

CLOSTRIDIUM DIFFICILE INFECTION

INFECTION PREVENTION AND CONTROL
GUIDANCE FOR MANAGEMENT IN
ACUTE CARE SETTINGS

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— Public Health Agency of Canada

CLOSTRIDIUM DIFFICILE INFECTION:

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FOREWORD

CLOSTRIDIUM DIFFICILE INFECTION

INFECTION PREVENTION AND CONTROL GUIDANCE FOR MANAGEMENT IN ACUTE CARE SETTINGS

The Public Health Agency of Canada (PHAC) has developed this document to provide infection prevention and control guidance to healthcare organizations and healthcare workers^a (HCWs) for the management of patients with *Clostridium difficile* infection (CDI) in acute care settings^b. The content of this guidance document has been informed by technical advice provided by members of PHAC's Steering Committee on Infection Prevention and Control Guidelines.

This guidance is meant to be used in conjunction with relevant provincial/territorial and local legislation, regulations, and organizational policies. The recommendations are based on current, scientific evidence and best practices, and are subject to review and change as new information becomes available.

^a Healthcare workers: Individuals who provide health care or support services, such as nurses, physicians, dentists, nurse practitioners, paramedics and sometimes emergency first responders, allied health professionals, unregulated healthcare providers, clinical instructors and students, volunteers and housekeeping staff. Healthcare workers have varying degrees of responsibility related to the health care they provide, depending on their level of education and their specific job/responsibilities.¹⁶

^b Acute care settings: A healthcare facility where a variety of inpatient services is provided that may include surgery and intensive care. For the purpose of this document, acute care also includes ambulatory care settings such as hospital emergency departments, and free-standing ambulatory (day) surgery or other day procedures (e.g., endoscopy) centres.¹⁶

TABLE OF CONTENTS

DESCRIPTION	2
RECOMMENDED INFECTIONS PREVENTION AND CONTROL MEASURES.....	3
1. Organizational Controls	4
a) Engineering Measures	4
b) Administrative Measures	5
2. Triage – Emergency Departments and Acute Assessment Settings	6
3. Assessment	6
4. Surveillance	6
5. Laboratory Testing/Reporting	6
6. Contact Precautions.....	7
7. Personnel Restrictions	7
8. Hand Hygiene	8
9. Patient Placement and Accommodation	8
10. Patient Flow/Activities	9
11. Personal Protective Equipment.....	10
a) Gloves	10
b) Gowns	10
12. Management of Fecal Matter	10
13. Cleaning and Disinfection of Non-critical Care Equipment	11
14. Environmental Cleaning.....	11
15. Handling Linen, Dishes, Cutlery.....	12
16. Duration of Precautions	12
17. Handling Deceased Bodies.....	12
18. Education of Healthcare Workers, Patients, Families, Visitors	12
a) Healthcare Workers	12
b) Patients, Families, Visitors	13
19. Visitor Management	13
20. Discharge Planning.....	13
21. Outbreak Management	13
REFERENCES	15
APPENDIX A POINT-OF-CARE RISK ASSESSMENT	17

DESCRIPTION

Clostridium difficile (*C. difficile*) is a Gram positive, spore-forming, anaerobic bacillus that causes infectious diarrhea by producing two toxins - toxin A (an enterotoxin) and toxin B (a cytotoxin).¹ *C. difficile* is the most frequent cause of healthcare-associated infectious diarrhea in Canada and other developed countries.^{2,3}

The reported incidence of healthcare-associated CDI in Canada has risen over the last decade and is associated with increased morbidity and mortality.⁴ CDI can have a variety of manifestations from uncomplicated diarrhea to life-threatening pseudomembranous colitis,³ bowel perforation and sepsis.⁵ There has been an almost four-fold increase in the CDI attributable mortality rate in Canadian hospitals from 1997 to 2005 (1.5% of cases to 5.7%, respectively, $p < .001$).⁴ There are multiple reasons behind the increase in CDI and CDI-related mortality rates in Canada but an important contributor has been the spread of a more virulent strain, often referred to as North American pulsed field (NAP) type 1.⁶

