendix 5: 4 Moments for Hand Hygiene)
 - 3.4.7.3.6 Refer to Appendix 40: Frequently Asked Questions for Patients and Caregivers Handout; Appendix 41: Management of AROs in Various Health Care Settings

3.5 Environmental Cleaning

- 3.5.1 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 an approved hospital grade disinfectant such as a hydrogen peroxide solution or wipe (e.g. ACCEL Prevention)
- 3.5.2 Attention to good environmental cleaning is one of the most important measures to prevent the transmission of MRSA. (Refer to Section 7.0: Principles of Cleaning and Disinfecting Environmental Surfaces)

3.6 Screening and Decolonization:

- 3.6.1 Routine screening for colonization of nares or other sites is NOT recommended
- 3.6.2 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.

3.7 Treatment and Clinical Guidance:

- 3.7.1 Refer to FNIHB-OR CA-MRSA Tool Kit for Health Care Providers for individual interventions and clinical guidance information which can be accessed on One Health. (www2.onehealth.ca/)

4 APPENDICES

Appendix 5 Public Health Ontario. 4 Moments for Hand Hygiene

Appendix 12: Public Health Ontario. (2012). PIDAC's Routine Practices Fact Sheet for all Health Care Settings

Appendix 21: Public Health Ontario. (2012). PIDAC's Recommended Steps for Putting On and Taking Off Personal Protective Equipment.

Appendix 24: Public Health Ontario. (2012). PIDAC's Sample Signage for Entrance to Room of a Patient Requiring Contact Precautions in all Health Care Settings.

Appendix 25: FNIHB-OR. CA-MRSA in the Community Fact Sheet

Appendix 40: ARO Handout: Frequently Asked Questions for Patients and Caregivers

Appendix 41: Management of AROs in Various Health Care Settings

5 REFERENCES

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