

## GIARDIASIS

### REPORTING INFORMATION

- Class A(3)
- Report by close of the working week
- [Confidential Case Report Card](#) (3812.11, rev 12/81), [lab report](#) (3833.11) or telephone
- Symptomatic and asymptomatic cases are reportable
- The [Enteric Case Report](#) may be useful in follow-up of cases. Do not send this report to ODH. It is for local health department use only.

### AGENT

*Giardia lamblia*, a flagellate protozoan.

#### Infectious Dose

The infectious dose may be very small: 10-25 cysts.

### CASE DEFINITION

#### Clinical Description

An illness caused by the protozoan *Giardia lamblia* and characterized by diarrhea, abdominal cramps, bloating, weight loss or malabsorption. Infected persons may be asymptomatic.

#### Laboratory Criteria for Diagnosis

- Demonstration of *G. lamblia* cysts in stool or
- Demonstration of *G. lamblia* trophozoites in stool, duodenal fluid or small-bowel biopsy or
- Demonstration of *G. lamblia* antigen in stool by a specific immunodiagnostic test (e.g., enzyme-linked immunosorbent assay).

#### Case Classification

Probable: a clinically compatible case that is epidemiologically linked to a confirmed case.

Confirmed: a case that is laboratory confirmed.

### SIGNS AND SYMPTOMS

Often asymptomatic. Can cause chronic diarrhea, cramps, bloating, frequent loose or pale, greasy stools, fatigue and weight loss.

### DIAGNOSIS

Giardiasis is diagnosed by means of the "ova and parasite" examination of stools. Ova and parasite kits (2 vials for each test, 3 tests per person) are available from ODH Laboratory (ODHL). In some circumstances, testing can be done by the ODHL without charge. To obtain a fee exemption, contact the Infectious Disease Investigation Section, by telephone and provide the names of persons for whom this testing is being requested. Because *Giardia* may be shed intermittently, 3 stool samples on different days are recommended. It is estimated that >90% of infections are detected when 3 stools are examined. The 3 stools should be taken within a 10 day period and spaced 48 hours apart (e.g., Monday, Wednesday, Friday). The laboratory section of this manual (see Section 4) has additional information on specimen collection for ova and parasite examination.

## EPIDEMIOLOGY

### Source

Humans. Possibly wild and domestic animals.

### Occurrence

Giardiasis occurs worldwide. In Ohio, there is a seasonal peak in late summer. The two age groups with the most cases (Ohio data) are children <5 years of age and adults 30-39 years of age. All ages are at risk.

### Mode of Transmission

Most cases are probably due to person-to-person transmission by the fecal-oral route. Contaminated water or food may also account for some cases.

### Period of Communicability

During the acute illness and perhaps for weeks or months afterwards.

### Incubation Period

3-25 days or longer, with a median of 7-10 days.

## PUBLIC HEALTH MANAGEMENT

### Case

#### Investigation

All cases reported to the local health department should initially be followed up with a telephone call to obtain demographic and epidemiologic data. No further work-up is recommended if neither the case nor any household member is employed in a sensitive occupation (direct food handling, direct patient care, employee in child care centers who handle food or directly care for children) or attends a child care center, unless there is evidence that the case is part of an outbreak.

#### Treatment

Metronidazole (Flagyl) is the drug of choice for adults. Quinacrine is an alternative. Furazolidone (Furoxone) is available for children and infants. Drug resistance and relapses can occur with any drug. As a general rule, only symptomatic infections are treated; however, treatment should be strongly considered for a child care center attendee infected with *Giardia*.

#### Isolation and Follow-up Specimens

Section 3701-3-13 of the Ohio Administrative Code states:

"A person infected with one of the following specified diseases or conditions shall be isolated as set forth below:

(K) Giardiasis, where the person works in a sensitive occupation or is a child in a child care center. Such a person shall be excluded from work or the child care center and may return only after his or her diarrhea has ceased and he or she has had one of the following:

- (1) Seventy-two hours of effective antimicrobial therapy; or
- (2) Three consecutive follow-up stool specimens which are negative for *Giardia*."

