Prince Edward Island
CANADA

Health and Wellness

Prince Edward Island Guidelines for the Management and Control of Amoebiasis

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Department of Health and Wellness
Chief Public Health Office

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Case Definition[1]

Confirmed Case

Laboratory confirmation of infection with or without clinical illness*:

- microscopic demonstration of trophozoites or cysts in fecal specimens, smears of aspirates or scrapings obtained by proctoscopy, or aspirates of abscess or sections of tissue^

OR

- positive stool antigen detection test or molecular detection test

OR

- positive serology¥.

* Clinical illness varies from mild abdominal discomfort with diarrhea (+/ blood, mucus) alternating with periods of constipation and/or remission to amoebic dysentery (fever, chills, bloody/mucoid diarrhea). Rarely, disseminated disease may occur causing liver (most common), lung or brain abscess.

^ The organism must be differentiated from non-pathogenic amoebae and macrophages.

¥ Antibody response in amoebiasis is only seen when tissue invasion has occurred and may represent past or present disease. Serology is almost always negative in asymptomatic shedders.

Reporting Requirements

Laboratories

The Provincial Laboratory shall in accordance with the Prince Edward Island *Public Health Act*[2], report all positive laboratory results by phone and mail, fax or electronic transfer as soon as the result is known to the Chief Public Health Officer (CPHO) (or designate).

Etiology

Amoebiasis is an enteric infection caused by a protozoan parasitic organism classified into two species: *Entamoeba histolytica* and *Entamoeba dispar*. *Entamoeba histolytica* is pathogenic causing invasive disease. *Entamoeba dispar* is a nonpathogenic, noninvasive parasite that does not cause disease but is morphologically indistinguishable from *E. histolytica*. Both species occur in two forms: the hardy, infective cyst and the fragile, potentially pathogenic trophozoite. The parasite may act as commensal or invade the tissues giving rise to intestinal or extra-intestinal disease. Theoretically, the ingestion of one viable cyst can cause infection.

Clinical Presentation

Most infections (90 to 99%) are asymptomatic. Symptoms, when present, are diverse. Clinical intestinal disease varies from acute dysentery with bloody mucoid stools and constitutional symptoms (amoebic dysentery), to mild abdominal discomfort with diarrhea containing blood or mucus, alternating with periods of constipation or remission. Other symptoms include chronic abdominal pain and an irregular bowel pattern, amoebic granulomata in the wall of the large intestine, and ulceration of the skin (usually in the perianal region). Penile lesions may occur in men after anal intercourse[3].

Extra-intestinal disease is disseminated via the bloodstream producing abscesses of the liver or, less commonly, of the lung or brain. This may occur years after infection.

Diagnosis

The diagnosis of amoebiasis is made by microscopic demonstration of trophozoites or cysts in fresh or preserved fecal specimens, smears of aspirates or scrapings obtained by proctoscopy, aspirates of abscesses or sections of tissue.

Serological testing for antibodies may be used in diagnosis for extra-intestinal amoebiasis, such as liver abscess, where stool examination is often negative; however, this is not consistently reliable. Ultrasound or CT scans can identify liver abscesses and other extra-intestinal sites of infection. Serological testing exists for the diagnosis of long-term infections.

Epidemiology[3]

1. **Reservoir**
   Humans and other primates are the only known reservoirs. Cysts are passed by chronically ill or asymptomatic persons. The infection is passed through the consumption of food or water contaminated with the feces of humans.
2. **Transmission**
   Transmission is through the ingestion of fecally contaminated food or drinks, fresh vegetables or fruit washed with contaminated water, sexual exposure (usually anal sex) or through the unwashed hands of an infected food handler. Flies may also act as vectors of cyst-laden feces.
3. **Incubation Period**
   The incubation period ranges from a few days to several months but most commonly 2 to 4 weeks. Extra-intestinal manifestations may take much longer. Cysts are viable for weeks or months in an appropriate moist environment. Trophozoites degenerate within minutes outside the body.

4. **Period of Communicability**
   Amoebiasis is communicable as long as *Entamoeba histolytica* cysts are passed. This may be years as in the case of untreated persons. Asymptomatic cyst passers or persons who are chronically ill may excrete 15 million cysts per day.
5. **Host susceptibility**
   Universal susceptibility. Those individuals with immunodeficiencies (including AIDS) may suffer more severe forms of the disease. Susceptibility to re-infection is rare.

