

# Giardiasis

## Summary

Giardiasis is a parasitic intestinal disease that may result in asymptomatic infection; acute, self-limited diarrhea; or chronic intermittent symptoms. The disease is spread primarily from person to person through ingestion of infective cysts. A typical case of giardiasis presents with frequent loose stools with mucous but no blood, dull epigastric pain, and flatulence. Some individuals experience chronic intermittent diarrhea, weight loss, bloating, or stomach cramps. Infection is diagnosed by direct examination of stool or stool antigen detection. There are several antiparasitic agents available to treat giardiasis. Control measures include good hand hygiene practices and avoiding drinking of untreated surface water.

## Agent

- *Giardia intestinalis* (also known as *G. lamblia* and *G. duodenalis*) is a flagellated protozoan parasite.

## Transmission

- Reservoir: This enteric parasite affects humans and a range of domestic and wild animals (e.g., cats, dogs, cattle, deer and beavers). However, the role of animals as reservoirs is unclear.
- Transmission: Direct person-to-person (fecal-oral) transmission is probably the principal mode of spread. This may occur when cysts in feces of an infected person are passed hand to mouth to an uninfected person. This is probably the most common mode of spread among children, especially in toddlers in diapers. The prevalence of infection is highest in areas of poor sanitation and in institutions (including child care centers). Fecal-oral transmission also occurs from the ingestion of *Giardia* cysts through the consumption of fecally contaminated food or water; this accounts for many cases reported in campers and hikers who drink untreated water. Community-wide outbreaks have occurred when municipal systems have become contaminated or when filtration systems have been bypassed or broken.
- Period of Communicability: The period of communicability is as long as the organism is excreted in stool. The infectious dose is small; ingestion of 10 cysts has been reported to cause infection. Infected persons have been reported to shed  $\leq 10^9$  cysts in their stool per day and to excrete cysts for months. Symptomatic giardiasis in adults usually lasts from 2 weeks to 2 months; however, chronic giardiasis, usually only found among those who are immunocompromised, may persist for many months to years. Asymptomatic carriage and shedding of *Giardia* may persist for months.

## **Clinical Disease**

- **Incubation period:** Usually 1-4 weeks.
- **Illness:** Asymptomatic infection is common (in approximately 60%), and may occur more frequently in children or in people with prior infections. Symptomatic patients have diarrhea with loose, foul-smelling stools. Blood is not present in stools. A more protracted diarrheal illness can occur with symptoms of flatulence, abdominal distention, cramps, fatigue, and anorexia. There can be significant weight loss and malabsorption. Symptoms can persist for several weeks.

## **Laboratory Diagnosis**

Laboratory-confirmed giardiasis is defined as the detection (in symptomatic or asymptomatic persons) of *Giardia intestinalis* cysts in stool specimens or trophozoites in stool specimens, duodenal fluid, or small-bowel tissue by microscopic examination using staining methods (e.g., trichrome) or direct fluorescent antibody (DFA) assays; or antigens in stool specimens by immunodiagnostic testing (e.g., enzyme-linked immunosorbent assay). Tests using enzyme immunoassay (EIA) or immunofluorescent antibody (IFA) methods for detection of *Giardia* antigen in the stool (or duodenal fluid) are commercially available and are generally more sensitive than direct microscopy.

Because excretion of the cyst can be sporadic, the sensitivity of stool examination can be improved by repeat testing (generally up to 3 stool samples). To enhance detection, stool exam should be done shortly after obtained, or stool should be placed in a fixative. The New Mexico Department of Health Scientific Laboratory Division (SLD) provides special transport media for ova and parasite examination.

## **Treatment**

All treatment decisions should be made in consultation with the patient's health care provider.

- Metronidazole, tinidazole or nitromidazole are the drugs of choice. Cure rates range from 80% to 100% depending on the drug used.
- If therapy fails, a course can be repeated with the same drug. Relapse is common in immunocompromised patients who may require prolonged treatment. Treatment of asymptomatic carriers is generally not recommended because the resulting benefits and risk have not been established.

## **Surveillance**

- **Case Definition:**  
*Laboratory criteria* - Demonstration of *G. intestinalis* cysts in stool; or demonstration of *G. intestinalis* trophozoites in stool, duodenal fluid, or small-

bowel biopsy; or demonstration of *G. intestinalis* antigen in stool by a specific immunodiagnostic test.

*Confirmed* – A case that is laboratory confirmed.

*Probable* – A clinically compatible case that is epidemiologically linked to a confirmed case.