Obtain the first specimen at least 72 hours after cessation of diarrhea or, if being treated, at least 72 hours after completion of antimicrobial therapy. Obtain the remaining two specimens at least 48 hours apart, within a 10-day period. See **Diagnosis**, above, for additional information.

## **Contacts**

If the case or any household member is employed in a sensitive occupation or is a child care center attendee, **all** household members with diarrhea should submit three specimens for *Giardia* testing and receive treatment if positive.

## **Prevention and Control**

Hand washing after using the toilet, changing diapers and before preparing food or eating can help prevent the spread of *Giardia*. Avoid drinking water from any outside body of water (e.g., lake, river, pond, stream or spring) unless it is filtered, chemically treated or boiled. Persons with *Giardia* should avoid swimming in pools as the cyst stage is chlorine-resistant.

### Food Handlers

Symptomatic persons should be excluded from work. As detailed in Isolation, above, foodhandlers may only return to work after diarrhea has ceased, and 72 hours of effective antimicrobial therapy have been completed or three consecutive stools, properly collected, are negative.

Food Service Operation rules also pertain to this situation. Giardiasis is a disease which can be transmitted through food. A person infected with a disease that is communicable by food is not permitted to work as a food handler. For additional information, refer to Ohio Administrative Code (OAC) Chapter 3717-1 (Ohio Uniform Food Safety Code) Section 02.1, Management and Personnel: Employee Health.

### Health Care Workers, Child Care Workers and Children who Attend Child Care Centers

Symptomatic persons should be excluded from work or child care centers. As detailed in Isolation above, children who attend child care centers and persons who work in sensitive occupations may return when diarrhea has ceased, and 72 hours of effective antimicrobial therapy have been completed or three consecutive stools, properly collected, are negative.

### Child Care Center Outbreak Control

Whenever a case of giardiasis has been identified in a child care center attendee or worker who directly cares for children, all staff and children who are symptomatic and in the same classroom as the case should submit three specimens for *Giardia* testing and receive treatment if positive.

## **Special Information**

Persons with diarrhea of infectious or unknown cause (e.g., confirmed or suspected cases of giardiasis) are not permitted to work in sensitive occupations, according to OAC 3701-3-13, I, which states: [A person with] "Diarrhea, infectious or of unknown cause, where the person works in a sensitive occupation or attends a child care center. Such a person shall be excluded from work or the child care center and only may return after his or her diarrhea has ceased." " 'Sensitive occupation' means direct food handling, direct patient care, the handling of food or provision of direct care to children in a child care center or any other occupation which provides significant opportunity for an infected individual to transmit infectious disease agents." (OAC 3701-3-01, R)

### Well water testing

It is not practical to test well water for *Giardia*. However, if the standard coliform test is positive, it indicates that human or animal waste is contaminating the well, which may also be the source of *Giardia* for a patient diagnosed with giardiasis.

**What is giardiasis?**

Giardiasis is an illness caused by *Giardia lamblia*, a one-celled, microscopic parasite that lives in the intestines of people and animals. During the past 15 years, *Giardia lamblia* has become recognized as one of the most common causes of waterborne disease in humans in the United States. This parasite is found in every region of the United States and throughout the world.

**What are the symptoms of giardiasis?**

Diarrhea, abdominal cramps and nausea are the most common symptoms of giardiasis. These symptoms may lead to weight loss and dehydration. However, not everyone infected has symptoms.

**How long after being infected do symptoms appear?**

Symptoms usually appear 1-2 weeks after infection with the parasite.

**How long do symptoms last?**

In otherwise healthy persons, symptoms can last 4-6 weeks. Occasionally, symptoms last longer.