Occurrence

1. **General**

   Approximately 10% of the world's population is infected with *E. histolytica* and *E. dispar*. In the United States, the prevalence is about 4%. Amoebiasis is the third leading parasitic cause of death in developing countries and is a common cause of diarrhea in travellers and recent immigrants. Invasive amoebiasis is mainly a disease of young adults. It is rarely seen in children under the age of five years.

   Rates of cyst passage, most often based on the morphology of the cysts, vary according to geographic area. Rates tend to be higher in areas with poor sanitation (e.g., parts of the tropics), in institutions, and among MSM. In areas with good sanitation infections tend to cluster in households.
2. **Canada**
   Not reportable nationally.
3. **Prince Edward Island**
   Amoebiasis has an uncommon occurrence on PEI.

Control

1. **Management of a case**

- All cases should be instructed about disease transmission, appropriate personal hygiene, routine practices, and contact precautions.
- Exclusion should be considered for symptomatic persons who are:
  - food handlers whose work involves
    - touching unwrapped food to be consumed raw or without further cooking and/or
    - handling equipment or utensils that touch unwrapped food to be consumed raw or without further cooking,
  - healthcare, daycare or other staff who have contact through serving food with highly susceptible patients or persons, in whom an intestinal infection would have particularly serious consequences,

  - involved in patient care or care of young children, elderly or dependent persons,
  - children attending daycares or similar facilities who are diapered or unable to implement good standards of personal hygiene, and
  - older children or adults who are unable to implement good standards of personal hygiene (e.g., mentally or physically challenged).
- Exclusion applies until 48 hours after treatment with appropriate antibiotics has been completed or 48 hours after diarrhea has resolved.
- Asymptomatic individuals who are indicated in the above categories are generally not excluded from work or daycare, however, the decision to exclude will be made by the CPHO.
- Reassignment to a low risk area may be used as an alternative to exclusion.
- Contact precautions should be used in healthcare settings where children or adults have poor hygiene or incontinence that cannot be contained. Otherwise, routine practices are adequate.
- Public Health Nursing, Health PEI, will follow up all confirmed cases and environmental health officers may be consulted on cases as appropriate.

2. Treatment of a case

- Symptomatic cases and asymptomatic carriers should be treated.
- Antibiotics
  - Adults: The recommended regimen is metronidazole for 10 days followed by iodoquinol for 20 days.
  - Children: Metronidazole for seven to 10 days followed by iodoquinol for seven to 10 days.
  - Pregnant or Lactating Women: While there is no evidence for teratogenicity, metronidazole should be avoided in the first trimester of pregnancy. Consultation with an infectious diseases physician is recommended.
  - Alternative Treatment: Use of other agents should be discussed with an infectious diseases physician.

3. Management of contacts

- Contacts should be instructed about disease transmission, appropriate personal hygiene, routine practices, and contact precautions.
- Symptomatic contacts should be assessed by a physician.
- Contacts who are symptomatic may be excluded from daycare or similar facilities, or occupations involving food handling, patient care or care of young, elderly or dependent persons as per CPHO assessment.
- Asymptomatic contacts, in general, are not excluded from work or daycare.

4. Preventative measures

- Provide public education about personal hygiene, especially the sanitary disposal of feces and careful hand washing after defecation and sexual contact, and before preparing or eating food.
- Educate food handlers about proper food and equipment handling and hygiene, and thorough hand washing.
- Advise infected individuals to avoid food preparation.
- Educate about the risk of sexual practices that permit fecal-oral contact.
    - Educate about condom use for safer sex.
- Test private water supplies for presence of contamination, if suspected.
- Advise infected individuals to avoid using public swimming pools when feces cannot be contained or when experiencing diarrhea. Water contained in public swimming areas can be a vehicle for the human to human transmission of enteric pathogens.

References

1. **Canada, Public Health Agency of. 2009.** Case Definitions for Communicable Diseases. *Public Health Agency of Canada.* [Online] November 2009.

2. Province of PEI. Public Health Act R.S.P.E.I [Internet]. 2013. Available from: http://www.gov.pe.ca/law/statutes/pdf/p-30_1.pdf

3. Heymann, David L. 2015. *Control of Communicable Diseases Manual 20th Edition.* Washington : American Public Health Association, 2015.