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Clostridium difficile Infection (CDI) outbreaks in public hospitals

REPORTABLE DISEASES TOOLKIT

Information for Health Care Professionals

Reporting Obligations

Outbreaks of Clostridium difficile infection (CDI) in public hospitals shall be reported **immediately by phone** to the local Health Unit.

Epidemiology

Aetiologic Agent:

Clostridium difficile is a Gram-positive, spore-forming, anaerobic bacillus. It is widely distributed in the environment and colonizes up to 3-5% of adults without causing symptoms. Some strains can produce two toxins that are responsible for diarrhea: toxin A and toxin B.

Clinical Presentation:

Symptoms of CDI include:

- Diarrhea, defined as: loose/watery bowel movements (conform to the shape of the container), and the bowel movements are unusual or different for the patient, and there is no other recognized etiology for the diarrhea (i.e. laxative use)
- Fever
- Loss of appetite
- Nausea and
- Abdominal pain or tenderness

Complications include dehydration and colitis and may also lead to life threatening systemic toxicity requiring surgical intervention and may also lead to death. Recurrence of CDI is common and occurs in about 30% of cases.

Modes of transmission:

C.*difficile* is widely distributed in the environment. It produces spores that survive for longer periods of time and are resistant to destruction by environmental factors (e.g. temperature, humidity), including standard cleaning agents. In an effort to protect itself from undesirable environmental conditions, it assumes its spore form. C.difficile can be transmitted and/or acquired by patients and/or health care workers through contact with contaminated surfaces. C.difficile is spread via a fecal-oral route and therefore activities that can result in moving the organism into the mouth should be included as part of the preventative measures.

Incubation Period:

The incubation period of C. *difficile* following acquisition has not been clearly defined. Studies have determined that onset of infection can occur within 48 hours after exposure and up to 3 months of discharge (8, 9).

Period of Communicability:

Precise period of communicability is unknown; it may vary depending on the amount of toxin in the stool, which can vary from very small to large; also, the spores are very difficult to eliminate from surfaces and objects; cytotoxins may persist in stool for weeks.

Additional Resources

1. Health Canada, Public Health Agency of Canada. "It's your health: C. difficile (Clostridium difficile)".
2. Provincial Infectious Diseases Advisory Committee. Annex C: Testing, Surveillance and Management of Clostridium difficile in all Health Care Settings".
3. Public Health Ontario: Clostridium difficile infections

Risk Factors/Susceptibility

Risk Factors associated with CDI include:

- a history of antibiotic usage, particularly broad spectrum antibiotics that affect the normal gut bacterial flora, such as fluoroquinolones
- immunosuppressive therapy post-transplant
- proton pump inhibitors
- bowel disease and bowel surgery
- chemotherapy
- hospitalization

Additional risk factors that predispose some people to develop more severe disease include:

- history of CDI
- increased age
- immunosuppressive therapy
- recent surgery
- CDI with the hypervirulent strain of C. difficile.

Diagnosis & Laboratory Testing

Following consultation between the institution and the Medical Officer of Health (or representative), decisions on the declaration of an outbreak will be made based on the following two criteria:

- Significant (as determined by the facility and health unit) increase in CDI numbers or rate compared to own baseline and/or that of comparator institutions
- Epidemiologic evidence of ongoing nosocomial transmission within the ward/unit or facility

Any of the following will constitute a confirmed case of CDI:

- Lab confirmation by validated methods (identification of toxin A or B, or the genes related to cytotoxin production)
- Visualization of pseudomembranes on sigmoidoscopy or colonoscopy
- Histological/pathological diagnosis of pseudomembranous colitis
- Diagnosis of toxic megacolon

Stool specimen collection should occur as soon as possible after the onset of symptoms. Specimens are not recommended from patients who are less than 12 months old. Formed stool specimens will be rejected.

TESTING INFORMATION & REQUISITION

Treatment & Case Management

Treatment of individual cases will be under the direction of the attending physician.

For case and outbreak management, refer to the Provincial Infectious Diseases Advisory Committee, Annex C document "Testing, Surveillance and Management of Clostridium difficile in all Health Care Settings". Outbreaks will be managed in consultation with the local Health Unit.

Patient Information

PATIENT FACT SHEET

References

1. Ministry of Health and Long Term Care, Infectious Diseases Protocol, 2014.