GIARDIASIS

Disease Overview

Giardiasis is an intestinal parasitic infection caused by the protozoa *Giardia lamblia*. Giardia is found worldwide, and children are infected more frequently than adults are. In Canada the illness is associated with water-borne outbreaks; daycares and other institutions; consumption of unfiltered stream and lake water (i.e. by hikers and hunters) or surface waters and shallow wells, and contaminated recreational water (including swimming and wading pools).

Symptoms

Infections can be asymptomatic, cause acute self-limiting diarrhea, or cause intestinal symptoms such as chronic or recurrent diarrhea, abdominal cramps, bloating, frequent passing of loose, pale, greasy stools, fatigue, and weight loss. Severity of illness may vary.

Reservoir

Humans appear to be the main source, but zoonotic transmission (beavers and other wild and domestic animals) is also common.

Mode of Transmission

Fecal-oral transmission of cysts. Sporadic cases and outbreaks usually related to consumption of water contaminated with fecal material, for example unfiltered surface water, inadequate water treatment (eg filtration) or sewage contaminate.

Transmission can also be direct person-to-person spread by fecal-oral route, especially in institutions and day care centres where hygiene may be poor.

Foodborne outbreaks, often linked to infected food handlers, are not common.

Incubation Period

Average 3-25 days or longer; median 7-10 days.

Period of Communicability

Entire period of infection, often months.

Risk Factors

Increased risk of acquiring/severe illness:

- household or intimate contact of a case
- daycare settings
- Immunocompromised persons
- Individuals with HIV

Surveillance Case Definition

Confirmed case

Laboratory confirmation of infection with or without clinical illness from an appropriate clinical specimen (e.g., stool, intestinal fluid, small bowel biopsy), with demonstration of:

- *Giardia lamblia* trophozoites and/or cysts;
  OR
- Giardia lamblia nucleic acid (e.g., by polymerase chain reaction (PCR) or other nucleic acid test (NAT));

  OR

- *Giardia lamblia* antigen (e.g., by an immunologic assay).

Probable case

Clinical illness in a person who is epidemiologically linked to a confirmed case.

Diagnosis and Laboratory Guidelines

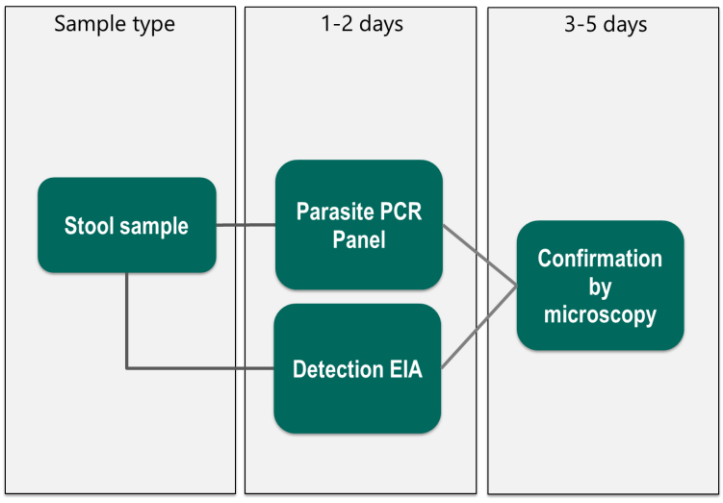
Isolation of organisms from stool samples (see Food and Water Borne Diseases Introduction).

Laboratory Testing

Giardia cysts can be excreted intermittently, so multiple stool collections (i.e., three stool specimens collected on separate days) increase test sensitivity. Routine parasitology tests for Giardia and Cryptosporidiosis are enzyme immunoassays. PCR parasite panels are used to cover a wide range of parasite in one test. The result from the PCR panel does not require confirmatory testing, although microscopic coloration and examination could be done when required.

A full parasitology workup that covers a larger range of parasites can be done, but it is requested by physicians and linked to a travel history.

Figure 1: Testing timelines



Reporting

Per Policy 2.2 Disease and Event notification to OCMOHE and section 3 Disease and Event Reporting

- Routine surveillance (RDSS) for all confirmed cases.
- Access database for all confirmed cases. Database extracts are submitted to OCMOHE on a weekly basis.

Case Management

Education

Case or relevant caregiver should be informed about:

- Nature of infection, length of communicable period and mode of transmission
- Enteric disease precautions
- Hand washing
- Safe water source

Investigation

Use enteric investigation form and obtain detailed history including food, water, swimming or other recreational water, daycares and other institutions, and travel. Potential sources of infection should receive follow up appropriate to risk.

Note for affected water supplies, standard chlorination is not sufficient and should be supplemented by filtration, flocculation or sedimentation.

Exclusion/Social Distancing

Follow exclusion period guidelines for cases under investigation (cases and symptomatic contacts) identified in high-risk individuals (food handlers, caregivers, and individuals in daycare centres and kindergartens).

Treatment

Medications are available, advise to consult with health care professional.

Immunization

Not applicable

Contact Management

Education

Per case management

Investigation

Identify contacts with significant exposure to cases (household and other close personal contacts).

Social Distancing/Exclusion

Follow exclusion period guidelines for cases under investigation (cases and symptomatic contacts) identified in high-risk individuals (food handlers, caregivers, and individuals in daycare centres and kindergartens).

Prophylaxis

Not applicable

Immunization

Not applicable

Outbreak Management

Activate the local outbreak plan when an outbreak is declared.