

# Giardiasis

## PROTOCOL CHECKLIST

- Enter available information into Merlin upon receipt of initial report
- Review background information on the disease and its epidemiology (see [page 2](#)), surveillance case definition (see [page 4](#)), and laboratory testing (see [page 4](#))
- Prioritize reports of giardiasis for follow up, and investigate and interview as appropriate (see [page 5](#))
  - Contact provider if necessary to gather more information
  - Interview patient
    - Review disease facts (see [page 2](#))
      - Modes of transmission
      - Incubation period
      - Symptoms
    - Ask about exposure to relevant risk factors (see [page 7](#))
      - Travel
      - Consumption of raw or unpasteurized milk or dairy products
      - Restaurant meals
      - Source(s) of drinking water
      - Recreational water exposure
      - Contact with pets, livestock, or other animals
      - Sexual contact involving potential fecal exposure
  - Identify symptomatic contacts
  - Determine if an infected patient or symptomatic contact is in a sensitive situation (see [page 10](#))
    - Recommend exclusions for patients or symptomatic contacts (see [page 10](#))
  - Provide education on controlling further spread (see [page 9](#))
    - Practice good hygiene
    - People with diarrhea should not prepare food for others
    - People with diarrhea should not use recreational water venues
    - Avoid contact with immunosuppressed people
    - Avoid fecal exposure during sexual activity
  - Address patient's questions or concerns
- Follow-up on special situations, including outbreaks or infected persons in sensitive situations (see [page 10](#))
- Enter additional data obtained from interview into Merlin (see [page 9](#))

# Giardiasis

## 1. DISEASE REPORTING

### A. Purpose of reporting and surveillance

1. To detect persons with giardiasis in such a way that public health, medical, or behavioral action can prevent spread from the reported patient.
2. To detect outbreaks of illnesses due to this agent, early enough to make a difference to the course of the outbreak.
3. To allow a better understanding of the descriptive epidemiology of cases, in order to be able to focus primary case prevention efforts, and formulate better prevention strategies.
4. To detect outbreaks of illnesses due to these agents, in order to understand better the events that lead to outbreaks and thus be able to focus outbreak prevention efforts (for possible future outbreaks). Note that there are numerous other ways that outbreaks are commonly detected, and this is not the most common.

### B. Legal reporting requirements

Laboratories and physicians are required to report persons infected with *Giardia* to the county health department (CHD) within one working day of identification/diagnosis.

### C. County health department investigation responsibilities

1. Prioritize reported cases for follow-up (**see [Section 5](#) for more information**):
  - a. Group 1: cases in people where information available at the time of the initial case-report indicates they are part of an outbreak or are in a sensitive situation. Sensitive situations for enteric diseases generally include attendees or employees of a daycare/childcare setting, food handlers, or employees in a healthcare setting with direct patient care.
  - b. Group 2: cases in people whose case-report is received while they are likely to still be symptomatic and infectious. **See [Section 5B, item 2b](#) for more information on determining whether a person is likely to still be symptomatic.**
  - c. Group 3: all other reported cases.
2. Follow up with prioritized cases and administer appropriate measures to control further spread, as appropriate. **See [Section 6](#) for recommendations on controlling further spread.**
3. Report all confirmed and probable cases in Merlin.
4. Review reported cases by street address, reporting source, race, ethnicity, age group, onset or report date, etc., to detect possible clusters of infected individuals.

## 2. THE DISEASE AND ITS EPIDEMIOLOGY

### A. Etiologic agent

*Giardia* (also known as *G. intestinalis*, *G. lamblia*, or *G. duodenalis*) is a protozoan parasite that causes the diarrheal illness giardiasis. *Giardia* is found on surfaces or in soil, food, or water that has been contaminated with feces from infected humans or animals.

*Giardia* is protected by an outer shell that allows it to survive outside the body for long periods of time and makes it tolerant to chlorine disinfection. While the parasite can be spread in different ways, water (drinking water and recreational water) is the most common method of transmission.

*Giardia* has two life cycle stages: cyst and trophozoite (free living stage). The relatively hardy cyst is the infectious form; it can remain viable in the environment for weeks or even months. After ingestion, cysts develop in the upper small intestine into trophozoites, which are the motile, feeding, reproducing, and symptom-causing form of the parasite. Infected persons shed trophozoites or cysts (or both) in stool; however, trophozoites do not survive in the environment. Cysts can be killed by boiling, filtration, or disinfection.

### B. Description of illness

*Giardia* infection can cause a variety of intestinal symptoms, which include:

- Diarrhea
- Gas or flatulence
- Greasy stool that can float
- Stomach or abdominal cramps
- Upset stomach or nausea
- Dehydration
- Weight loss

As the illness progresses and fat absorption is impaired, stools can develop a higher than usual fat content (steatorrhea). Symptoms may be more severe in persons who are immunocompromised (e.g., chemotherapy, untreated AIDS). Asymptomatic infections are common.

### C. Reservoirs

Humans and some animals are hosts for this parasite. Many animals other than humans have been found to be infected, although the importance of most non-human reservoirs is unclear. Cattle, beaver, and other wildlife may be important in contaminating surface water supplies; domestic animals (e.g., dogs) may be a source for some human exposures. Infected young children are an important source of parasites detected in recreational waters.

### D. Modes of transmission

Anything that comes into contact with feces from infected people or animals can become contaminated with the *Giardia* parasite. People become infected with *Giardia* when they swallow the parasite.

