



Alberta Public Health Disease Management Guidelines

Amoebiasis



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Health and Wellness Promotion Branch

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Alberta Health

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Case Definition

Confirmed Case

- Laboratory confirmation of infection **with or without** compatible clinical illness^(A)
 - Detection of *Entamoeba histolytica* DNA by nucleic acid testing (e.g., PCR) in an appropriate clinical specimen^(B)
- OR
- Detection of *E. histolytica* antigen in stool by EIA (species-specific)

OR

- Positive serology (e.g., EIA) for *E. histolytica/dispar* **with** compatible clinical evidence of extraintestinal or invasive amoebiasis^(C)

OR

- Demonstration of *E. histolytica/dispar* trophozoites or cysts on histopathological or other microscopic examination of tissue or other appropriate non-stool specimen^(D) **with** compatible clinical illness^(A)

Probable Case

- Laboratory testing for one of the following **with or without** compatible clinical illness^(A)
 - Microscopic demonstration of *E. histolytica/dispar* trophozoites or cysts from stool in the absence of confirmatory testing

OR

- Detection of *E. histolytica/dispar* antigen in stool by EIA (non-species specific)

OR

- Positive serology for *E. histolytica/dispar* **without** compatible clinical evidence of extraintestinal/invasive amoebiasis^(C)

OR

- Clinical illness^(A) in a person who is epidemiologically linked to a confirmed case

^(A) Clinical illness of amoebiasis 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).

^(B) Appropriate clinical specimen in this instance includes stool, tissue biopsy, scrapings of ulcers.

^(C) Clinical evidence of extraintestinal or invasive amoebiasis: tissue invasion by *E. histolytica* resulting in abscesses on the liver, and more rarely, the lung, heart or brain. A positive result may represent past or present disease; serology results are almost always negative in asymptomatic shedders.

^(D) Appropriate non-stool clinical specimen in this instance includes aspirates or scrapings of ulcers, biopsies of intestinal and extraintestinal tissues, sections of abscess wall.

Reporting Requirements

Physicians, Health Practitioners and Others

Physicians, health practitioners and others shall notify the Medical Officer of Health (MOH) (or designate) of the zone, of all confirmed and probable cases in the prescribed form by mail, fax or electronic transfer within 48 hours (two business days).

Laboratories

All laboratories shall report all positive laboratory results by mail, fax or electronic transfer within 48 hours (two business days) to the MOH (or designate) of the zone and the Chief Medical Officer of Health (CMOH) (or designate).

Alberta Health Services and First Nations Inuit Health Branch

- The MOH (or designate) of the zone where the case currently resides shall forward the initial Notifiable Disease Report (NDR) of all confirmed and probable cases to the CMOH (or designate) within two weeks of notification and the final NDR (amendment) within four weeks of notification.
- For out-of-province and out-of-country reports, the following information should be forwarded to the CMOH (or designate) by phone, fax or electronic transfer within 48 hours (two business days):
 - name,
 - date of birth,
 - out-of-province health care number,
 - out-of-province address and phone number,
 - positive laboratory report, and
 - other relevant clinical/epidemiological information.

Epidemiology

Etiology

Amoebiasis is caused by the protozoan parasite *Entamoeba histolytica*.⁽¹⁾ *E. dispar* is morphologically indistinguishable from *E. histolytica* and for many years was considered a non-pathogenic, non-invasive parasite that did not cause disease. More recently, however, *E. dispar* has been associated with a few cases of amebic colitis and amebic liver abscesses, putting in question its status as avirulent.^(2–4) Both species occur in two forms: the hardy, infective cyst and the fragile, potentially pathogenic trophozoite.

Clinical Presentation

The majority of infections are asymptomatic (90% of cases).⁽²⁾ Symptoms, when present, range from mild abdominal discomfort with diarrhea containing blood or mucous to acute or fulminating dysentery with fever, chills and bloody or mucoid diarrhea. There can be periods of remission or constipation. Complications of prolonged infection include extraintestinal disease such as ameboma or abscesses in the liver, lungs, heart, brain, skin or other organ.^(2,5,6)

Diagnosis

Microscopic examination of stool for ova and parasites (O & P) remains the most common test available for amoebiasis diagnosis; however, it lacks specificity for *E. histolytica*.⁽⁷⁾ Stool O & P examination is unable to differentiate between *E. histolytica* and *E. dispar*.⁽⁸⁾

Real-time polymerase chain reaction (PCR) testing is extremely sensitive and useful in differentiating *E. histolytica* from *E. dispar*. Fresh stool is required for PCR testing.⁽⁹⁾

Serological testing for antibodies (e.g., EIA) may be used in the diagnosis of long-term extra-intestinal amoebiasis, such as liver abscess, where stool examination is often negative; however, this is not consistently reliable.⁽¹⁰⁾ Detectable *E. histolytica*-specific antibodies may persist for years after successful treatment, so the presence of antibodies does not necessarily indicate acute or current infection. Ultrasound or CT scans can identify liver abscesses and other extra-intestinal sites of infection.

