POLICY:	**Management of Antibiotic Resistant Organisms (AROs)**
Program Area:	**Infection Prevention & Control**
Section:	**Infection Prevention & Control Policies and Guidelines**
Reference Number:	**CLI.8011.PL.022**
Approved by:	**Regional Lead – Acute Care & Chief Nursing Officer**
Date:	Issued 2024/Aug/01 Revised

Patients and/or Families were engaged in the development of this policy.

PURPOSE:

To ensure all suspect or known positive cases of AROs (Methicillin-Resistant *Staphylococcus aureus* (MRSA) and Carbapenemase Producing Enterobacteriaceae (CPE)) are managed to prevent the spread of infection to others.

BOARD POLICY REFERENCE:

Executive Limitation (EL-2) Treatment of Clients
Executive Limitation (EL-3) Treatment of Staff
Executive Limitation (EL-7) Asset Protection & Risk Management

POLICY:

Southern Health-Santé Sud (SH-SS) manages all suspect or known positive cases of AROs appropriately and efficiently across all care areas based on the recommendations by Manitoba (MB) Health, to prevent the spread of infection to others. The electronic patient record (EPR) is flagged for any positive or suspect case of MRSA or CPE to alert staff when Infection Prevention & Control (IP&C) measures are required. Deflagging for MRSA positive clients is done only when meeting criteria as per the Manitoba Health, Seniors and Active Living – *Guidelines for the Prevention and Control of Antimicrobial-Resistant Organisms*.

DEFINITIONS:

Additional Precautions - additional measures implemented when Routine Practices alone may not interrupt transmission of an infectious agent. They are used in addition to Routine Practices (not in place of) and are initiated based on condition and clinical presentation (syndrome) and on specific etiology (diagnosis).

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.

- **ARO Positive** - an individual from whom an ARO has been isolated.
- **ARO Suspect/Close Contact** - an individual who has been exposed to an ARO case for at least 24 hours and will require surveillance cultures (e.g. roommate, ward contact).

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 pneumonia* carbapenemase (KPC) enzymes. Most CPE isolates demonstrate phenotypic resistance to carbapenems and would therefore also meet the definition of Carbapenem-Resistant Enterobacteriaceae (CRE).

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.

Colonization - presence of microorganism in or on a host with growth and multiplication but without tissue invasion or cellular injury, so there are no signs or symptoms of infection.

Decolonization - topical and/or systemic antimicrobial treatment administered for the purpose of eradicating antibiotic resistant organism carriage from the skin, nose and other mucosal surfaces.

Deflagging - a system to remove ARO status (e.g. MRSA Suspect, MRSA Positive) from the health record.

Extended Spectrum Beta-Lactamase (ESBL) - an enzyme produced by some species of enteric Gram-negative bacilli. ESBL enzymes have the ability to inactivate a wide range of beta-lactam antibiotics including penicillins and extended-spectrum cephalosporins.

Infected - an ARO positive individual who shows signs and symptoms of an infection caused by that organism.

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.

Routine Practices - a comprehensive set of IP&C measures that have been developed for use in the routine care of all clients at all times in all health care settings. Routine Practices aim to minimize or prevent healthcare associated infections (HAIs) in all individuals in the health care setting, including clients, health care worker (HCWs), other staff, visitors, contractors, etc.

Vancomycin-Resistant Enterococci (VRE) - Enterococci that are resistant to vancomycin, the drug of choice for treating multi-drug resistant enterococci infections.

IMPORTANT POINTS TO CONSIDER:

- Following Routine Practices, with particular attention to hand hygiene, is sufficient to prevent transmission of VRE and ESBL.
- This policy does not include admission screening for AROs; for more information see CLI.8011.PL.002 Admission Screening for Antibiotic Resistant Organisms
- For treatment of MRSA/CPE infections, refer to the SH-SS Antibiogram at the following link: Clinical Microbiology - Shared Health - Health Providers
- This policy provides a summary of management details for the more prevalent AROs. Please refer to the reference below from MB Health for further detailed instructions.

