



PROCEDURE: Admission Screening of Antibiotic Resistant Organisms (AROs)

Program Area: Infection Prevention and Control

Section: Infection Prevention and Control Policies and Guidelines

Reference Number: CLI.8011.PL.002

Approved by: Regional Lead – Acute Care & Chief Nursing Officer

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PURPOSE:

To reduce the risk of healthcare associated transmission of AROs (Methicillin Resistant *Staphylococcus aureus* [MRSA] and Carbapenemase-Producing *Enterobacteriaceae* [CPE]) by timely identification of ARO positive clients on admission while minimizing resource utilization.

NOTE: Contact follow-up is outside of the scope of this document, i.e. collecting samples to deflag clients flagged as ‘positive’ or ‘suspect’ is **not** Admission Screening and is not addressed in this policy.

DEFINITIONS:

Admission: Any stay in hospital greater than 24 hours, this includes any stay in the Emergency department greater than 24 continuous hours.

Antibiotic Resistant Organism (ARO): A microorganism that is of clinical or epidemiologic significance, and has developed resistance to the action of one or more antimicrobial agents.

Client: An individual who accesses and/or receives health care related services from an SH-SS facility or program. Clients may be patients in an acute care setting, residents in a personal care home or clients in a community program.

Carbapenemase-Producing *Enterobacteriaceae* (CPE): Gram-negative bacteria in the family Enterobacteriaceae that produce a carbapenemase enzyme. Carbapenemase enzymes are beta-lactamases capable of hydrolyzing members of the carbapenem class of antibiotics and most other β -lactam antibiotics. Examples of carbapenemase enzymes of epidemiologic importance include the New-Delhi metallo-beta-lactamase (NDM) and *Klebsiella pneumoniae* carbapenemase (KPC) enzymes. Most CPE isolates demonstrate phenotypic resistance to carbapenems and would therefore also meet the definition of Carbapenem-Resistant *Enterobacteriaceae* (CRE).

Methicillin Resistant *Staphylococcus aureus* (MRSA): strains of *S. aureus* that are resistant to beta-lactam antimicrobials (penicillins, cephalosporins, and carbapenems). Some of these strains may also be resistant to aminoglycosides, erythromycin, quinolones and other antibiotics.

IMPORTANT POINTS TO CONSIDER:

- Personal Care Homes
 - No ARO admission screening recommended. Do not screen a personal care home client upon admission, transfer or return to their personal care home.
 - Only screen if directed to do so on the Transfer/Referral Form or as requested by acute care as part of an outbreak investigation.
- ARO admission screening is done in the emergency department (ED) to ensure swabs are collected before initiation of any antibiotic therapy. If ED unable to collect swabs, the admitting unit completes ARO admission screening within 24 hours.
- DO NOT routinely screen for:
 - Vancomycin Resistant Enterococci (VRE)
 - Extended Spectrum Beta Lactamase Producing Microorganisms (ESBLs)
 - Other Antimicrobial Resistant Gram Negative Bacilli (AMR GNB)
- For quick reference when screening results are pending, review Antibiotic Resistant Organism (ARO) Flagging Codes and Required Actions (CLI.8011.PL.002.SD.01)

PROCEDURE:

1. MRSA Screening criteria

Confirm on *each* Acute Care admission if the client meets MRSA screening criteria listed below using the Antibiotic Resistant Organism (ARO) Admission Screening Form (CLI.8011.PL.002.FORM.01).

- Admitted to or directly transferred from a health care facility, including personal care homes within the previous 6 months; include facilities within or outside Canada, including current facility,
 - Inter-facility Transfer/Referral Form indicates admission screening is required,
 - Identified as MRSA Positive in the flagging system,
 - Identified as MRSA Suspect in the flagging system,
 - Identified as MRSA Previously Positive in the flagging system,
 - Starting dialysis, new to the dialysis unit or returning to the dialysis unit after receiving dialysis in another unit and/or
 - Residing in a correctional setting or in a communal living setting (e.g., group home).
2. Repeat screening of client on admission if hospitalized since last screened AND admission screen criteria are met. e.g., Clients initially screened in Pre-anesthetic clinic (PAC); then hospitalized and discharged prior to current admission.
 3. Do not collect screening cultures for clients admitted to Mental Health units. If the client is subsequently transferred to another area of the facility, they are screened if the screening criteria are met.

4. CPE Screening criteria

Confirm on *each* Acute Care admission if the client meets CPE screening criteria listed below using the ARO Admission Screening Form (CLI.8011.PL.002.FORM.01).

- Admitted to or directly transferred from any facility known to have endemic rates (as notified by Regional Coordinator, Infection Prevention & Control) in the previous 6 months; consider facilities within or outside Canada, including the current facility.
- Identified as CPE Positive by any source (e.g., verbal, inpatient record, transfer sheet) AND no lab confirmation. Consult Site Infection Control Practitioner (ICP) from previous facility if CPE status is unclear to determine if screening is required, or
- Identified as CPE Suspect in the flagging system.