The primary mode of transmission for *C. difficile* within healthcare facilities is by person-to-person spread through the fecal-oral route.⁷ The hands of healthcare workers (HCWs), transiently contaminated with *C. difficile* spores, along with environmental contamination play an important role in the transmission of *C. difficile* in healthcare settings.⁸⁻¹⁰ Compared to other healthcare-associated bacterial pathogens, environmental contamination around a CDI patient is thought to be a relatively more significant factor in cross-transmission to others. This is because *C. difficile*, being a spore-forming microorganism, persists in the environment longer and resists routine disinfection processes more than non-spore forming bacteria.

The degree to which CDI is endemic within a healthcare facility is variable. Those responsible for infection prevention and control within a facility should be aware of CDI epidemiology within their organization and gauge their response accordingly.¹¹ Consistent and correct application of infection prevention and control measures has proven effective in reducing the incidence of healthcare-associated CDI.^{12,13}

As CDI is strongly associated with previous antibiotic use, antimicrobial stewardship is believed to have a role in preventing and terminating CDI outbreaks.^{14,15} While this guidance document is focused on infection prevention and control measures to prevent CDI in acute care settings, it should be acknowledged that the prevention of CDI also requires appropriate use of antimicrobial therapy (i.e., antimicrobial stewardship). Infection control professionals should advocate for both effective infection prevention and control and antimicrobial stewardship programs as important strategies to prevent CDI within their organizations.

RECOMMENDED INFECTIONS PREVENTION AND CONTROL MEASURES

The following guidance is based primarily on recommendations in the *PHAC's Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Healthcare Settings* guideline,¹⁶ except where indicated.

In addition to routine practices, patients suspected or confirmed to have CDI in acute care settings should be placed on **Contact Precautions**. A point-of-care risk assessment approach (Appendix A) should be used to guide decisions regarding when to apply contact precautions.

The following topics are addressed in more detail in this document:

1. Organizational Controls
 - a) Engineering Measures
 - b) Administrative Measures
2. Triage
3. Assessment
4. Surveillance
5. Laboratory Testing/Reporting
6. Contact Precautions
7. Personnel Restrictions
8. Hand Hygiene
9. Patient Placement and Accommodation
10. Patient Flow/Activities
11. Personal Protective Equipment
12. Management of Fecal Matter
13. Cleaning and Disinfection of Non-critical Patient Care Equipment
14. Environmental Cleaning
15. Handling Linen, Dishes, Cutlery
16. Duration of Precautions
17. Handling Deceased Bodies
18. Education of Healthcare Workers, Patients, Families, Visitors
19. Visitor Management
20. Discharge Planning
21. Outbreak Management

1. ORGANIZATIONAL CONTROLS

A major role of all healthcare organizations is to minimize the risk of exposure to and transmission of infections within healthcare settings. This can be achieved by having policies, procedures and programs specifically for the prevention of CDI based on the following engineering and administrative measures.

a) Engineering Measures

- i. Facility design should include single rooms for the routine care of inpatients (with in-room private toilets, designated patient sinks, alcohol-based hand rub (ABHR) dispensers and designated staff hand washing sinks).
- ii. Facility design should include surfaces that are constructed of materials that can be easily and effectively cleaned at the point of use.
- iii. Appropriate number of bedpans and commodes should be available.
- iv. To avoid contamination of the environment with *C. difficile* spores, systems should be in place to manage the disposal of fecal matter when bedpans or commodes are required. Some options for consideration are:
 - Installation of bedpan washers/disinfector systems^c on patient units;
 - Utilization of disposable bedpans for patients with acute diarrhea and the installation of macerator systems for the disposable bedpans.
 - Appropriate supply of and accessibility to personal protective equipment (PPE) should be available.
- v. Appropriate number of accessible no-touch waste receptacles for disposal of paper towels, tissues, gloves, etc. should be available.
- vi. Appropriately functioning, accessible dispensers for hand hygiene products (soap, lotion, paper towels and ABHR) should be available.
- vii. Appropriate number of designated staff hand washing sinks should be available.
- viii. Appropriate number of point-of-care ABHR dispensers should be installed.
- ix. If laundry chutes are used, they should be properly designed, maintained and used in a manner to minimize dispersion of aerosols from contaminated laundry.