PROCEDURE:

- All SH-SS facilities (Acute Care and Personal Care Homes) and all community programs (Emergency Response System (ERS), Home Care, Public Health, Primary Care and Mental Health) will follow the guidance for the management of AROs provided in the Manitoba Health, Seniors and Active Living – *Guidelines for the Prevention and Control of Antimicrobial-Resistant Organisms*.
- These guidelines will provide IP&C recommendations for the following:
    - Methicillin Resistant *Staphylococcus aureus* (MRSA) Guidelines for Health Care Settings
    - Carbapenemase Producing Enterobacteriaceae (CPE) Guidelines for Health Care Settings
    - Other Antimicrobial-Resistant Gram-Negative Bacilli (GNB) Guidelines for Health Care Settings*
    - Other Emerging Antimicrobial-Resistant Organisms *
    - Community Care
    - Occupational Health *

  NOTE: * For specific management direction, see the Manitoba Health, Seniors and Active Living – *Guidelines for the Prevention and Control of Antimicrobial-Resistant Organisms.*

- **Acute Care – Management of MRSA positive clients**
  - **Additional Precautions**
    - Implement Contact Precautions, in addition to Routine Practices
    - Notify the Site Infection Control Practitioner (ICP) of all MRSA positive client cases
    - Offer CLI.8011.PL.022.SD.01/CLI.8011.PL.022.SD.01.F Methicillin-Resistant Staphylococcus Aureus (MRSA) Fact Sheet to all MRSA positive clients
    - Follow Routine Practices for MRSA positive clients in psychiatric units
  - **Client placement/cohorting**
    - Place clients requiring Contact Precautions into a single room with a private toilet (or designated commode)
      - The room door may remain open.
    - When single-client rooms are limited, perform a risk assessment to determine client placement and suitability for cohorting.
      - Give priority to clients with conditions that may facilitate cross-transmission of microorganisms (i.e., uncontained drainage, stool incontinence, young age and/or cognitive impairment) for single-client room placement.
      - Cohort clients who are infected or colonized with the same microorganism and are suitable roommates.
      - Select roommates for their ability and the ability of their visitors to comply with required Additional Precautions.
    - When cohorting is not feasible:
      - Avoid placing a client requiring Contact Precautions in the same room as a client who is at high risk for complications if infection occurs or with conditions that may facilitate transmission (i.e., immunocompromised or open wounds).
      - In a shared room, a client with diarrhea should not share a toilet with another client. Assign a designated toilet or commode to the client with diarrhea.
      - In shared rooms, roommates and all visitors should be aware of the precautions to follow. Select roommates for their ability and the ability of their visitors to comply with required precautions.
      - Close the privacy curtain between beds to minimize opportunities for direct contact.
      - In multi-patient rooms, one metre spatial separation between beds is recommended to reduce the opportunities for inadvertent sharing of items between the infected or colonized client and other clients.
    - Clients undergoing MRSA decolonization should be in a single room.
  - **Environmental cleaning**
    - Facility approved disinfectant must be used according to the manufacturer's instructions including recommended contact time on all surfaces to ensure proper disinfection.
    - During an outbreak, more extensive and frequent cleaning with a facility-approved disinfectant may be required.
  - **Duration of Additional Precautions**
    - Contact Precautions can be discontinued when the following requirements are met:
      1. Three consecutive sets of negative screening MRSA cultures (nares, open wounds, as well as previously positive sites) at least one week apart AND client has not received antimicrobials that may affect MRSA growth during the 48 hours prior to each culture.
         - There is no maximum time between negative cultures.
      2. If client is infected in one or more wound sites and wound sites are healed or device removed AND client has had three consecutive negative nares screening cultures, client is presumed to be no longer colonized with MRSA. No further screening of healed wounds is required.
      3. If any culture in the three consecutive sets is positive, discontinue subsequent cultures, maintain Contact Precautions and wait at least one month before attempting to deflag.

