Clostridioides difficile (*C. difficile*)

Site Applicability

All PHC Acute and Long Term Care Sites.

Practice Level

Basic: Physicians, NPs, Nursing, Clinical Nurse Leader, Clinical Site Coordinator, Bed Placement Coordinator

Standards

In addition to Routine Practices, Contact Plus Precautions must be initiated on all patients/residents who have diarrhea known or suspected to be caused by *Clostridioides difficile* (*C. difficile*, formerly classified as *Clostridium difficile*).

The patient/resident will remain on Contact Plus Precautions until bowel movements have returned to baseline for 72 hours.

Description of the Disease

C. difficile (commonly referred to as C. diff) is a gram-positive, spore-forming bacteria that produces different enterotoxins. Enterotoxins are released when the bacteria is multiplying in the GI tract unchecked. Spores are formed in the environment outside the body. *C. difficile* bacteria in the GI tract without infection (asymptomatic) is termed colonization. We do not screen for asymptomatic *C. difficile* colonization.

C. difficile infection (CDI) or *C. difficile* associated diarrhea/disease (CDAD), is the disease caused by the *C. difficile* bacterial toxins and can range from uncomplicated diarrhea to severe disease including pseudomembranous colitis, sepsis, and death. It is a toxigenic infection/disease meaning the symptoms/signs are caused by the enterotoxins.

CDI is highly associated with/triggered by antibiotic therapy, which leads to reduction of normal intestinal flora thereby allowing *C. difficile* colonizing the GI tract to multiply unchecked. Major antibiotics associated with CDI include clindamycin, higher-generation cephalosporins, fluoroquinolones, and antibiotics combined with beta-lactamase inhibitors (e.g. clavulinate, tazobactam). Prudent antibiotic prescribing can prevent CDIs.

In the early 2000's, a new hyper-virulent (causing more disease/worse infection) strain of *C. difficile* emerged that has been associated with increased morbidity and mortality, particularly in the elderly. This strain, known as NAP 1 or ribotype 027, has caused numerous outbreaks of severe disease in North America and Europe. In Quebec in 2003-4, an estimated 2000 people died, either directly or indirectly, from *Clostridium difficile* infection (CDI). Sampling has shown the NAP 1 strain is established at PHC.

In addition to previous antibiotic use, other risk factors for CDI include people 65 years and older, a prolonged hospital stay and those with severe underlying illness. CDI remains the most important cause of healthcare-associated diarrhea. *C. difficile* spores in the environment are resistant to many cleaning agents and can further complicate management in healthcare facilities.

Signs & Symptoms

Common symptoms include:

- Diarrhea (Bristol type 6/7; see Appendix A)
- Fever
- Abdominal pain/tenderness

Incubation Period

Incubation period for *C. difficile* is variable as individuals may be colonized without active infection/diarrhea. Symptoms may begin days to weeks after antibiotic exposure.

Period of Communicability

Patients/residents are most infectious while diarrhea is present and until symptoms have stopped for 72 hours (i.e., back to baseline). Recurrent relapses may occur.

Route of Transmission

The primary route of *C. difficile* transmission is person-to-person spread through the fecal-oral route, most commonly via hands of health care workers that have become transiently contaminated with bacteria or spores. Spores can also be passed indirectly from contaminated equipment or the environment. Without adequate cleaning and disinfection, spores can persist on equipment and environmental surfaces for months, and in some cases, years.

Populations at Risk/Risk Factors

- Antibiotic use, particularly clindamycin, higher-generation cephalosporins, fluoroquinolones, and antibiotics combined with beta-lactamase inhibitors (e.g. clavulinate, tazobactam)
- Immunosuppressive therapy post-transplant
- Proton pump inhibitors
- Bowel disease and bowel surgery
- Chemotherapy
- Hospitalization

Assessments and Interventions

Infection Control Precautions

- **Additional Precautions:** In addition to Routine Practices, Contact Plus Precautions will be initiated for patients/residents with undiagnosed diarrhea as well as confirmed *C. difficile*.

  Precautions should be maintained until all symptoms have stopped for 72hrs (e.g. stool is formed or normal for the individual).

  The most responsible nurse will ensure Contact Plus Precautions are ordered in Cerner and post the appropriate sign on the door (i.e., Contact Plus).