Antigen detection in stool by EIA can either detect only pathogenic *E. histolytica* (species-specific) or is unable to differentiate between *E. histolytica* and *E. dispar* (non-species specific).⁽¹⁰⁾

Treatment

- Symptomatic cases should be treated with antibiotics.
 - A follow-up stool should be collected by the physician to ensure elimination of the organism.⁽²⁾
- Consultation with a specialist may be needed in some cases, especially if the client has extraintestinal amoebiasis or is an asymptomatic cyst excreter.

Reservoir

Humans and other primates are the only known reservoirs.^(1,6,11)

Transmission

The infectious dose in humans is reported to be fewer than 10 cysts.⁽¹²⁾ 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
- the unwashed hands of an infected food handler.

People with acute illness shed more trophozoites than cysts. Individuals with chronic or asymptomatic amoebiasis shed several million cysts in their stool each day and are most often responsible for transmitting disease.^(12,13)

Entamoeba cysts are resistant to chlorine and can survive in moist environments for months⁽²⁾; the trophozoites are more fragile and do not survive outside the human host.⁽⁶⁾

Incubation Period

The incubation period of amoebiasis ranges from a few days to several months or years but most commonly two to four weeks.^(2,5) Extra-intestinal manifestations may take much longer.

Period of Communicability

Amoebiasis is communicable as long as *E. histolytica* cysts are passed. This may be years in untreated persons.⁽²⁾

Host Susceptibility

Universal susceptibility. Disease is more severe in very young children, elderly people, malnourished people and pregnant women.⁽⁵⁾ Individuals with immunodeficiencies (e.g., those receiving corticosteroids, individuals with AIDS) may suffer more severe forms of the disease. Re-infection is rare.

Incidence

Amoebiasis is not prevalent in Alberta and is not notifiable nationally.⁽¹⁴⁾ Between 2010 and 2016, 35 to 96 cases have been reported annually in Alberta. The infection is predominantly (> 70%) found in individuals who have travelled to or recently emigrated from a developing country.

Refer to the [Interactive Health Data Application \(IHDA\)](#) for the incidence of amoebiasis in Alberta.

Public Health Management

Key Investigation

- Confirm that the case meets the case definition.
- Obtain a history of illness including the date of onset, and signs and symptoms.
- Identify any underlying medical conditions that may increase host susceptibility.
- Determine the occupation of the case and if in a **sensitive situation or occupation (SSO)** that poses a higher risk of transmission to others. See Table 1 for a definition of SSO.
- Determine the possible source of infection of all confirmed and probable cases, taking into consideration the incubation period^(E), reservoir, and mode of transmission. Assessment may include determining, obtaining or identifying:
 - a detailed food history including recent consumption of potentially contaminated food or water and the time of consumption,
 - attendance at daycare or institutions,
 - occupational exposure (e.g., animal or meat handling),
 - recent travel,
 - residing in areas with poor sanitation including improper water treatment and sewage disposal either in Canada or abroad, and
 - high risk sexual practices, especially contact with feces.
- Suspected contaminated food may be held or destroyed to prevent of consumption.
- Identify any contacts, especially those in sensitive situations or occupations (SSO*) that pose a higher risk of transmission to others – Refer to Table 1. Contacts include:
 - persons living in the household,
 - children and childcare workers at a childcare facility (daycare, dayhome, or other childcare site), and
 - individuals exposed to the same source where the source is identified.

Table 1: Sensitive Situations or Occupations (SSO)⁽²⁾

SSO	Definition
Food handler	<ul style="list-style-type: none"> • Touches unwrapped food to be consumed, <u>and/or</u> • Handles equipment or utensils that touch unwrapped food to be consumed.*
Healthcare, child care or other staff	<ul style="list-style-type: none"> • Has contact through serving food to highly susceptible persons. • Provides direct patient care and is involved in the care of young children, elderly or dependent persons.
Child attending a childcare facility or similar facilities	<ul style="list-style-type: none"> • Is diapered or unable to implement good standards of personal hygiene.
Any individual (older child or adult)	<ul style="list-style-type: none"> • Is unable to implement good standards of personal hygiene (e.g., with disabilities/challenges that may impact ability to perform good hand hygiene) and is involved in an activity that may promote disease transmission.

* NOTE: Generally, food handlers who do not touch food, equipment or utensils in this way are not considered to pose a transmission risk; however, circumstances for each case should be assessed on an individual basis.

^(E) The incubation period of amoebiasis is generally two to four weeks; however, individual cases can vary requiring flexibility when determining where and how the disease was likely acquired.

Management of a Case

- All cases should be advised about the following:
 - how the disease is transmitted,
 - appropriate personal hygiene,
 - routine infection prevention and control practices,
 - contact precautions,
 - to avoid food preparation until symptoms have resolved,
 - to practice safer sex and avoid sexual practices that facilitate fecal-oral transmission, and
 - to avoid recreational water (e.g., swimming pools) until after treatment is completed and diarrhea has resolved.⁽⁵⁾
- Contact precautions should be used in healthcare settings where children or adults have poor hygiene or incontinence that cannot be contained.
- Refer to Table 2 for case exclusion criteria.

Table 2: Case Exclusion

Cases	Category	Exclusion Criteria
Symptomatic	SSO	<ul style="list-style-type: none"> • The MOH may by order exclude the case until 48 hours after appropriate antibiotic treatment has been completed and stools have returned to normal or the MOH is satisfied that the case is no longer infectious. <ul style="list-style-type: none"> – The case must be symptom free for 48 hours after stopping any antidiarrheal medication (if taken). – Lifting of exclusions is not conditional upon submission of stool specimens* to demonstrate clearance of the organism. – If possible, consideration may be given to temporary redeployment away from activities that involve increased risk of transmission.
Asymptomatic	SSO	<ul style="list-style-type: none"> • No exclusion required, however all cases of gastroenteritis or enteritis should be regarded as potentially infectious and should remain home from work, school or daycare until 48 hours after diarrhea has stopped.
Symptomatic	Non-SSO	<ul style="list-style-type: none"> • Generally not required unless otherwise recommended by the MOH.
Asymptomatic	Non-SSO	<ul style="list-style-type: none"> • No exclusion required.

* Specimens may still be submitted as determined by the MOH on a case-by-case basis.

Management of Contacts

- Contacts should be instructed about disease transmission, appropriate personal hygiene, routine infection prevention and control practices, and contact precautions.
- Symptomatic contacts should be assessed by a physician. Contacts with positive stool specimens should be managed and treated as cases.
- Refer to Table 3 for contact exclusion criteria.

Table 3: Contact Exclusion

Contacts	Category	Exclusion Criteria
Symptomatic	SSO	<ul style="list-style-type: none"> • The MOH may by order exclude (same as per case). • Ensure the contact is assessed by their physician.
Symptomatic	Non-SSO	<ul style="list-style-type: none"> • No exclusion required. • Refer to their physician for assessment and testing, if required.
Asymptomatic	All	<ul style="list-style-type: none"> • No exclusion – contacts should monitor themselves for gastrointestinal symptoms, maintain good hand hygiene and food handling practices and seek medical attention if symptoms develop.

Preventive Measures

- Educate the public about:
 - personal hygiene, especially the sanitary disposal of items containing feces,
 - the risk of sexual practices that permit fecal-oral contact,
 - careful hand washing after defecation and sexual contact, and before preparing or eating food,
 - washing cutting boards, counter tops and utensils with soap and water after contact with raw poultry (and other foods of animal origin),
 - cooking poultry and other meats thoroughly,
 - washing hands after contact with farm animals, pets, animal feces, and animal environments, especially where the animals/pets are ill with diarrhea, and
 - accessing and drinking safe water supplies.
- Educate food handlers about:
 - proper food and equipment handling and hygiene, especially in avoiding cross-contamination from raw meat products, and
 - thorough hand washing.
- Test private water supplies for presence of parasitic contamination, if suspected.

Appendix 1: Revision History

Revision Date	Document Section	Description of Revision
October 2021	General	<ul style="list-style-type: none">• Updated Template• Diagnosis and Treatment section moved to Epidemiology

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