^c A thorough evaluation on the efficacy of bed pan disinfector (BPD) systems for use on patient units should be done prior to procurement with a continuous quality improvement process in place for monitoring and evaluating performance.^{24,25}

b) Administrative Measures

- i. Policies and procedures should be developed and implemented for the prevention and control of CDI, including the application of contact precautions, and outbreak recognition, reporting and management.
- ii. Sufficient expert human capital (e.g., hospital epidemiologist, infection control professionals) and financial allocation to ensure an effective infection prevention and control program appropriate to the organization's mandate should be provided.
- iii. Infection control professionals or delegates should be actively involved in the selection of new patient care equipment and devices that require cleaning, disinfection and/or sterilization.
- iv. Policies and procedures should be developed and implemented for environmental cleaning to ensure sufficient staffing, routine scheduled environmental cleaning, procedures for assigning responsibility and accountability for cleaning as indicated by the level of patient contact and degree of soiling, and include event-related cleaning of environmental surfaces and increased cleaning as per additional precautions.
- v. Education and training programs should be developed and implemented for those responsible for environmental cleaning. Evaluation of policies, procedures and practices, including audits, should be performed to determine effectiveness of environmental cleaning and cleaning practices.
- vi. Policies and procedures, including assigning responsibility, should be developed and implemented for cleaning and disinfection of all non-critical patient care items (e.g., mobile devices, multi-use electronics, intravenous poles, toys and electronic games, etc.) that are and are not moved in and out of patient care areas.
- vii. A facility-wide, adequately resourced antimicrobial stewardship program should be established.
- viii. Monitoring, auditing and reporting of hand hygiene compliance and environmental cleaning procedures should be established.
- ix. A surveillance system should be established that includes systematic collection, analysis, interpretation and dissemination of CDI rates by unit in the facility (refer to item 4, Surveillance).

2. TRIAGE – EMERGENCY DEPARTMENTS AND ACUTE ASSESSMENT SETTINGS

Patients with an acute diarrheal illness should be placed into a single examining room with a dedicated toilet or commode whenever possible and as soon as possible.

3. ASSESSMENT

- a) Patients with diarrhea or other symptoms (e.g., nausea ± vomiting, fever, abdominal pain/tenderness) suspected to be CDI should be assessed in a timely manner. A stool specimen should be taken for laboratory testing for *C. difficile* (refer to item 5, Laboratory Testing/Reporting), and the patient placed on contact precautions (refer to item 6, Contact Precautions).
- b) Clinical assessment of symptomatic patients and, where necessary, initiation of antimicrobial therapy according to clinical practice guidelines, should occur promptly.
- c) Asymptomatic patients should not be tested for *C. difficile*.
- d) Routine environmental testing for *C. difficile* is not useful and should not be done.
- e) Testing of asymptomatic staff is not advisable. Symptomatic staff should be referred to the organization's occupational health and safety personnel or their personal physician for evaluation.

4. SURVEILLANCE

- a) A system should be established for the early reporting of symptomatic patients to the organization's infection control professional or delegate.
- b) A system should be established for early notification of all patients testing positive for *C. difficile* to the infection control professional or delegate.
- c) Prospective surveillance using accepted CDI case definitions and denominators¹⁷ should be established to determine the organization's baseline rate and to monitor changes in the CDI rate. By adopting a recognized provincial or national case definition (i.e., the Canadian Nosocomial Infection Surveillance Program⁴ Case Definitions for Communicable Diseases under National Surveillance,¹⁸ Case Definition and Minimum Data Set for the Surveillance of *Clostridium difficile* Infection in Acute Care Hospitals across Canada¹⁹) organizations will be able to benchmark their CDI and CDI-related mortality rate against other Canadian facilities.

