

Leamington Mennonite Home
Long Term Care

**INFECTION CONTROL
POLICY AND PROCEDURE**

CATEGORY: Screening & Immunization	SUBJECT: Prevention & Control of CPE	SECTION: D POLICY: 12
DATE: November 16, 2023	Administrator's Signature: _____ <i>J. Hill</i>	
REVISION DATES:	IPAC Lead's Signature: _____ <i>L. Coppola, RN</i>	

PREVENTION & CONTROL OF CPE

PURPOSE:

To prevent and/or control the transmission of Carbapenemase-producing *Enterobacteriaceae* (CPE).

POLICY:

The Leamington Mennonite Home will implement procedures to prevent and/or minimize the transmission of CPE between residents in the facility. This includes the use of Routine Practices at all times in the care of all residents, as well as Additional Precautions when indicated. LMH will manage cases of CPE according to the most current best practice recommendations.

CPE:

Carbapenemase-producing *Enterobacteriaceae* are resistant to carbapenem antimicrobials (e.g. imipenem, meropenem, ertapenem) through the production of carbapenemase enzymes.

To date, carbapenemases have been found most commonly in *E. coli* and *Klebsiella* species, but have also been found in other Gram-negative species. Carbapenemases are a class of enzymes that inactivate carbapenem antibiotics by hydrolysing them. In almost all instances, these enzymes hydrolyse not only carbapenems, but also first-, second- and third-generation cephalosporins and penicillins (e.g., piperacillin-tazobactam). The genetic information to produce carbapenemases is often located on a mobile genetic element (i.e., a genetic element that can move between bacterial strains and species, e.g., plasmid, transposon), which frequently also carries resistance to other classes of antimicrobials, such as fluoroquinolones and aminoglycosides. There are several different classes of carbapenemase.

These enzymes evolve rarely, but bacteria carrying them spread easily. Particular classes of carbapenemases are usually most common in the geographic area where they evolved, but spread around the world, usually when patients have received health care in another country.

Because CPE are resistant to many classes of antimicrobials, treatment of infections with CPE is difficult and involves the use of antibiotics that have significant adverse events. The case fatality rate for serious infections may be as high as 50%.

Transmission:

CPE is spread via direct and indirect contact. The primary site of colonization is the lower gastrointestinal tract.

Risk Factors:

- Although data is sparse, it seems likely that risk factors for infection and colonization with CPE will be similar to those of other resistant Gram-negative bacteria, such as ESBL-producing *E. coli* and *Klebsiella pneumoniae*.
- Received care in health care settings that have CPE, e.g. hospitals along the U.S eastern seaboard, particularly New York, Greece, Israel, and the Indian subcontinent. However, CPE outbreaks are being increasingly described in hospitals within Canada and Ontario.

Screening:

- Isolation of CPE should be considered a critical laboratory result and must be reported to Public Health.
- Any resident admitted to the Home will be screened for risk factors for CPE using the **Admission Screening Form for AROs**. The screening will occur within 24 hours of admission. Pre-emptive Contact Precautions will be initiated for residents with risk factors for CPE.
- No resident with a previous diagnosis of CPE will be refused from moving into the Home.
- Residents who have received health care outside of the country or who are known contacts of CPE should be screened.
- If a single patient/resident with CPE is identified, screening of residents in close proximity to the identified resident should occur.
- If there is evidence of transmission of a single species (i.e., two or more patients with the same CPE strain), or two or more CPE-positive patients carrying two different bacterial species (i.e., suspected plasmid transmission), outbreak measures should be put into place and Public Health will be consulted.
- Patients with known CPE carriage will have their records flagged and, will be placed on Contact Precautions and should be re-screened on readmission.

The Nurse will:

- 1) Review order from the Medical Directives.
- 2) Explain the procedure to the resident.
- 3) Obtain swab kit. Perform hand hygiene and put on clean gloves. Stool or rectal swab may be used for CPE screening. Stool specimens have a higher yield.
- 4) Proceed with CPE Screening Procedure for Cultures/Molecular Detection:
 - Pre-moisten all swabs with sterile normal saline or with transport medium prior to taking a specimen.
 - Swab around the external rectal orifice. If visible stool is not obtained on the swab, insert it a few millimeters into the rectum until visible stool is obtained.
 - If the resident has a colostomy, take the specimen from the colostomy output
- 5) Place swab into sterile receptacle and ensure it is labeled with the resident's name and date of birth, source, test type, and date of collection.
- 6) Remove gloves and perform hand hygiene.
- 7) Complete one lab requisition, including the site from which the specimen was taken, and place in specimen cooler for lab pick up by 1300h.
- 8) Document procedure in resident's electronic health record.

- 9) If a new admission is identified as high risk for ARO colonization or infection as per the Admission Screening Form has been identified, the resident should be placed on contact precautions while awaiting the culture results.
- 10) Initiate contact-based precautions for any resident testing positive for CPE.

Staff Screening:

- Routine screening of staff for CPE is not recommended. There is no evidence that rectal colonization of health care providers contributes to transmission.

Decolonization:

- There is insufficient data to support routine CPE decolonization and it is not recommended. In an uncontrolled outbreak, decolonization may be considered to attempt to reduce the bioburden.

Environmental Cleaning & Equipment Use:

1. When possible, dedicated equipment (e.g. wheelchair, lift sheet, blood glucose meter, thermometer, etc.) should be used to provide care to residents with CPE.
2. In the event that any equipment must be shared, thorough cleaning and disinfection of all such equipment will occur before use with another resident (e.g. Virox wipes). When possible, the resident with CPE will use the equipment last, followed by a thorough cleaning.
3. As per Routine Practices, rooms and surfaces used for residents with CPE must be thoroughly cleaned daily and upon discharge of the resident. The standard housekeeping products will suffice.
4. Upon discontinuation of precautions, transfer, or discharge, the resident's room will receive terminal cleaning. All privacy curtains will be taken down and sent for laundering. All disposable items including unused paper towels and toilet paper will be thrown away.

Visitors:

1. Visitors need not be restricted from visiting the resident with CPE. They should be instructed on correct hand hygiene procedures with an emphasis on the importance of hand hygiene after physical contact with the resident and on exit from room.
2. If a visitor is providing direct care, the visitor should be instructed to wear the same PPE as staff.