Interior Health
INFECTION PREVENTION & CONTROL

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Clostridioides difficile (C. diff)

Purpose

To prevent the transmission of *Clostridioides difficile* infection (CDI) formerly known as *Clostridium difficile* and minimize the risk of complications associated with CDI.

Definitions

Alcohol Based Hand Rub (ABHR): A liquid, gel, or foam formulation of alcohol (e.g., ethanol, isopropanol) which is used to reduce the number of microorganisms on hands in clinical situations when the hands are not visibly soiled. ABHRs contain emollients to reduce skin irritation and are less time consuming to use than washing with soap and water. ABHR shall contain 70-90% alcohol.

Alert/Enhanced Measures: An increase in cleaning and disinfection, surveillance, and investigations implemented in collaboration with IPAC and Medical Microbiologist.

Bedside Isolation: Dedicated washroom/commode and medical equipment, closed privacy curtains, and posted Additional Precautions on door and privacy curtain. PPE must be changed between each patient even if cohorted with the same infectious pathogen. Ability for infected patients to comply with bedside isolation is required in a shared room.

Cleaning: The physical removal of foreign material e.g., dusts, soil, organic material such as blood, secretions, excretions, and microorganisms using mechanical and/or chemical means. Cleaning physically removes rather than kills microorganisms.

Clostridioides difficile (C. difficile): a Gram positive, spore-forming, anaerobic bacillus that causes infectious diarrhea by producing two toxins – toxin A (an enterotoxin) and toxin B (a cytotoxin). *C. difficile* is the most frequent cause of healthcare-associated infectious diarrhea in Canada and other developed countries.

Disinfecting: The inactivation of disease-producing microorganisms. Disinfection does not destroy bacterial spores. Disinfection usually involves chemicals, heat, or ultraviolet light.

Diarrhea: Persistent liquid or loose stools (e.g., passing liquid or loose stools three or more times per day for more than 24 hours) or more frequently than is normal for the patient.

Health Care Provider (HCP): Individual providing or supporting health care services that will bring them into contact with patients/clients/ residents. This includes, but is not limited to emergency service providers, physicians, dentists, chiropractors, nurses, podiatrists, respiratory therapists and other allied health professionals, students, support services (e.g., Environmental Services, dietary, maintenance, hairdressers), and volunteers.

Personal Protective Equipment (PPE): Specialized clothing or equipment used by personnel to provide a barrier or shield to prevent exposure to potential infectious micro-organisms, and exposures to chemicals, or physical hazards.

Point of Care Risk Assessment (PCRA): is an assessment performed by health care provider before each patient interaction to assess the infectious risks posed by a Patient, situation, or procedure to themselves, other Staff, other Patients and Visitors. The PCRA is based on professional judgment about the clinical situation, as well as up to date information on how

the specific health-care facility has designed and implemented appropriate physical (engineering) and administrative controls, and the use and availability of PPE.

Outbreak: An excess over the expected incidence of disease within a geographic area during a specified period, synonymous with epidemic.

Note: in this document the term patient is inclusive of resident and client.

Overview

Illness Presentation

Presentation of signs and symptoms are variable and can range from mild to severe and can result in complications, recurrence, and death.

Individuals may or may not present with the following:

- Watery diarrhea – may be mild to profuse.
- Bloody stools
- Abdominal pain, tenderness, or cramping.
- Fever and chills.
- Loss of appetite.
- Nausea and vomiting.
- Dehydration, electrolyte abnormalities, and kidney injury
- High white blood cell count
- Pseudomembranous colitis (PMC) is the most serious condition caused by *C. difficile* that results in "inflammatory plaques" forming a yellowish membrane along the bowel wall.
- Occasionally a condition known as "toxic megacolon" where the bowel expands and can even perforate (hypotension, shock, ileus). This may result in the need for surgery.

Mode of Transmission

C. difficile bacteria and their spores are found in feces and transmission occurs via the fecal-oral route through direct or indirect contact.