- Likewise, if client had a positive nares screen, wait at least one month before starting the deflagging process. Decolonization is not to be done routinely as it has limited efficacy and may promote further antibiotic resistance.

- **Management of MRSA positive client – leaving room or transfer**
  - Whenever possible, client must remain in their room at all times.
  - For selected clients following a risk assessment of their cognitive ability and hygiene, and if they are continent or have no draining wounds, consideration may be made for them to leave their room.
  - During out of room procedures, a health care worker in contact with the client must maintain Contact Precautions. A dedicated clean person may be used to minimize environmental contamination.
    - **Precautions for the Client when Transported**
      - Client to perform hand hygiene on leaving room.
      - No gloves or isolation gown required by the client.
      - Client to wear clean clothes, housecoat or cover gown.
      - All wounds must be covered.
      - If the patient must be transferred in a bed, wheelchair or other equipment that resides in the client room, the external frequently touched surfaces (i.e. handles, bed rails) must be cleaned with a facility-approved disinfectant prior to leaving the room. The client and transfer equipment (i.e. wheelchair, bed) should be covered with a clean sheet.
      - If the client is transferred using a clean transport stretcher or wheelchair, the stretcher or wheelchair does not need to be cleaned prior to transport but must be cleaned with a facility-approved disinfectant after returning the client to the room.
    - **HCW Precautions for Transport**
      - Follow Contact Precautions to enter room.
      - Remove PPE before leaving room.
      - Hand hygiene after removal of PPE and before leaving room.
      - Apply clean gloves and gown outside the room for the transport.
    - **Visitor Precautions for Transporting the Client**
      - Remove PPE if worn and perform hand hygiene before leaving the room.
      - Visitors are not required to wear gloves and gown outside the room.

- **Management of visitors**
  - General visitors do not need to wear PPE but must perform hand hygiene on entering and leaving the client room.
  - PPE is required if visitors are assisting in the direct care of a client.
  - Visitors must be directed to ask for assistance in obtaining client care supplies on the nursing unit.
  - Encourage visitors to leave facility directly following visit.

- **Management of contacts**
  - Contact tracing is the responsibility of the site (Infection Prevention Coordinator) IPC, as per the steps below:
    1. Contacts are identified by establishing the “at-risk” period. This is the period of time the positive MRSA index case may have been colonized or infected but was not identified as MRSA Positive. This period of time is determined by either the date of admission until implementation of Contact Precautions, or the date of the last negative MRSA culture of the index case until implementation of Contact Precautions or date of discharge.
    2. Identify and screen close contacts (i.e. roommates and bathroom mates) of the index case during the “at-risk” period. Screening cultures must be collected 48 hours or more after contact with the index case for optimal detection of MRSA.

3. Flag close contacts as MRSA Suspect and forward information to Regional Site IPC to have flagging done. Notify the receiving facility if contacts are transferred to another facility. Contacts that have been discharged prior to screening will be screened upon readmission, as alerted by the flag.

- No further screening is obtained if all the close contacts are negative.
- If any close contacts are positive, expand the screening to include:
  1. Clients that were exposed on the unit and those transferred from the unit from the date of admission or from the date of last negative screen. Screening cultures must be collected 48 hours or more following contact with the index case for optimal detection of MRSA.
  2. If a client has received a potentially effective antimicrobial within 48 hours of rescreening, they must be rescreened again when the antimicrobials are discontinued.

NOTE: Please see Manitoba Health, Seniors and Active Living – *Guidelines for the Prevention and Control of Antimicrobial-Resistant Organisms*.

for other detailed direction on numerous topics, including but not limited to the following:

- Management of MRSA positive patient in the Operating Room
- Management of neonate born to MRSA positive mother
- Discharge/Transfer between facilities
- Home visit pass with Health Care Worker, companion or family
- Patient requiring Rehabilitation or Recreational Therapy
- Management of pet/animal visitor

➢ **Acute Care – Management of CPE positive clients**

- **Additional Precautions**
  - Implement Contact Precautions, in addition to Routine Practices
  - Notify the Site ICP of all CPE positive client cases
  - Offer CLI.8011.PL.022.SD.02/CLI.8011.PL.022.SD.02.F Carbapenemase Producing Enterbacteriaceae (CPE) Fact Sheet to all CPE positive clients.
  - Follow Routine Practices for CPE positive clients in psychiatric units.
- **Client placement/cohorting**
  - Isolate in a private room
  - Ensure client has a private toilet (or designated commode)
    - The room door may remain open.
- **Environmental cleaning**
  - Facility-approved disinfectant must be used according to the manufacturer's instructions including recommended contact time on all surfaces to ensure proper disinfection.
  - During an outbreak, more extensive and frequent cleaning with a facility-approved disinfectant may be required.
- **Duration of Additional Precautions**
  - Given the likelihood for prolonged gastrointestinal carriage and risk of spread of these microorganisms, do NOT discontinue Contact Precautions.
  - Once a client is positive, they will always be considered positive.
  - Once a client is identified as CPE Positive, maintain Contact Precautions for current admission and all subsequent admissions.
- **Management of CPE positive client – leaving room or transfer**
  - The client must remain in their room unless medically indicated.
  - If the client is transferred, the referring unit must notify in advance the receiving department of the Contact Precautions required.
  - During procedures, a HCW in contact with the client must maintain Contact Precautions. A dedicated clean person may be used to minimize environmental contamination.
    - **Precautions for the Client when Transported**
      - Client to perform hand hygiene on leaving room.

- No gloves or isolation gown required by the client.
- Client to wear clean clothes, housecoat or cover gown.
- All wounds must be covered.
- If the client must be transferred in a bed, wheelchair or other equipment that resides in the client room, the external frequently touched surfaces (i.e. handles, bed rails) must be cleaned with a facility-approved disinfectant prior to leaving the room. The client and transfer equipment (i.e. wheelchair, bed) should be covered with a clean sheet.
- If the client is transferred using a clean transport stretcher or wheelchair, the stretcher or wheelchair does not need to be cleaned prior to transport but must be cleaned with a facility-approved disinfectant after returning the client to the room.

▪ **Health Care Worker Precautions for Transport**
- Follow Contact Precautions to enter room.
- Remove PPE before leaving room.
- Hand hygiene after removal of PPE and before leaving room.
- Apply clean gloves and gown outside the room for the transport.

▪ **Visitor Precautions for Transporting the Client**
- Remove PPE if worn and perform hand hygiene before leaving the room.
- Visitors are not required to wear gloves and gown outside the room.

o **Management of visitors**
- All visitors should wear PPE and must perform hand hygiene on entering and leaving the client room.
- PPE is required if visitors are assisting in the direct care of a client.
- Visitor must be directed to ask for assistance in obtaining client care supplies on the nursing unit.
- Encourage visitors to leave facility directly following visit.

o **Management of contacts**
- If one client within a specific facility is found to be infected or colonized with CPE, there should be immediate consultation with IP&C, Microbiology, Medical Officer of Health and Infectious Diseases to determine the approach for active surveillance cultures to be done on contacts.
- Contact tracing is the responsibility of the Site ICP, as per the steps below:
  1. Contacts are identified by establishing the "at-risk" period. This is the period of time the positive CPE index case may have been colonized or infected but was not identified as CPE Positive. This period of time is determined by either the date of admission until implementation of Contact Precautions, or the date of the last negative CPE culture of the index case until implementation of Contact Precautions or date of discharge.
  2. Identify and screen close contacts (e.g. roommates and bathroom mates) of the index case during the "at-risk" period.
  3. Flag close contacts as CPE Suspect and forward information to Regional Site ICP to have flagging done. Notify the receiving facility if contacts are transferred to another facility. Contacts that have been discharged prior to screening will be screened upon readmission, as alerted by the flag.
  4. Isolation of contacts pending screening culture results is required.
     - No further screening is obtained if all the close contacts are negative.

- If any close contacts are positive, expand the screening to include:
  1. Clients that were exposed on the unit and those transferred from the date of admission or to the date of last negative screen.
  2. More frequent screening cultures may be necessary during an outbreak. After discussion with the Microbiology Laboratory, additional sites of culture may be considered in selected situations.

NOTE: Please see Manitoba Health, Seniors and Active Living – *Guidelines for the Prevention and Control of Antimicrobial-Resistant Organisms*
for other detailed direction on numerous topics, including but not limited to the following:

- Management of CPE positive patient in the Operating Room
- Management of neonate born to CPE positive mother
- Discharge/Transfer between facilities
- Home visit pass with Health Care Worker, companion or family
- Patient requiring Rehabilitation or Recreational Therapy
- Management of pet/animal visitor

- **PCH – Management of ARO positive clients**
  - Follow Routine Practices for all clients, regardless of their history of an ARO positive result
    - Have all clients perform hand hygiene prior to participating in group activities, regardless of ARO status.
  - Offer appropriate ARO fact sheet for all positive clients and their families.
  - Follow Additional Precautions for the following conditions:
    - Extensive desquamating skin disorder with known or suspected ARO infection or significant ARO colonization – initiate Contact Precautions
    - Draining ARO infected wounds in which drainage cannot be contained by a dressing – initiate Contact Precautions
    - Uncontrolled respiratory secretions in a client who has an ARO colonized tracheostomy or ARO pneumonia – initiate Droplet/Contact Precautions
  - Surveillance cultures are only required if directed to do so on the Transfer/Referral Form or as requested by acute care as part of an outbreak investigation.
  - PCH clients admitted to Acute Care will be screened for MRSA and CPE.
  - Follow Acute Care section 'Duration of Additional Precautions' if attempting to deflag an MRSA positive patient

- **Community Programs – Management of ARO positive clients**
  - Follow Routine Practices for all clients
    - Hand hygiene and equipment/environmental cleaning are the primary infection prevention and control measures. They are essential for all community care clients at all times, including persons colonized or infected with an ARO.
    - **NOTE:** Please see Manitoba Health, Seniors and Active Living – *Guidelines for the Prevention and Control of Antimicrobial-Resistant Organisms*
      for other detailed direction on numerous topics, including but not limited to the following:
      - Transfers of ARO colonized or infected patients to and from facilities
      - Home Care
      - Outpatient Clinics
      - Pre-Hospital Care
  - ARO fact sheets may be offered to all positive clients and their families.

SUPPORTING DOCUMENTS:

CLI.8011.PL.022.SD.01	Methicillin-Resistant *Staphylococcus Aureus* (MRSA) Fact Sheet
CLI.8011.PL.022.SD.01.F	Methicillin-Resistant *Staphylococcus Aureus* (MRSA) Fact Sheet - French
CLI.8011.PL.022.SD.02	Carbapenemase Producing Enterobacteriaceae (CPE) Fact Sheet
CLI.8011.PL.022.SD.02.F	Carbapenemase Producing Enterobacteriaceae (CPE) Fact Sheet - French

REFERENCES:

CLI.8011.PL.002 Admission Screening for Antibiotic Resistant Organisms

Manitoba Health, Seniors and Active Living. (November 2018). *Guidelines for the Prevention and Control of Antimicrobial-Resistant Organisms.*
https://www.gov.mb.ca/health/publichealth/cdc/docs/ipc/aro.pdf

Manitoba Health, Seniors and Active Living. (June 2019). Routine Practices and Additional Precautions: Preventing the Transmission of Infection in Health Care.
Available at: https://www.gov.mb.ca/health/publichealth/cdc/docs/ipc/rpap.pdf

Winnipeg Regional Health Authority. (March 2021). Personal Care Home/Long Term Care Facility Infection Prevention and Control Program – *Management of Antimicrobial Resistant Organisms (AROs) in a Long Term Care Setting Operational Guideline.*