- **Reporting:** Report all suspected or confirmed cases of giardiasis to the **Epidemiology and Response Division (ERD) at 505-827-0006**. Information needed includes: patient's name, age, sex, race, ethnicity, home address, home phone number, occupation and health care provider.
- **Case Investigation:** Use the Foodborne Surveillance Investigation Form to complete your Investigation. Information should also be entered into NM-EDSS per established procedures.

## **Control Measures**

### 1. **Case management**

#### 1.1. Isolation:

- 1.1.a Exclude symptomatic persons from food handling, and from direct care of infants, elderly, immunocompromised, and hospitalized or institutionalized patients. Persons may be allowed to resume usual duties when:
  - Diarrhea has resolved, AND
  - Proper hygiene measures can be maintained (as assessed by a food sanitarian, trained environmentalist, or infection control practitioner). In the instance of a food handler, contact the district Environment Department's food program and in the case of a health care worker, contact the facility's infection control practitioner to assess the risk for transmission.
- 1.1.b Exclusion of asymptomatic infected persons from food handling, and from direct care of infants, elderly, immunocompromised, and hospitalized or institutionalized patients may be indicated if their food handling or personal hygiene habits (as assessed by a food sanitarian, trained environmentalist, or infection control practitioner) are inadequate to prevent transmission of enteric infection to patrons or patients. They need not be excluded from work if proper hygiene measures are maintained.
- 1.1.c For hospitalized or institutionalized patients, *Giardia* requires standard precautions **but** for diapered or incontinent patients including children under 6 years of age, *Giardia* requires the additional use of contact precautions.

1.2. Prophylaxis: Not applicable.

### 2. **Contact management**

Isolation: Household or other close contacts should have their stool examined for *Giardia* if they are symptomatic. Because of intermittent shedding, three negative specimens taken at least 24 hours apart should be obtained to rule out infection. Exclude symptomatic contacts from food handling.

2.1. Prophylaxis: Not applicable.

### 3. Prevention

- 3.1. Emphasize good hand hygiene practices (i.e., proper handwashing after using the toilet, changing diapers, and before and after handling food).
- 3.2. Backpackers, campers, and other persons at risk for exposure to contaminated water should avoid drinking water directly from surface water sources (e.g., lakes, rivers, streams). Boiling of water for at least one minute will kill the infective cysts.
- 3.3. Prevent contact and contamination with feces during sex by using a barrier (e.g., condom) during oral-anal sex and washing hands immediately after either handling a condom used during anal sex or after touching the anus or rectal area.
- 3.4. To prevent the contamination of recreational waters, do not swim when ill with diarrhea.
- 3.5. Immunization: Not applicable.

### **Management of *Giardia* in Child Care Centers**

1. Persons with diarrhea should be excluded from child care until they are asymptomatic.
2. Per child care licensing regulations, a center should notify parents or guardians in writing of a case of *Giardia* in the facility (Subsection D of 8.16.2.20 NMAC). See Appendix 8 for a template of a notification letter.
3. If an outbreak is suspected, contact the **Epidemiology and Response Division**. An investigation will be undertaken to identify and treat all symptomatic children, child care staff, and family members infected with *Giardia*. Exclusion of asymptomatic carriers from child care is not recommended.
4. The child care center should review its infection control protocols with staff, and emphasize the following:
  - Standard precautions should be followed. Strict hand washing routines for staff and children, and routines for handling fecally contaminated materials.
  - Frequently mouthed objects should be cleaned and sanitized daily. Items should be washed with dishwashing detergent and water, then rinsed in freshly prepared (daily) household bleach solution (dilute 1 cup bleach in 9 cups of water).
  - Food-handling and diaper changing areas should be physically separated and cleaned daily.
  - Diaper changing surfaces should be nonporous and cleaned with a freshly prepared (daily) household bleach solution (dilute 1 cup bleach in 9 cups of water). Cleaning of diaper changing surfaces after each use is required; diapers should be disposed of properly. If available, nonporous gloves should be worn when changing diapers.
  - Animals in the child care center with diarrhea should be isolated from children and taken to a veterinarian for diagnosis and treatment.

## **References**

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# GIARDIASIS

## What is giardiasis?

Giardiasis is an intestinal or stomach illness caused by a microscopic organism called *Giardia lamblia*.

## What are the symptoms of giardiasis infection?

People infected with *Giardia* may have mild or severe diarrhea. Symptoms may appear from 1 to 4 weeks after exposure but usually within 10 days. Fever is rarely present. In some instances, infected persons will have no symptoms at all. Sometimes, infected persons will have chronic diarrhea over several weeks or months, with significant weight loss.