Direct Contact: from person to person (touching)

- Transmission to patients most commonly occurs from the hands of health care providers who fail to complete appropriate gloving and hand hygiene.

Indirect Contact: from object to person

- *C. difficile* spores can survive on objects for months. Effective cleaning and disinfection are required to prevent transmission through contact with contaminated equipment and environment (commodes, toilet areas, frequently touched surfaces).

Increased Risk for Developing C. difficile Infection:

- Disturbance of the natural balance of bacteria in the colon raises the likelihood of developing a *C. difficile* infection. The use of medications like antibiotics and proton pump inhibitors is linked to an increased risk of *C. difficile* infection.

Case Definition

In BC, the definition of a case of CDI is:

- New onset of **3 or more** episodes of diarrhea (type 6 or 7 on Bristol stool chart) within a **24-hour period** (above what is considered normal for the individual), **AND;**

- No other clinical reason for diarrhea (e.g., laxatives, bowel prep, pre-existing condition) **OR**
- Toxic megacolon (i.e., abnormal dilation of the large intestine documented on radiology) without other known etiology **AND**
- Laboratory confirmation of the presence of *C. difficile* toxin A and/or B (positive toxin, or culture with evidence of toxin production, or detection of toxin genes) **OR**
- Diagnosis of typical pseudo-membranous colitis on sigmoidoscopy or colonoscopy **OR**
- Histological/pathological diagnosis of *C. difficile* Infection with or without diarrhea

Diagnostic Testing

Diagnosing a case of *Clostridioides difficile* requires assessment of both clinical symptoms and laboratory confirmation of illness OR confirmation by diagnostic tests such as sigmoidoscopy or colonoscopy, or histological/pathological (refer to Case Definition).

Refer to IH (Interior Health) Microbiology specimen ordering, collection, and transportation for guidance on specimen handling:
microbiology-guide-to-specimen-ordering-collection-and-transport-information.pdf (interiorhealth.ca)

- Testing for *C. difficile* or its toxins should be performed only on diarrheal (unformed) stool, (Bristol Stool Chart type 6 or 7) unless ileus due to C. difficile is suspected. Patients with ileus or toxic megacolon due to *C. difficile* infection may not present with active diarrhea.
- It is not recommended to perform a test of cure to discontinue Additional Precautions.
- Do not repeat testing during the same episode of diarrhea.
- Routine identification of asymptomatic carriers (patient or health care providers) for infection control purposes is not recommended and treatment of such identified patients is not effective.

Best Practices

Risk Assessment

All admitted patients presenting with diarrhea will be screened for possible *C. difficile* infection using the Diarrhea Algorithm for Inpatients.

If the patient meets the criteria, the nurse will: Follow guidelines in the *Clostridium difficile* Clinical Pathway

Additional Precautions

In addition to Routine Practice, Contact Plus Precautions are required for all confirmed and suspected patients with *C. difficile* with the appropriate Contact Plus Precautions signage posted outside the patient's door.

Hand Hygiene

Perform hand hygiene as per (AH0700) Hand Hygiene Policy.

- Utilize the first available method of hand hygiene unless hands are visibly soiled, in which case plain soap and water is the preferred method.

  - If no dedicated hand washing sink is in proximity, clean hands with alcohol-based hand rub (ABHR) and wash with soap and water at first opportunity.
- Do not perform hand hygiene at a patient sink, as this may cause further contamination of the health care provider's hands. Use a dedicated hand washing sink.
- Assist/Encourage patients to perform hand hygiene before meals, after using the washroom and frequently throughout the day.

Patient Placement and Accommodation

- Single-bed room with dedicated bathroom is preferred.
- If single room unavailable refer to Recommendations for Cohorting Patients with strict bedside isolation, and dedicated toilet/commode and patient equipment.
- Contact Plus Precautions signage placed at the entrance to patient room. If in multi-bedroom, place additional sign at entrance to patient bedspace (i.e. Curtain).