- **Hand Hygiene:** Hands should be cleaned before and after every patient/resident contact, as well as after touching potentially contaminated items in the environment. Use the first available method of hand hygiene (i.e., alcohol based hand rub or soap and water). Soap and water is the preferred method of hand hygiene when hands are visibly soiled, after completing personal care related tasks (e.g., toileting, peri-care), and during outbreak situations. Encourage and assist the patient/resident to perform hand hygiene, particularly before meals and after toileting.
- **Patient/Resident Placement:** Patients/residents with CDI should be placed in a private room with a dedicated toilet. If single rooms are limited, persons who, because of disabilities or behaviours are more likely to contaminate their surroundings should be assigned those rooms. The door may remain open. If a private room is not available, affected individuals may be cohorted with other patients/residents who also have CDI in multi-bed rooms. A dedicated commode or segregated toileting is required if sharing a room with a patient/resident who does not have CDI.
- **Equipment:** Dedicate equipment whenever possible. Clean and disinfect shared equipment routinely and between different patients/residents. Clean commodes regularly and wipe touchable surfaces (armrest, seat and back) with disinfectant wipes between patients/residents. Place the linen hamper, dedicated to the patient/resident, either in the room (preferred) or immediately outside the room.
- **Environment:** All high-touch surfaces in the patient/resident's room as well as the bathroom must be cleaned and disinfected at least daily using a bleach-containing disinfectant (minimum concentration of 1000ppm). IPAC will coordinate with EVS for bleach cleaning. Following discharge, the room should have a terminal clean carried out prior to the next patient/resident being admitted.
- **Visitors:** Education should be provided regarding hand hygiene, and visitors must perform hand hygiene before entry and on leaving the room. Assist visitors to wear PPE, but gown and gloves are not required unless the visitor is providing direct care. Visitors must not use the patient/resident's bathroom. Visitors should be discouraged from eating and drinking in the room or bedspace.
- **Patient/Resident Transport:** When the patient/resident is required to leave the room for diagnostic or rehabilitative purposes:
  - Notify receiving department prior to transport of the precautions in place.
  - Encourage and/or assist patient/resident to clean their hands with soap and water.

- Assist the patient/resident to use the bathroom prior to transport and use incontinence products as needed during transport.

Lab Testing

- If patient/resident has three or more loose or watery stools above what is normal for them within a 24 hour period, collect a stool specimen in a sterile container (i.e., orange top container) and send for *C. difficile* testing.
- Stool specimen collection for testing for *C. difficile* or its toxins to be performed only on unformed, diarrheal stool (i.e. loose, watery stool). There is risk of detecting colonization and inappropriately treating colonization if formed stool is submitted. *C. difficile* bacteria in the GI tract without active infection/diarrhea (asymptomatic) is termed colonization. We do not screen for asymptomatic *C. difficile* colonization and asymptomatic *C. difficile* colonization does not require antibiotic treatment.
- For specimens processed at PHC laboratories, treat both positive and indeterminate results as a positive when the patient/resident has a clinical presentation consistent with CDI (unformed, diarrheal stool). For indeterminate results, repeat testing is not required.
- Patients/residents with CDI may harbor the *C. difficile* toxin in their stool for several weeks after successful treatment. Therefore, a repeat test is not recommended for test of cure. Clear and consistent stool documentation is required to determine when a patient/resident has recovered from CDI and if they experience a relapse of CDI. Recurrence is defined by symptoms, not by repeat testing.

Treatment

- Do not treat symptom-free asymptomatic *C. difficile* colonization/carriers.
- Patients/residents may recover from their diarrhea with simple discontinuation of the offending antibiotic and may not require *C. difficile*-directed antibiotic treatment.
- Patients/residents determined to be colonized (i.e. not infected) with *C. difficile* do not require treatment.
- For patients/residents who require treatment because of diarrhea, consult the Antimicrobial Stewardship team.

Transfer/Discharge Planning

- Notify the receiving facility, hospital, nursing home or community agency involved in the patient's care of their status.

Outbreak Management

- Direction will be provided to the unit/hospital staff, should the Infection Control Practitioner/Physician determine there is an outbreak of CDI.

Documentation

- Ensure Contact Plus precautions appears in Cerner on Banner Bar.

- Acute Care: Symptoms should be document in I-View and chart stools using the Bristol Stool Scale (see Appendix A).