5. LABORATORY TESTING/REPORTING

- a) A variety of tests are available to identify *C. difficile* or its toxins in the stools of patients with diarrhea. These tests vary significantly in sensitivity. Infection control professionals should review local testing methods and algorithms with their clinical or medical microbiologist. If increased CDI rates are observed, it is important to ensure that they are

- not an artifact of increased case detection resulting from adoption of new test methods or algorithms.
- b) A protocol and provisions for testing for CDI should be established.
 - c) Stool specimen collection for the testing of *C. difficile* or its toxins should be done as soon as possible after onset of diarrhea.³
 - d) A process should be established for prompt notification of all positive tests to the attending physician and infection control professional or delegate, as well as regional, provincial/territorial public health authorities as required.
 - e) When test methods of lower sensitivity are performed (e.g., enzyme-linked immunoassays) a single negative test for patients with acute diarrhea should not be relied on to rule out *C. difficile*.²⁰ If the first test is negative, a second test may be indicated.
 - f) Testing for *C. difficile* or its toxins should only be performed on unformed, diarrheal stool (i.e., loose, watery stool).³
 - g) Repeat testing during the same episode of diarrhea or follow-up for “test of cure” should not be done.³
 - h) Testing of infants under one year of age should not be done as they are not susceptible to CDI.^{21,22}

6. CONTACT PRECAUTIONS

- a) Contact precautions should be implemented empirically, at onset of diarrhea, for patients with acute diarrhea, suspected or confirmed to be CDI, and not otherwise explained.
- b) Patients suspected or confirmed to have CDI should be placed on contact precautions, preferably in a single room, until the diarrhea is resolved or its cause is determined not to be infectious (refer to item 9, Patient Placement and Accommodation).
- c) If availability of single rooms is limited, preference for single rooms should be given to patients with uncontrolled diarrhea/fecal incontinence.²¹
- d) Cohorting of multiple laboratory confirmed patients is acceptable.
- e) Signage should be placed at the entrance to the patient’s room, cubicle, designated bedspace or other visible location to identify contact precautions.
- f) Refer to items below for further details relating to contact precautions.

7. PERSONNEL RESTRICTIONS

- a) HCWs should stay away from work when infectious with a communicable disease, including, but not limited to, gastroenteritis with vomiting and/or diarrhea.
- b) The immediate supervisor/occupational health personnel should be informed if the HCW worked when symptomatic/infectious.

8. HAND HYGIENE

- a) Hand hygiene should be performed frequently using effective techniques (as recommended in the *PHAC Hand Hygiene Practices in Healthcare Settings* guideline²³) and include:
 - i. After patient care;
 - ii. After contact with the patient's environment;
 - iii. After removing gloves at point-of-care and just prior to leaving the patient's room, cubicle or designated bedspace;
 - iv. After handling fecal matter; and
 - v. After handling bedpans and commodes.
- b) Soap and water in preference to ABHR should be used in settings with CDI transmission and during CDI outbreaks, for the physical and mechanical removal of spores (refer to item 21, Outbreak Management).
- c) Hand hygiene with soap and water should be performed at the point-of-care and at a designated staff hand washing sink. If a designated staff hand washing sink is not available at the point-of-care, ABHR (with an alcohol concentration between 60% and 90%) should be used and hand hygiene with soap and water should be performed as soon as a staff hand washing sink is available.
- d) Hand wipes (impregnated with plain soap, antimicrobials, or alcohol) may be used as an alternative to soap and water when a designated staff hand washing sink is not immediately available, or when the hand washing sink is unsuitable (e.g., contaminated sink, no running water, no soap), for the following conditions:
 - i. When hands are not visibly soiled; and
 - ii. When hands are visibly soiled. ABHR should be used after the use of hand wipes, and hands should be washed with soap and water once a suitable staff hand washing sink is available.