Patient Flow and Transport

- Limit transfers to essential and diagnostic purposes only. Contact IPAC as needed.
- Communication of Contact Plus Precautions is essential when a patient goes to another department or unit.
- Notify receiving department/facility and BC Emergency Health Services (BCEHS) or other transport staff prior to transport.
- Perform a Point of Care Risk Assessment prior to interacting with patient to determine if additional PPE is required.
- Don gown and gloves when in direct contact with patient or patient environment.
- After assisting patient, doff PPE inside patient room and clean hands prior to transport. If direct care of patient is required during transport, staff transporting should don new gown and gloves.

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

1. **C**ommunicate: notify receiving department if patient is on Additional Precautions.
2. **C**o-operative: is the patient able to follow instructions.
3. **C**lean hands: assist patient if required to clean their hands.
4. **C**lean clothes/clean sheet: patient to wear clean gown or clothes/cover with clean sheet.
5. **C**over/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)

Personal Protective Equipment (PPE)

- PPE to be available directly outside the patient room, cubicle, or designated bed space.
- 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 Point of Care Risk Assessment prior to interacting with the patient to determine if additional PPE is required

Patient Care Equipment

- Patients on Contact Plus precautions are required to have dedicated commode or bathroom (no shared bathroom).
- Dedicate equipment to a single patient (e.g., blood pressure cuffs, etc.).
- When equipment cannot be dedicated, clean and disinfect between every use using sporicidal wipes.
- Use sporicidal wipes for cleaning and disinfection of all equipment for patients on Contact Plus Precautions.
- 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 with a sporicidal product, after each use.

Cleaning and Disinfection of Patient Environment

- Patient room to be cleaned and disinfected daily and frequently touched surfaces to be cleaned and disinfected twice daily as per EVS *C. diff* Standard of Practice.
- Use a sporicidal product for cleaning and disinfection.
- The physical act of friction is necessary to remove *C. difficile* spores.
- Environmental services (EVS) to be notified by Health care providers when patient is discharged or transferred.
- Environmental Services to complete an **Additional Precautions Discharge Clean and 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 (EVS Manual p109)
- Contact Plus sign remains in place until the Additional Precaution Discharge Clean & Disinfection is complete - and signage is only removed by Environmental Services.

Waste, Laundry, Dishes, and Cutlery

- Use Routine Precautions

Discontinuing Precautions

- Nursing to use Bowel Record (Bristol Stool Chart) to monitor diarrhea.
- A negative specimen is not required prior to discontinuation of additional precautions. Do not retest patient for "test of cure".
- Nursing to follow the section from Clostridium difficile Clinical Pathway for *Discontinuing Contact Plus precautions*:
    - Formed stools (Type 1-5 on Bristol Stool Chart) or return to baseline stool pattern for more than 72 hours.
    - Patient showered/bathed, dressed in clean gown, and placed in a clean room.
    - Environmental Services to be notified to do **Additional Precautions Discharge Cleaning and Disinfection.** NOTE: Contact Plus precautions sign to remain in place until cleaning and disinfection complete.
    - All medical equipment not appropriate for Environmental Services to clean, must be cleaned as per the IPAC Equipment Cleaning and Disinfecting Manual.

Education of Patients, Families and Visitors

- Educate patients and visitors as per Contact Plus Precaution sign.
- 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.
    - Visitors should remain in the patient's room and not visit other areas of the hospital or with other patients during the same visit.
    - 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.

CDI Alerts and Outbreaks

C. difficile Alerts and Outbreaks are declared when the number of new healthcare-associated *C. difficile* cases in a unit or facility over a specified time is above the expected threshold for that unit or facility and where there is evidence of ongoing transmission despite appropriate interventions. The Medical Microbiologist or Medical Health Officer will declare the outbreak over in consultation with the Infection Preventionist.

Acute Care: IH Acute Outbreak Toolkit

Long-term Care: Respiratory and Gastrointestinal Infection Outbreak Toolkit- Long-term Care

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	Sept 2024	Entire document	New Formatting. Each section reviewed and updated.
		Hand Hygiene	Added ABHR

References

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