5. **Contact Precautions**

Notify Site ICP AND implement Contact Precautions when clients meet ANY of the following criteria – refer to Antibiotic Resistant Organism (ARO) Flagging Codes and Required Actions (CLI.8011.PL.002.SD.01):

- Identified as either MRSA or CPE Positive,
- Identified as MRSA Positive AND no documentation of three consecutive sets of negative screening MRSA cultures (nares, and open wounds/lesions/incisions/invasive device insertion sites [e.g., central lines]) at least one week apart, while off potentially effective antimicrobials during the 48 hours prior to each specimen collection,
- Admitted to or directly transferred from an acute care hospital (including an Emergency Department) *outside Canada* within the previous 6 months; pending results of screening tests,
- Received hemodialysis treatment *outside Manitoba* where negative screening cultures obtained within 7 days prior to arrival at SH-SS facility are not available,
- Currently being screened for CPE with culture results pending or
- Identified as CPE suspect.

NOTE: Not all clients who have tested positive for MRSA or CPE are recorded in the electronic patient record (EPR) system. If there is documentation from other sources confirming the client is colonized or infected, notify the site ICP.

6. **Clients refusing screening**

If the client refuses MRSA or CPE screening, explain the procedure and rationale for the screening and any testing to the client/family again.

- If the client/family still refuses screening, place the client on Contact Precautions for the duration of the admission and notify Site ICP.

7. **Complete Laboratory Requisition**

- **All MRSA and CPE screening swabs – Use the e-swab and Shared Health Clinical Microbiology Laboratory Test Requisition**
- Include diagnostic and relevant clinical information (e.g., antibiotics used within last 48 hours, history of MRSA Positive or CPE positive).
- Include two required client identifiers (First and last name, PHIN).
- In the 'Antibiotic Resistant Organisms' section, identify organism and site of collection for the specimen
 - For MRSA – submit one requisition for each specimen (including if multiple specimens from different sites are collected concurrently)

- NOTE: If a full diagnostic workup is required (i.e., examination for all potential pathogens), select the appropriate specimen type as listed on the requisition (i.e., under 'Wounds/Skin/Abscesses/Surgical Specimens/Tissues').

8. Surveillance cultures

Collect and send screening specimen(s) to laboratory:

8.1 For **MRSA**, specimen collection sites include:

- Anterior nares (both nares with one swab)
- Open wounds/lesions/incisions/invasive device insertion sites (e.g., central lines).

NOTE: Do not collect specimens from healed/closed wounds/lesions/incisions/invasive device insertion sites.

8.1.1 Anterior Nares

- Carefully insert the swab approximately 2cm into the nares.
- Rotate the swab against the nasal mucosa.

Note: Sample both nares using the same swab.

8.1.2 Open Wounds/Lesions/Incisions/Invasive Device Insertion Sites Swab

- If wound is dry, moisten with sterile normal saline and collect the sample before cleansing.
- Use a separate swab for **each site**.

8.2 For **CPE**, send specimen from the rectum/ostomy or peri-rectal.

NOTE: Do not repeat screening of lab confirmed CPE Positive clients.

8.2.1 Rectum/Ostomy for CPE

For adults only.

- Insert the swab approximately 2.5cm beyond the anal sphincter/stoma.
- Gently rotate.
- Swab should be visibly soiled.

8.2.2 Peri-rectal for CPE

For neonatal, pediatric and adolescent clients, clients with neutrophils below $1.0 \times 10^9/L$ for greater than 7 to 10 days or clients currently/recently undergoing a hematopoietic stem cell transplant procedure, a peri-rectal swab may be collected instead of a rectal swab. Swab skin surface surrounding rectum.

For ALL specimens:

- Place swab in the transport container.
- Ensure the specimen is accompanied by the appropriate requisition which has been completed with all pertinent client information.
- Keep specimens at room temperature and send to the lab as soon as possible according to facility procedure.

EQUIPMENT/SUPPLIES:

E-swab

Shared Health Clinical Microbiology Laboratory Test Requisition

- Available at [Lab Information Manual \(sbgh.mb.ca\) – search for MRSA or CPE](#)

SUPPORTING DOCUMENTS:

[CLI.8011.PL.002.FORM.01](#)

Antibiotic Resistant Organism (ARO) Admission Screening Form

[CLI.8011.PL.002.SD.01](#)

Antibiotic Resistant Organism Flagging Codes and Required Actions

REFERENCES:

Interlake-Eastern Regional Health Authority. (February 2017). Infection Prevention & Control Program – *Antibiotic Resistant Organism (ARO) Screening Policy*.

Manitoba Health, Seniors and Active Living. (November 2018). *Guidelines for the Prevention and Control of Antimicrobial-Resistant Organisms*.

Available at: <https://www.gov.mb.ca/health/publichealth/cdc/docs/ipc/aro.pdf>

Prairie Mountain Health. (September 2020). Infection Prevention and Control – *Antimicrobial-Resistant Organisms (ARO) Admission Screening Guidelines*.

Shared Health Diagnostics. (July 16, 2020). *Clinical Microbiology Laboratory Test Requisition*. Shared Health Diagnostics Lab Information Manual – *Sample Collection*.

Available at [Lab Information Manual \(sbgh.mb.ca\)](#)

Winnipeg Regional Health Authority. (February 2019). Infection Prevention and Control Program – *Admission Screening for Antibiotic Resistant Organisms (AROs) Operational Directives*.