Appendix 1: Case Definitions and Disease-Specific Information

Disease: Amebiasis

Effective: May 2022
**Amebiasis**

☒ Communicable  
☐ Virulent

[Health Protection and Promotion Act](https://www.ontario.ca/laws/statute/30/1_style_4HPPA) (HPPA)  

**Provincial Reporting Requirements**

☒ Confirmed case  
☒ Probable case

As per Requirement #3 of the “Reporting of Infectious Diseases” section of the [Infectious Diseases Protocol, 2018](https://www.publichealth.on.ca) (or as current), the minimum data elements to be reported for each case are specified in the following:

- [O. Reg. 569](https://www.ontario.ca/laws/regulation/569) (Reports) under the HPPA; ⁴  
- The iPHIS User Guides published by Public Health Ontario (PHO); and  
- Bulletins and directives issued by PHO.

**Type of Surveillance**

Case-by-case.

**Case Definition**

**Confirmed Case**

Laboratory confirmation of infection with or without clinically compatible signs and symptoms:

- Demonstration of ingested red blood cells in hypertrophied trophozoites of *Entamoeba histolytica (E. histolytica)* in preserved stool samples;

  OR
• Positive for *E. histolytica* by stool antigen enzyme-linked immunosorbent assay (ELISA) or PCR on unpreserved stool samples;

**OR**

• Demonstration of hypertrophied trophozoites in intestinal tissue biopsy or ulcer scrapings (e.g., Iron-Haematoxylin [IH] stained smears);

**OR**

• Demonstration of hypertrophied trophozoites in extra-intestinal tissues (e.g., Haematoxylin & Eosin [H&E] stained sections).

**Probable Case**

• Clinically compatible signs and symptoms in a person with an epidemiologic link to one or more laboratory-confirmed cases;

**OR**

• A person with or without clinically compatible signs and symptoms and the presence of *E. histolytica*/Entamoeba *dispar* (*E. dispar*) cysts and trophozoites by microscopy.

**Outbreak Case Definition**

The outbreak case definition varies with the outbreak under investigation. Please refer to the *Infectious Diseases Protocol, 2020* (or as current) for guidance in developing an outbreak case definition as needed.

The outbreak case definitions are established to reflect the disease and circumstances of the outbreak under investigation. The outbreak case definitions should be developed for each individual outbreak based on its characteristics, reviewed during the course of the outbreak, and modified if necessary, to ensure that the majority of cases are captured by the definition. The case definitions should be created in consideration of the outbreak definitions.

Outbreak cases may be classified by levels of probability (*i.e.*, confirmed and/or probable).
Clinical Information

Clinical Evidence

- Clinically compatible signs and symptoms are characterized by intermittent cramps, vomiting, and general malaise. More severe amebic dysentery includes a sudden onset of fever, severe abdominal cramps, and an average of 15 to 20 stools per day consisting of liquid feces flecked with bloody mucus. Death may occur from peritonitis resulting from gut perforation or from cardiac failure.

- Invasive infections may affect various organs. Invasive infection (e.g., hepatic amebiasis, ameboma) may also occur. Invasive amebiasis will always be symptomatic with fever, abdominal pain, malaise, and elevated liver function tests (for liver disease).

Clinical Presentation

Clinical syndromes associated with *E. histolytica* infection include non-invasive intestinal infection, intestinal amebiasis, ameboma (amebic granulomata), and liver abscess. Most infections are asymptomatic. Persons with non-invasive intestinal infection may be asymptomatic or may have non-specific intestinal tract complaints. Persons with intestinal amebiasis (amebic colitis) generally have 1 to 3 weeks of increasingly severe diarrhea progressing to grossly bloody dysenteric stools with lower abdominal pain and tenesmus. Weight loss and fever may be present.

An ameboma may occur as an annular lesion of the cecum or ascending colon that may be mistaken for colonic carcinoma or as a tender extra-hepatic mass, mimicking a pyogenic abscess. Amebomas usually resolve with anti-amebic therapy and do not require surgery.

In a small proportion of people, extraintestinal disease may occur usually in the liver but can occur in the lungs, pleural space, pericardium, brain skin and genitourinary tract. Liver abscess may be acute with fever, abdominal pain, tachycardia, liver
tenderness and hepatomegaly or chronic with weight loss, vague abdominal symptoms and irritability.²

**Laboratory Evidence**

**Laboratory Confirmation**

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

**Intestinal amebiasis**

- Demonstration of ingested red blood cells in hypertrophied trophozoites of *E. histolytica* in preserved stool samples;

  OR

- Demonstration of positive ELISA or PCR for *E. histolytica* on unpreserved stool samples;

  OR

- Demonstration of hypertrophied trophozoites in intestinal tissue biopsies or ulcer scrapings by histological staining or IH staining techniques.

**Invasive amebiasis**

- Demonstration of hypertrophied *E. histolytica* trophozoites in extra-intestinal tissue.

**Approved/Validated Tests**

- Ova & Parasite screening (IH staining and F-E concentration) on stool samples preserved in sodium acetate-acetic acid-formalin (SAF) fixative.

- Stool antigen detection using ELISA or DNA detection by PCR on unpreserved stool samples, to distinguish between *E. histolytica* and *E. dispar*.

- IH staining of smears prepared from colonic fluids or biopsies preserved with SAF fixative.

- H&E staining on intestinal or extra-intestinal sections.
Indications and Limitations

- If hypertrophied trophozoites of *E. histolytica* found in IH stained smear, no further confirmatory tests are required. If positive for *E. histolytica/dispar* by screen, then ELISA should be performed on unpreserved stool sample to distinguish between *E. histolytica* and *E. dispar*.

- Permanent staining, such as IH, are for the trophozoite forms; they may not detect the presence of cyst forms, especially when they are few in numbers.

- The antigen of *E. histolytica* can only be detected in “fresh” unpreserved stool specimens, not in old or preserved ones.

- Colonic fluids may yield positive results provided they are preserved in SAF fixative immediately after collection; *E. histolytica* trophozoites usually show in IH smears prepared from this type of specimen.

- H&E sections show the presence of *E. histolytica* trophozoites in the infected tissue but the procedure is time consuming and a negative smear is inconclusive.

- Patients with early infections may not exhibit a detectable IgG response. IgM testing is not available.

- Non-hypertrophied “*E. histolytica/dispar*” in stool is not considered as conclusive evidence. Additional testing is required to differentiate between *E. histolytica* and *E. dispar*.

For further information about human diagnostic testing, contact the Public Health Ontario Laboratories.

Case Management

In addition to the requirements set out in the Requirement #2 of the “Management of Infectious Diseases – Sporadic Cases” and “Investigation and Management of Infectious Diseases Outbreaks” sections of the *Infectious Diseases Protocol, 2018* (or as current), the board of health shall investigate cases to determine the source of infection. Refer to Provincial Reporting Requirements above for relevant data to be
collected during case investigation.

Advise probable cases to submit a subsequent stool specimen for differentiation between *E. histolytica* and *E. dispar* before treatment is initiated.

Provide information on personal prevention measures and the prevention of secondary cases.

**Exclusion**

Symptomatic cases should be excluded from conducting activities in high-risk settings such as the food industry, healthcare*, or daycare, for 24 hours after diarrhea resolves or for 48 hours after completion of treatment.

Obtain contact information of all contacts for follow-up and contact management.

Provide infection control guidelines where applicable to operators of institutions or premises where cases and/or disease transmission is suspected.

**Contact Management**

Assess household and other contacts for symptoms and, if symptomatic, advise to seek medical care. Provide information about the spread of infection and how to prevent it. Refer symptomatic household members or sexual contacts for assessment by a physician. Management of symptomatic contacts is the same as for cases.

**Outbreak Management**

As with most enteric diseases, an outbreak is defined as the occurrence of two or

* If the healthcare setting is a hospital, use the "Enteric Diseases Surveillance Protocol for Ontario Hospitals" (OHA and OMA Joint Communicable Diseases Surveillance Protocols Committee 2017, or as current) for exclusion.
more cases of enteric illness linked by time, common exposure or source and most often location.

Please see the *Infectious Diseases Protocol, 2018* (or as current) for the public health management of outbreaks or clusters in order to identify the source of illness, manage the outbreak and limit secondary spread.

Refer to [Ontario’s Foodborne Illness Outbreak Response Protocol (ON-FIORP) 2020](https://www.publichealthontario.ca) (or as current) for multi-jurisdictional foodborne outbreaks which require the response of more than two Partners (as defined in ON-FIORP) to carry out an investigation.

**Prevention and Control Measures**

**Personal Prevention Measures**

- Careful hand hygiene after defecation, sexual contact, and before preparing or eating food.
- Proper hand hygiene is particularly important in institutional settings and for preventing transmission to household contacts.
- Sanitary disposal of fecal material.
- Adequate sanitation of drinking water.
- Sexual transmission may be prevented by use of personal protective measures and avoidance of sexual practices that may facilitate fecal-oral transmission.
- Where water might be contaminated, travelers should be advised of methods to make water safe for drinking, including boiling, chemical disinfection, and filtration.²

**Infection Prevention and Control Strategies**

Refer to Public Health Ontario’s website at [www.publichealthontario.ca](http://www.publichealthontario.ca) to search for the most up-to-date information on Infection Prevention and Control.
**Disease Characteristics**

**Aetiologic Agent** - Parasitic infection caused by the protozoa, *Entamoeba histolytica* (*E. histolytica*); differentiation of the pathogenic *E. histolytica* from the morphologically identical *Entamoeba dispar* (*E. dispar*) is based on immunologic differences and on isoenzyme patterns; most asymptomatic cyst passers carry *E. dispar*; *E. histolytica* and *E. dispar* are excreted as cysts or trophozoites in stools of infected people.

**Modes of Transmission** - Mainly through ingestion of fecally contaminated food or water containing amoebic cysts, which are relatively chlorine-resistant. Cysts can survive in moist environmental conditions for weeks to months. Transmission may occur sexually by fecal-oral contact with a chronically ill or asymptomatic cyst passer, or direct rectal inoculation through colonic irrigation devices. During the acute phase of the illness, those infected tend to shed more trophozoites than cysts and pose only limited danger to others because of the absence of cysts in dysenteric stools and the fragility of trophozoites. The infective dose in humans is reported to be fewer than 10 cysts.

**Incubation Period** - A few days to several months or years; commonly 2 to 4 weeks.

**Period of Communicability** - During the period that *E. histolytica* cysts are passed, which may continue for years.

**Reservoir** - Humans; usually a chronically ill or asymptomatic cyst passer.

**Host Susceptibility and Resistance** - Susceptibility to infection is general; those harbouring *E. dispar* do not develop disease; susceptibility to re-infection has been demonstrated but is apparently rare.

Please refer to [PHO’s Reportable Disease Trends in Ontario reporting tool](https://www.pho.ca/) for the most up-to-date information on infectious disease trends in Ontario.

For additional national and international epidemiological information, please refer to the Public Health Agency of Canada and the World Health Organization.
References


Case Definition Sources


## Document History

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<tr>
<td>April 2022</td>
<td>Entire Document</td>
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