**How can I get giardiasis?**

- By putting anything into your mouth that has touched the stool of a person or animal with giardiasis.
- By swallowing water contaminated with *Giardia*. A person can swallow a *Giardia* cyst, the infectious stage of the parasite, by consuming water from swimming pools, lakes, rivers, springs, ponds or streams contaminated with sewage or feces from humans or animals.
- By eating uncooked food contaminated with *Giardia* cysts. Thoroughly wash with safe water all vegetables and fruits you plan to eat raw.
- By touching and bringing to your mouth cysts picked up from surfaces (i.e., toys, bathroom fixtures, changing tables, diaper pails) contaminated with stool from an infected person.

**Who is at risk?**

Persons at increased risk for giardiasis include child care workers, diaper-aged children who attend child care centers, international travelers, hikers, campers and others who drink untreated water from contaminated sources. Several community-wide outbreaks of giardiasis have been linked to drinking municipal water contaminated with *Giardia*.

**What should I do if I think I have giardiasis?**

See your health care provider, who will ask you to submit stool samples to see if you are harboring the parasite. Because *Giardia* can be difficult to diagnose, your health care provider may ask you to submit several stool specimens over several days.

**What is the treatment for giardiasis?**

Several prescription drugs are available to treat *Giardia*.

### **How can I prevent giardiasis?**

- Wash hands with soap and water after using the toilet and before handling food.
- Avoid water or food that may be contaminated.
- Wash and peel all raw vegetables and fruits before eating.
- Avoid drinking water from lakes, rivers, springs, ponds or streams unless it has been filtered or chemically treated.
- During community-wide outbreaks caused by contaminated drinking water, boil drinking water for one minute to kill the *Giardia* parasite and make the water safe to drink.
- When traveling in countries where the water supply may be unsafe, avoid drinking unboiled tap water and avoid uncooked foods washed with unboiled tap water. Bottled or canned carbonated beverages, seltzers, pasteurized fruit drinks and steaming hot coffee and tea are safe to drink. You should check the label on bottled water to make sure it has been properly filtered before drinking.
- If you work in a child care center where you change diapers, be sure to wash your hands thoroughly with plenty of soap and warm water after every diaper change, even if you wear gloves.
- Avoid swimming in pools if you or your child has *Giardia*. *Giardia* cysts are fairly chlorine resistant and are passed in the stools of infected people for several weeks after they no longer have symptoms.

### **My water comes from a well; should I have my well water tested?**

Consider having your well water tested if you answer **yes** to the following questions:

- Are other members of your family or users of your well water ill? If yes, your well may be the source of infection.
- Is your well located at the bottom of a hill or is it considered shallow? If so, runoff from rain or flood water may be draining directly into your well causing contamination.
- Is your well in a rural area where animals graze? Well water can become fecally contaminated if animal waste seepage contaminates the ground water. This can occur if your well has cracked casings, is poorly constructed or is too shallow.

Tests specific for *Giardia* are expensive, difficult to run and usually require hundreds of gallons of water to be pumped through a filter. If you answered yes to the above questions, consider testing your well for fecal coliforms instead of *Giardia*. Although fecal coliform tests do not specifically test for *Giardia*, testing will show if your well has fecal contamination. If it does, the water is likely to be contaminated with *Giardia*, as well as other harmful bacteria and viruses. Look in your local telephone directory for a laboratory or cooperative extension that offers water testing.

### **My child was recently diagnosed as having giardiasis, but does not have diarrhea. My health care provider says treatment is not necessary. Is this true?**

In general, the answer supported by the American Academy of Pediatrics is that treatment is not necessary. However, there are a few exceptions. If your child does not have diarrhea, but is having nausea, or is fatigued, losing weight, or has a poor appetite, you and your health care provider may wish to consider treatment. If your child attends a day care center where an outbreak is continuing to occur despite efforts to control it, screening and treatment of children without obvious symptoms may be a good idea. The same is true if several family members are ill, or if a family member is pregnant and therefore not able to take the most effective anti-*Giardia* medications.