## How is *Giardia* spread?

Person-to-person transmission due to poor handwashing practices is probably the main way that *Giardia* parasites are spread, especially in day care centers and institutions. In addition, feces from an infected person or animal may “dirty” or contaminate water or food.

## How long are people contagious?

Persons may continue to have *Giardia* in their stools (feces) from a few weeks to a few months. Treatment may shorten the time that people are contagious.

## Who gets giardiasis?

Anyone can get giardiasis, but it tends to occur more often in people in institutional settings or people in day care centers. Also, foreign travelers and individuals who consume improperly treated surface water (such as streams) are at higher risk for getting giardiasis.

## What treatment is available for people with giardiasis?

Often your health care provider will give you medicine to treat giardiasis. Some individuals may recover on their own without medication. Persons with diarrhea should drink plenty of fluids.

## Do infected people need to be kept home from school, work or daycare?

Infected persons should not go to day care, or to jobs involving patient care or food handling. Most people may return to work or school when diarrhea stops. At all times, they should maintain handwashing practices.

## How can I protect myself and my family from getting giardiasis?

You can decrease your chance of coming in contact with *Giardia* with these practices:

- Wash hands frequently with water and soap, and especially after using the toilet, changing a diaper or before preparing and/or eating food. (Sanitizing gel may be substituted when hands are not visibly soiled.)
- Promptly clean contaminated surfaces with household chlorine bleach-based cleaners.
- Carefully dispose of sewage wastes so as not to contaminate surface or groundwater.
- Avoid food or water from sources that may be contaminated.



# GIARDIASIS

## ¿Qué es la giardiasis?

La giardiasis es una enfermedad del estómago o de los intestinos ocasionada por un organismo microscópico o germen que se llama *Giardia lamblia*.

## ¿Cuáles son los síntomas de la giardiasis?

Las personas infectadas con *Giardia* pueden tener diarrea de leve a grave. Los síntomas pueden aparecer entre 1-4 semanas después de haber estado expuesto, pero lo normal es que aparezcan en 10 días. Es raro que haya fiebre. En algunos casos, no se presentan síntomas. A veces, la diarrea puede ser crónica y continuar por semanas o meses, y conduce a una pérdida de peso considerable.

## ¿Cómo se transmite la giardiasis?

La forma más fácil de transmisión para los parásitos *Giardia* es de persona a persona al no lavarse las manos de forma adecuada, sobre todo en guarderías y otras instituciones. Además, las heces de una persona o animal infectados pueden “ensuciar” o contaminar el agua o los alimentos.

## ¿Por cuánto tiempo puede alguien con giardiasis contagiar a otros?

El organismo *Giardia* está presente en las heces de la persona infectada por semanas o hasta unos meses. Con tratamiento se puede reducir el tiempo durante el cual una persona es contagiosa.

## ¿Quién puede contraer la giardiasis?

Cualquiera puede contraerla, pero ocurre con más frecuencia en personas que asisten o trabajan en instituciones para el cuidado y guarderías. También, los viajeros internacionales y las personas que beban agua de fuentes contaminadas no tratadas (como arroyos o ríos) tienen un riesgo mayor de contraer la enfermedad.

## ¿Cómo se trata la giardiasis?

A menudo su médico le dará medicinas para tratar la giardiasis. Algunas personas se pueden recuperar por sí solas sin medicación. Si se tiene diarrea, es necesario beber muchos líquidos.

## ¿Es necesario quedarse en casa y no ir a la escuela, a la guardería o al trabajo?

Las personas infectadas no deben ir a la guardería o a la escuela, tampoco al trabajo si está relacionado con el cuidado de pacientes o la manipulación de alimentos. Muchas personas pueden regresar al trabajo o a la escuela cuando ya no tienen diarrea. Sin embargo, deben lavarse las manos con cuidado después de usar el baño, cambiar pañales o antes de preparar comida.

## ¿Cómo puedo protegerme yo y también proteger a mi familia contra la giardiasis?

Para reducir las posibilidades de entrar en contacto con el parásito *Giardia*, haga lo siguiente:

- Lávese las manos con frecuencia con agua y jabón, sobre todo después de usar el baño, cambiar pañales y antes de preparar o comer alimentos. (En lugar de lavárselas puede usar un gel desinfectante para manos cuando no se vean sucias).
- Limpie de inmediato las superficies contaminadas en su casa con un producto limpiador para la casa que contenga cloro.
- Elimine desechos residuales o aguas negras con cuidado de no contaminar otras fuentes de agua (como agua de ríos, pozos, etc.).
- Evite agua o comida que puedan provenir de fuentes contaminadas.