Patient and Family Education

- Explain to the patient/resident and visitor the importance of cleaning hands frequently, especially after using the washroom.
- Provide the patient/resident and visitor the Keep Your Hands Clean pamphlet.
- Instruct the patient/resident and visitor on proper hand-washing techniques (i.e., with soap and water).
- HealthLinkBC Files: Clostridium Difficile (C. difficile)

Related Documents

- B-00-07-13074 - Contact Plus Precautions - Infection Control

References

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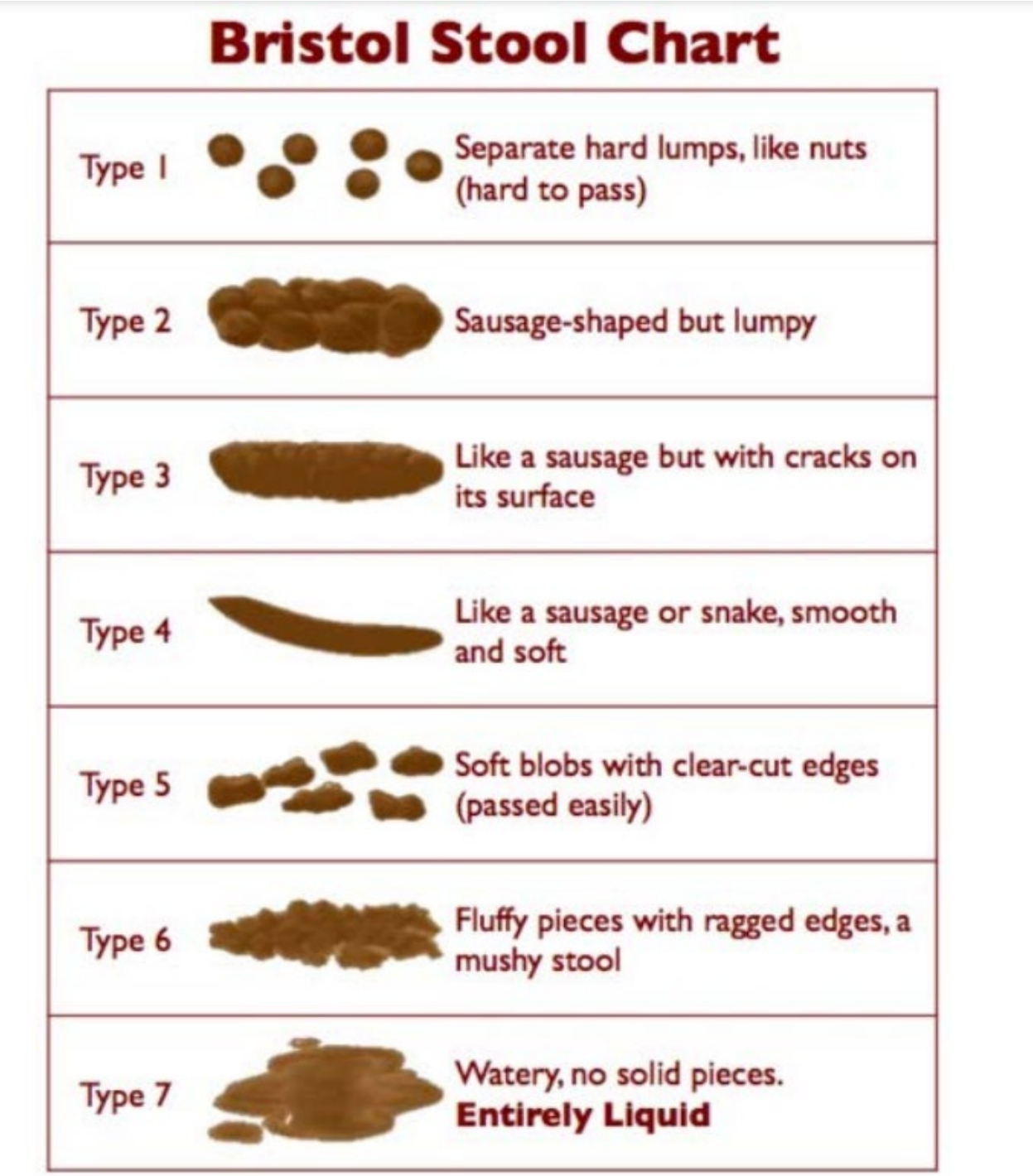
Definitions

"Direct care" includes providing hands-on care, such as bathing, washing, turning the patient, changing clothing, continence care, dressing changes, care of open wounds/lesions or toileting. Feeding and pushing a wheelchair are not classified as direct care.

Appendix A: Bristol Stool Chart



First Released Date:	19-MAR-2003
Posted Date:	08-FEB-2023
Last Revised:	08-FEB-2023
Last Reviewed:	08-FEB-2023
Approved By: *(committee or position)*	PHC
	IPAC Standards Committee
Owners: *(optional)*	PHC
	IPAC