9. PATIENT PLACEMENT AND ACCOMMODATION

- a) Patients suspected or confirmed to have CDI should be placed into a single room with a private toilet (or designated commode if there is no toilet in the room) and a designated patient sink.
- b) The room door may remain open.
- c) When single patient rooms are limited, a point-of-care risk assessment (Appendix A) should be performed to determine patient placement and/or suitability for cohorting.
- d) Only patients with laboratory-confirmed CDI should be cohorted, however, each patient should have a designated toilet or commode assigned. In a shared room, a patient with diarrhea should not share a toilet with another patient. A dedicated toilet or commode should be assigned to each individual patient with diarrhea. Roommates should be selected on their ability and their visitors' ability to comply with the necessary precautions.
- e) The infection control professional or delegate should be consulted when cohorting is considered.

- f) If cohorting of patients with confirmed diagnosis of CDI is not possible and a cubicle or designated bedspace is used in a shared room, privacy curtains should be drawn between beds at all times, and a designated commode provided.
- g) Infection control signage should be placed at the entrance to the patient's room, cubicle or designated bedspace indicating contact precautions are required upon entry.
- h) The chart/record of the patient suspected or confirmed to have CDI should not be taken into the patient's room, cubicle or designated bedspace.

10. PATIENT FLOW/ACTIVITIES

- a) The symptomatic patient suspected or confirmed to have CDI should be allowed out of the room only as indicated in the care plan, providing diarrhea can be contained and hand hygiene compliance is adequate.
- b) The patient suspected or confirmed to have CDI should be provided with clean clothes and should perform hand hygiene, with supervision/assistance as necessary, before leaving the room.
- c) Instructions/assistance with hand hygiene should be provided to patients suspected or confirmed to have CDI after using the toilet facilities and prior to leaving their room.
- d) If diarrhea cannot be contained and/or if hand hygiene compliance is inadequate, patients suspected or confirmed to have CDI should be restricted to their room until:
 - i. Diarrhea has resolved; or
 - ii. Diarrhea can be contained; and
 - iii. Hand hygiene compliance is adequate.
- e) Transfer of patients suspected or confirmed to have CDI within and between facilities should be avoided unless medically indicated (e.g., for essential diagnostic and therapeutic tests/treatment). If a medically indicated transfer is necessary:
 - i. The transferring service, receiving unit, or facility should be advised of the necessary precautions for the patient being transported;
 - ii. A request to have the patient promptly seen to minimize time in waiting areas should be considered;
 - iii. The patient should be provided with clean clothes and bedding as necessary, diarrhea should be contained (i.e., with incontinent products) as necessary, and instruction/assistance with performing hand hygiene should be provided;
 - iv. The transport personnel should remove and dispose of their PPE (refer to item 11, Personal Protective Equipment) and perform hand hygiene prior to transporting patients; and
 - v. The transport personnel should put on clean PPE, if necessary (refer to item 11, Personal Protective Equipment), to handle the patient during transport and at the transport destination.

11. PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment (PPE) for contact precautions should be provided outside the room, cubicle or designated bedspace (or when available, in the anteroom) of the patient suspected or confirmed to have CDI. HCWs, families and visitors should use the following PPE for patients suspected or confirmed to have CDI:

- a) Gloves
 - i. Gloves should be worn to enter the patient's room, cubicle or designated bedspace during the care of the patient and for contact with the patient's environment;
 - ii. Gloves should be removed and discarded into a no-touch waste receptacle and hand hygiene (refer to item 8, Hand Hygiene) should be performed upon exiting the patient's room, cubicle or designated bedspace.
- b) Gowns
 - i. A long-sleeved gown should be worn if it is anticipated that clothing or forearms will be in direct contact with the patient or with environmental surfaces or objects in the patient care environment;
 - ii. If a gown is to be worn it should be put on before entering the room, cubicle or designated bedspace. The gown should be removed and discarded into a no-touch receptacle immediately after the indication for use and hand hygiene should be performed before leaving the patient's environment.