Giardiasis can be spread by:

- Drinking water or using ice made from water sources where *Giardia* may live (for example, untreated or improperly treated water from lakes, streams, or wells)
- Swallowing water while swimming or playing in water where *Giardia* may live, especially in lakes, rivers, springs, ponds, and streams
- Eating uncooked food that contains *Giardia* organisms
- Having contact with someone who is ill with giardiasis
- Swallowing *Giardia* picked up from surfaces (such as bathroom handles, changing tables, diaper pails, or toys) that contain stool from an infected person or animal
- Traveling to countries where giardiasis is common

#### E. Incubation period

The incubation period ranges from approximately 3–25 days or longer, but is typically 7-10 days.

#### F. Period of communicability

Persons are communicable as long as cysts are being shed, which may be many months; the typical shedding period is poorly defined and may be intermittent.

#### G. Treatment

Several medications are available to treat giardiasis including metronidazole, tinidazole, and nitazoxanide. In general, treatment of asymptomatic carriers is not recommended.

#### H. Prophylaxis

None indicated.

#### I. Giardiasis in Florida

The Florida Department of Health receives 1,000-2,000 reports of giardiasis each year. The majority (~90%) of these patient infections appear to be sporadic. The highest rates of illness occur in the 1-4 year age group (~40 cases per 100,000 population). Increases in giardiasis cases are commonly observed during July and August.

### 3. CASE DEFINITION

#### A. Clinical description

An illness caused by the protozoan *Giardia lamblia* (aka *G. intestinalis* or *G. duodenalis*) and characterized by diarrhea, abdominal cramps, bloating, weight loss, or malabsorption.

#### B. 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),  
OR
- Detection of *Giardia* DNA in stool intestinal fluid, tissue samples, biopsy specimens or other biological sample.

### C. Case classification

Confirmed: a case that meets the clinical description and the criteria for laboratory confirmation.

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

## 4. LABORATORY SERVICES

### A. Criteria for Diagnosis

Diagnosis of giardiasis is made by examination of stool samples. Because detection of *Giardia* can be difficult, patients may be asked to submit several stool samples over several days. Most often, stool specimens are examined microscopically using different techniques (e.g., wet mount/iodine-stained stool concentrate, direct fluorescent antibody [DFA], and/or enzyme immunoassays for detection of *Giardia* species antigens).

Molecular methods (e.g., polymerase chain reaction – PCR) are increasingly used in reference diagnostic labs, since they can be used to identify *Giardia* species at the species level. Tests for *Giardia* are not routinely done in most laboratories; therefore, health care providers should specifically request testing for this parasite.

### B. Services available at the Bureau of Public Health Laboratories (BPHL)

BPHL uses wet mount/iodine-stained formalinized stool concentrate to determine the presence or absence of *Giardia* species.

### C. Testing requests

1. Submitting specimens/isolates to BPHL
  - a. All submissions should be accompanied by Clinical Lab Submission Form 1847 ([http://www.doh.state.fl.us/lab/addpages/BOL\\_Forms.html](http://www.doh.state.fl.us/lab/addpages/BOL_Forms.html)).
  - b. Electronic Laboratory Ordering (ELO) may also be used by entering request into the HMS State Laboratory System, placing bar coded label on the O&P vial, and writing the date collected on the vial.
2. Specimen collection
  - a. A small portion (acorn size) of formed stool or equal portion of liquid stool should be transferred aseptically to an O&P transport vial that is properly labeled (name, date of birth, date collected).

Note: please write “suspect *Giardia* for confirmation and speciation” in the comment section of the Clinical Lab Submission Form 1847.

3. Packaging and shipping
  - a. Specimens for *Giardia* testing should be sent to the Jacksonville BPHL laboratory.
  - b. Place labeled vial in the proper inner/outer container (aluminum screw-cap inner container with spill absorber holds the primary vial and that is then placed in an outer cardboard screw-cap container). Please place the Clinical Lab Submission Form 1847 in a plastic Ziploc bag between the inner and outer container. Package according to International Air Transport Association (IATA) regulations, labeling the outer shipping container: *UN3373, Biological Substance Category B*.
  - c. Specimens and isolates should be sent at ambient temperature or cooler, but cool packs should not be in direct contact with vials.
  - d. [http://www.doh.state.fl.us/lab/PDF\\_Files/Packaging\\_Flowchart\\_0422051.pdf](http://www.doh.state.fl.us/lab/PDF_Files/Packaging_Flowchart_0422051.pdf)
  - e. [http://www.doh.state.fl.us/lab/PDF\\_Files/Packaging\\_Flowchart\\_notes\\_0422051.pdf](http://www.doh.state.fl.us/lab/PDF_Files/Packaging_Flowchart_notes_0422051.pdf)
4. Contact the regional laboratory with questions:  
[http://www.doh.state.fl.us/lab/addpages/BOL\\_Contacts.html](http://www.doh.state.fl.us/lab/addpages/BOL_Contacts.html).

#### D. Interpretation of results

Results will indicate whether *Giardia* oocysts are present or not present.

### 5. CASE INVESTIGATION

**All people with a positive *Giardia* result, regardless of laboratory method, should be investigated and managed as follows.**

#### A. Prioritize case reports for further investigation and interview based on INITIAL case report:

1. Rationale for prioritization
  - a. People with these enteric infections are most infectious to others while they are symptomatic.
  - b. Most transmission occurs early in peoples' gastrointestinal illnesses, before the nature of the illness is recognized, not from people who are convalescing and no longer have diarrhea. This highlights the importance of excluding people who have diarrhea of any cause from being present in sensitive situations.
  - c. Educating an infected person about how they likely got infected and how they can avoid getting infected again in future is not a high-priority public health activity.
  - d. