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Antimicrobial-Resistant Organisms

Purpose

To prevent transmission of Antimicrobial-Resistant Organisms (AROs) in all healthcare settings, including acute care and long-term care facilities.

For screening and implementation of Additional Precautions in Interior Health for AROs, IPAC activities will primarily focus on **Methicillin-resistant *Staphylococcus aureus* (MRSA)**, **Carbapenemase- Producing Organisms (CPO)**, and ***Candida auris* (C. auris)** due to higher transmission risks associated with these organisms. The focus of this resource is on MRSA; however, organisms with other mechanisms of antimicrobial resistance IPAC will perform a risk assessment on a case-by-case basis and implement additional measures if required. Refer to CPO and *C. auris* Resource (IS1600) for additional information on CPO and *C. auris*.

Definitions

Antimicrobial-Resistant Organism (ARO) – A microorganism that is resistant to the action of one or more antimicrobial agents and that is of special clinical or epidemiological significance.

Cohorting refers to the assignment of a geographic area, such as a room or a patient care area, of two or more patients who are either colonized or infected with the same microorganism, with staffing assignments restricted to the cohorted group of patients.

Colonization is the presence and multiplication of microorganism(s) in or on the body without any symptoms of infection or detected immune reaction. Colonization is often a natural process in the development of “normal flora”.

Contact in the context of communicable disease, is a person or animal that has been in such association with a colonized or infected person or animal or a contaminated environment and thus has had an opportunity to acquire the micro-organism.

Infection is an invasion of the body by microorganism(s) that multiply and cause an interaction between the host and the organism. The interaction may only be a detectable immune response such as a TB skin test conversion (subclinical infection) or produce signs and symptoms resulting from the altered physiology and/or associated cell damage (clinical disease).

Additional Precautions Discharge Clean & Disinfection is a process of cleaning and disinfecting all surfaces and equipment within patient 's rooms who are on precautions with a healthcare-approved product with Environmental Services staff wearing appropriate PPE.

Methicillin-resistant *Staphylococcus aureus* (MRSA) – *Staphylococcus aureus* (*S. aureus*) is a gram-positive bacterium that lives on the skin or in the nose of up to 30% of healthy people. It can cause a range of illnesses from minor skin infections to life-threatening diseases, such as pneumonia, meningitis, endocarditis, Toxic Shock Syndrome (TSS), and septicemia. MRSA

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is a strain of *S. aureus* that is resistant to beta-lactam antibiotics, including all penicillins and cephalosporins.

Screening refers to a process to identify patients at risk for being colonized with an ARO, obtaining specimens for identification, and ensuring Additional Precautions are implemented.

Overview

Review of Terminology

Antimicrobial-Resistant Organism (ARO) – A microorganism that is resistant to one or more antimicrobial agents and that is of special clinical or epidemiological significance.

This guideline uses ARO as an overarching term that refers to different types of epidemiologically important resistant bacteria and other epidemiologically important resistant microorganisms such as fungi (i.e., *Candida auris*).

In previous versions of this document, ARO abbreviation was used for Antibiotic-Resistant organisms. However, to reduce ambiguity in nomenclature and allow for inclusion of other types of epidemiologically important microorganisms identified (i.e., fungi) the term antibiotic is substituted by antimicrobial. This will provide a uniform definition and ensure consistent use of terminology in IPAC documents.

Mode of transmission

AROs are more commonly spread indirectly via contaminated hands that have acquired it through contact with contaminated equipment and surfaces, and through direct contact with people who are colonized or have infections. Routine Practices, hand hygiene, equipment and environmental surface cleaning and disinfection are important measures to prevent transmission.

Best Practices

Admission Screening for AROs in Acute Care

All patients being admitted to acute care are to be screened. Nurse to complete screening form and collect required swabs upon receiving admission orders. Follow the procedure outlined in the [Acute Care Admission Screening for Antimicrobial-Resistant Organisms \(ARO\)](#) for screening swab requirements. The screening tool is used to determine patient risk factors and identify necessary screening actions for all admitted patients, pre-surgical screening, surgical patients with an unplanned admission, and patient transfers between acute care facilities.

All admitted patients in the ED must have screening completed within 12 hours of admission, it is important not to delay screening until admission to a unit to ensure best inpatient bed placement to prevent potential exposures to other patients.

The Most Responsible Nurse (MRN) checks for ARO indicator to determine a previous history. If the patient has a previous indicator for MRSA, no MRSA swab collection is required, and the patient must be placed on Contact Precautions. If no previous indicator, follow Routine Practices and collect swabs if indicated. Assessment of ARO status is covered in [Syndromic](#)

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[Surveillance Screening Toolkit](#) under the following tools: IPAC Syndromic Screening Requirements Table (p.8) and Antimicrobial-Resistant Organisms (ARO) Additional Precautions Assessment diagram (p.15).

Patients require swab collection for MRSA if they answer “Yes” to any of the following:

1. Has the patient had a healthcare interaction **outside of Canada** in the last 12 months? (E.g., hospitalization, emergency department, dental work, hemodialysis, or invasive medical procedure).
2. Has the patient been hospitalized for more than 48 hours in the past 3 months?

In high-risk areas of acute care such as Intensive Care Units (ICUs), burn units, transplantation units or cardiothoracic units, any patients potentially exposed to a known MRSA positive patient should have screening cultures performed as directed by IPAC or a Medical Microbiologist.

Additional Precautions

- In addition to Routine Practice, [Contact Precautions](#) are required for all confirmed MRSA patients with the appropriate [Contact Precautions](#) signage posted outside the patient's door.
- All MRSA positive patients will require Contact Precautions for the duration of their stay in hospital.
- [Droplet & Contact Precautions](#) are required if MRSA is identified in a sputum culture or if the point of care risk assessment (PCRA) identifies respiratory symptoms such as a productive cough, or if patient is requiring ventilation in the Intensive Care Unit (ICU). Post the [Droplet & Contact Precautions](#) signage outside the patient's door.

Internal Alert

An internal **ARO alert** is entered into the patient's electronic record by Infection Preventionists for all confirmed positive ARO patients.

Hand Hygiene

Perform hand hygiene as per [\(IF0200\) Hand Hygiene Policy](#)

Patient Placement and Accommodation

- Refer to Single Room Allocation Algorithm (p.6 of [Recommendations for Cohorting Patients](#))
- All known ARO positive patients to be placed on Contact Precautions or Droplet and Contact Precautions if the patient has respiratory symptoms.
- Single room with dedicated toilet, patient sink, and hand washing sink is preferred.
 - Door may remain open.
- Cohort
 - Cohort patients who are infected or colonized with the same microorganism and are suitable roommates.
 - Contact your Infection Preventionist regarding appropriateness of cohorting.
- Shared Room
 - Maintain spatial separation of at least 2 metres between patients.
 - Roommates should be selected based on their ability to comply with precautions.
 - Must have their own dedicated commode or toilet.

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Patient Flow/Transport

The ARO status of a patient should not prevent transfer of the individual within a facility or to another facility or limit their access to diagnostic tests and treatments. A negative specimen is not required to transfer a patient.

Clinical Health Care Provider (HCP)

Before transport consider/follow **the 5 C's**, educate, and assist the patient if necessary:

1. **Communicate:** notify receiving department if patient is on Additional Precautions,
2. **Co-operative:** is the patient able to follow instructions,
3. **Clean hands:** assist patient if required to clean their hands,
4. **Clean clothes/clean sheet:** patient to wear clean gown or clothes/cover with clean sheet,
5. **Cover/contain sources:**
 - Cover wounds with clean dressings
 - Contain urine/feces or other body fluids
 - Cover cough: If coughing and/or on droplet or airborne precautions place a medical mask on patient (if tolerated)

Transport Health Care Provider (HCP):

Before transport:

- Clean hands and Personal Protective Equipment (PPE) as per PCRA and/or signage.
- Cover cough: if coughing or on Droplet or Airborne Precautions (mask if tolerated)
- After assisting patient, doff PPE inside patient room (if patient on Airborne Precautions, do not remove N95 respirator) and clean hands.
- Provide clean sheet/blanket for transport.
- Thoroughly clean and disinfect equipment used for transport after each use.

During transport:

- If patient requires assistance during transport, clean hands after contact.
- If patient on Airborne precautions is unable to tolerate a medical mask, consult IPAC.
- If transport assistance is needed on the new unit transport HCP to don new PPE.

Personal Protective Equipment (PPE)

- PPE to be available directly outside the room.
- Clean hands and wear gloves and gown when in direct contact with patient or patient environment.
- Remove gown and gloves and discard before leaving the room or bed space and clean hands.
- Perform a PCRA prior to interacting with the patient to determine if additional PPE is required.

Patient Care Equipment

- Dedicate equipment to a single patient (e.g., blood pressure cuffs, commodes etc.).
- When equipment cannot be dedicated, clean and disinfect between every use.
- Do not take extra supplies into patient's room.
- Do not take patient chart into patient's room.
- Do not take medication cart into patient's room.
- Clean and disinfect equipment used for transport after each use.

Cleaning and Disinfection of Patient Environment

- Patient room to be cleaned and disinfected daily as per Environmental Services Standards of Practice.
- Environmental services (EVS) to be notified by Health care provider when patient is discharged or transferred.
- EVS to complete an **Additional Precaution Discharge Clean & Disinfection** of the room/bed space and bathroom which includes changing privacy curtains and cleaning and disinfecting or changing string/cloth call bells or light cords once the patient has been discharged or transferred as per Environmental Services Standards of Practice.
- Additional Precaution sign remains in place until the Additional Precaution Discharge Clean & Disinfection is complete, and signage is only removed by EVS.
- Surgical Settings (OR, PAR, DCS) refer to the [Surgical Practice Manual](#)

Waste, Laundry, Dishes and Cutlery

- Use Routine Practices

Education for Patient and Visitors

- Encourage patients to perform hand hygiene before meals, after using the washroom and frequently throughout the day.
- Visitors should be educated on the following precautions:
 - Before entering room, visitors must perform hand hygiene. Gown and gloves to be worn if participating in direct patient care.
 - Visitor must stay in the patient's room and not visit other areas of the hospital.
 - Visitors should not use patient's dedicated bathroom or commode.
 - Before leaving patient's room, visitor must take off their gloves and gown and clean their hands.
- Provide the MRSA patient handout to the patient and family (available on Infection Prevention & Control InsideNet page).

Considerations for Specific Units or Healthcare Settings

Surgical Settings (OR, PAR, DCS)

- Refer to [Surgical Practice Manual](#) (Not available to Non IH Facilities)
- Pre-surgical screening is completed as an outpatient and includes screening for AROs

Maternity/Newborn Nursery/Pediatric

- All babies admitted to the Nursery from another hospital are screened for MRSA and placed on Contact Precautions; if swab results are negative Contact Precautions are discontinued.
- Child and Primary caregiver are considered a "unit".
 - Implement Contact Precautions if either primary caregiver or neonate/child has suspected or confirmed MRSA, and
 - Primary caregiver does not have to put on PPE for contact with their neonate/child.

Dialysis Settings

- As per BC Renal (Provincial Health Services Authority) recommendations for screening

Mental Health – Including Inpatient Psychiatry

- Admission screening for AROs is not required.
- PCRA should be completed to determine if Additional Precautions are required.
- Restrict activities if wound drainage or diarrhea cannot be contained.
- [Follow the 5 C's as above](#)

Long Term Care Facilities

- Screening is not required for admission to Long Term Care
- Residents colonized with MRSA require Routine Practices
- PCRA should be completed to determine if Additional Precautions are required.
- Residents with MRSA infections should be placed on appropriate Additional Precautions for personal care and must have dedicated commode or toilet for duration of infection.
- Single room is preferred, consult with IPAC if not available.
- [Follow the 5 C's as above](#)
- The most responsible nurse will consult with IPAC to perform a formal risk assessment and develop a care plan.

Community Care

- Follow Routine Practices
- ARO positive persons should not be denied admission to Community Care programs. In addition to Routine Practice, clients with MRSA infections in the home should be advised to:
 - Use a designated bathroom, whenever possible
 - Clean the bathroom frequently, especially frequently touched surfaces.
 - Not share towels or other personal items
 - Open wounds should be covered with a dressing prior to recreational activities.

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Effective Date	July 2016		
Last Reviewed			
Approved By	IPAC		
Owner	Infection Prevention and Control		
Revision History	Date	Section	Revision
	July 2024	Entire document	Format, Removal of VRE, when screening should be completed, addition of link to Syndromic Surveillance Screening Toolkit