The same PPE should not be worn for more than one patient. PPE should be changed and hand hygiene should be performed between contacts with each patient in the same room.

12. MANAGEMENT OF FECAL MATTER

- a) When bedpans and commodes are required:
 - i. Bedpans and commodes should be handled in such a way as to avoid contamination of the environment with *C. difficile* spores;
 - ii. Disposable bedpans should be considered; and
 - iii. Spray wands for cleaning bedpans and commode pans/buckets should not be used.
- b) Toilet bowl brushes should be dedicated to one specific toilet and not be reused. Disposable toilet bowl brushes should be considered.

13. CLEANING AND DISINFECTION OF NON-CRITICAL CARE EQUIPMENT

- a) All equipment/supplies should be identified and stored in a manner that prevents use by or for other patients.
- b) Reusable non-critical equipment (e.g., blood pressure cuffs, stethoscopes, pulse oximeters, commodes, bedpans, walkers, etc.) should be dedicated to the use of the patient suspected or confirmed to have CDI, and should be cleaned and disinfected (with a chlorine-containing cleaning agent (at least 1,000 parts per million (ppm)) or other sporicidal agent before reuse with another patient.²¹
- c) Electronic rectal thermometers should not be used.
- d) Single-use devices should be discarded in a no-touch waste receptacle after use.
- e) Toys, electronic games, personal effects, etc. should be dedicated to the use of the patient suspected or confirmed to have CDI, and should be cleaned and disinfected before reuse by another patient.

14. ENVIRONMENTAL CLEANING

- a) All horizontal and frequently touched surfaces in the room, cubicle or designated bedspace of the patient suspected or confirmed to have CDI should be cleaned at least twice daily and when soiled, paying particular attention to “high touch” areas/items (e.g., patient bathroom, bathing facilities, toilet/commode/bedpan, light switches, light cords, bed/hand rails, bedside tables and other furniture, wheelchair, walker, etc.).
- b) Measures should be taken to limit contamination of cleaning and disinfecting solutions by changing cleaning cloths and mop heads frequently.²¹
- c) During continued transmission of CDI, the rooms or bedspace of patients suspected or confirmed to have CDI should be decontaminated and cleaned with a chlorine-containing cleaning agent (at least 1,000 ppm) or other sporicidal agent.
- d) Additional cleaning measures or frequency may be warranted in outbreak situations (refer to item 22, Outbreak Management), or when there is continued transmission of CDI.
- e) When the patient suspected or confirmed to have CDI is moved to a single room at the onset of acute diarrhea, or transferred out of the room for other reasons, or when contact precautions are discontinued, terminal cleaning of the room, cubicle or designated bedspace and bathroom, changing the privacy curtains, discarding the toilet bowl brush, and cleaning and disinfecting, or changing the string/cloth call bells or light cords should be done (refer to RPAP guideline, Appendix VII¹⁶, for details on terminal cleaning).
- f) Contact precautions should be maintained until terminal cleaning of the room, cubicle or designated bedspace is completed.

15. HANDLING LINEN, DISHES, CUTLERY

- a) No special precautions are required for linen; routine practices are sufficient and include the following:
 - i. Soiled linen should be handled in the same way for all patients without regard to their infection status;
 - ii. Soiled linen should be placed in a no-touch receptacle at the point of use;
 - iii. Soiled linen should be handled with a minimum of agitation to avoid contamination of air, surfaces and persons;
 - iv. Soiled linen should be sorted and rinsed outside of patient care areas; and
 - v. Heavily soiled linen should be rolled or folded to contain the heaviest soil in the centre of the bundle. Solid fecal matter that can be removed using a gloved hand and toilet tissue should be placed into a bedpan or toilet for flushing.
- b) No special precautions are required for dishes or cutlery; routine practices are sufficient.

16. DURATION OF PRECAUTIONS

- a) Contact precautions should be maintained until:
 - i. CDI is ruled out, and/or diarrhea is determined as not infectious; or
 - ii. If CDI is confirmed, until diarrhea has resolved^d; or
 - iii. According to provincial/territorial guidelines or the organization's policy.
- b) Discontinuation of contact precautions should be made in conjunction with the infection control professional or delegate.

17. HANDLING DECEASED BODIES

- a) Routine practices, properly and consistently applied, should be used in addition to contact precautions for handling deceased bodies, preparing them for autopsy, or transferring them to mortuary services.
- b) Provincial/territorial specified communicable disease regulations should be followed.

18. EDUCATION OF HEALTHCARE WORKERS, PATIENTS, FAMILIES, VISITORS

- a) Healthcare Workers (HCWs)
 - i. All HCWs should receive education on *C. difficile*, including measures to control its spread and on their role in identifying and acting on new onset diarrhea; and

^d An operational definition is suggested by some experts to continue contact precautions for at least 48 hours after diarrhea has resolved as relapse of diarrhea is common. However, there is currently no data to support isolation of asymptomatic patients.²¹

- ii. Education should reinforce that routine practices, contact precautions, and safe work practices, (e.g., no eating or drinking in patient care areas) protect HCWs from acquiring CDI in the healthcare setting.
- b) Patients, Families, Visitors
 - i. Patients, families, and visitors should be educated about the precautions being used; the duration of precautions, as well as the prevention of transmission of infection to others, with a particular focus on hand hygiene;
 - ii. Families and visitors who are participating in direct patient care should be instructed about the indications for an appropriate use of PPE; and
 - iii. Families and visitors who assist with patient care should use PPE as HCWs. This may not be necessary for parents carrying out their usual care of young children.

19. VISITOR MANAGEMENT

- a) Visitors should be instructed to speak with a nurse before entering the room, cubicle or designated bedspace of a patient on contact precautions to evaluate the risk to the health of the visitor and the ability of the visitor to comply with precautions.
- b) The number of visitors for a patient on contact precautions should be minimized to essential visitors (e.g., immediate family member/parent, guardian or primary caretaker) only.
- c) Visitors should be restricted to visiting only one patient who is on contact precautions. If the visitor must visit more than one patient, the visitor should be instructed to use PPE as HCWs and perform hand hygiene before going to the next patient's room, cubicle or designated bedspace.

20. DISCHARGE PLANNING

In preparing patients with CDI or recovering from CDI for discharge, the patients should be provided with information/education about the following:

- a) Any medications they are to take at home;
- b) Reminders on the importance of washing their hands with soap and water after using the toilet, handling used linen, and before preparing and/or eating food;
- c) That special handling of dishes, bed linen and waste is not necessary (whether symptomatic or not). Solid fecal matter that can be removed using a gloved hand and toilet tissue should be placed into a bedpan or toilet for flushing;
- d) The frequency of recurrence of CDI; and
- e) Notifying their physician if acute diarrheal symptoms recur.

21. OUTBREAK MANAGEMENT

- a) When there is evidence of continued transmission of *C. difficile* within a facility or when the incidence rate for *C. difficile* is higher than the facility's baseline rate, the following heightened measures should be considered:

- i. Placing signage at entrances to the affected unit(s) to direct families and visitors;
 - ii. Placing all patients with acute diarrhea on contact precautions;
 - iii. Reporting the outbreak to local public health officials as per regional, provincial/territorial reporting requirements;
 - iv. Decontaminating and cleaning rooms, cubicles or designated bedspaces of patients suspected or confirmed to have CDI with a chlorine-containing cleaning agent (at least 1,000 ppm) or other sporicidal agent;
 - v. Increasing the frequency of cleaning, including bathing and toileting facilities, recreational equipment, all horizontal surfaces in the patient's room and, in particular, areas/items that are frequently touched (e.g., hand and bedrails, light cords, light switches, door handles, furniture, etc.), common areas, nursing stations, staff washrooms, etc., on the affected unit(s);
 - vi. Cohorting of staff to patients (i.e., assigning staff to work exclusively with CDI-positive patients);
 - vii. With associated high burden of illness, particularly with higher than expected attributable mortality, there may be a role, in consultation with a microbiologist and public health, to characterize the strain type and clonality of *C. difficile* isolates;
 - viii. Auditing adherence to hand hygiene practices (refer to item 10, Hand Hygiene), PPE use by staff (refer to item 11, Personal Protective Equipment), cleaning/disinfecting shared non-critical equipment (refer to item 13, Cleaning and Disinfection of Non-critical Patient Care Equipment), and environmental cleaning procedures (refer to item 14, Environmental Cleaning);
 - ix. Reviewing the process for disposal of fecal matter (refer to item 12, Management of Fecal Matter);
 - x. Closing affected unit(s) to admissions if initial control measures are ineffective in controlling the spread of *C. difficile*;
 - xi. Reviewing antimicrobial prescribing practices, including indications for prescribing and specific agents used. In some settings, it may be helpful to restrict the use of specific antimicrobial agents; and
 - xii. Consulting provincial/territorial and/or national public health expertise in outbreak management for ongoing outbreak situations.
- b) An outbreak should be declared over when there is no further transmission and there has been a return to the organization's baseline CDI rate.

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APPENDIX A

POINT-OF-CARE RISK ASSESSMENT¹

Prior to any patient/resident/client interaction, all healthcare workers (HCWs) have a responsibility to always assess the infectious risk posed to themselves and to other patients/residents/clients, families, visitors, and HCWs. This risk assessment is based on professional judgment about the clinical situation and up-to-date information on how the specific healthcare organization has designed and implemented engineering and administrative controls, along with the availability and use of personal protective equipment (PPE).

The point-of-care risk assessment (PCRA) is an activity performed by the HCW **before every patient/resident/client interaction**, to:

1. Evaluate the likelihood of exposure to the infectious agent:
 - **from a specific interaction** (e.g., performing/assisting with aerosol-generating medical procedures, other clinical procedures/ interaction, non-clinical interaction [*i.e., admitting, teaching patients/residents/clients and families*], transporting patients/residents/clients, direct face-to-face interaction with patients/residents/clients, etc.);
 - **with a specific patient/resident/client** (e.g., infants/young children, patients/residents/clients not capable of self care / hand hygiene, have poor compliance with respiratory hygiene, copious respiratory secretions, frequent coughing/sneezing, diarrhea, etc.);
 - **in a specific environment** (e.g., single rooms, shared rooms/washrooms, hallway, assessment areas, emergency departments, public areas, therapeutic departments, diagnostic imaging departments, housekeeping, etc.);
 - under available conditions (e.g., air exchanges in a large waiting area or in an airborne infection isolation room, patient/resident/client waiting areas, etc.);

AND

2. Choose the **appropriate actions/PPE** needed to minimize the risk of the patient/resident/client, HCW, other staff, family, visitor, contractor, etc. of exposure to the infectious agent.

The PCRA is not a new concept, but one that is already performed regularly by HCWs many times a day for their safety and the safety of patients/residents/clients and others in the healthcare environment. For example, when a HCW assesses a patient/resident/client and the situation to determine the possibility of blood or body fluid exposure or chooses appropriate PPE to care for a patient/resident/client with an infectious disease, these actions are both activities of a PCRA.

¹ Public Health Agency of Canada. Prevention and Control of Influenza during a Pandemic for All Healthcare Settings. Annex F of The Canadian Pandemic Influenza Plan for the Health Sector. Available at: www.phac-aspc.gc.ca/cpip-pclcpi/index-eng.php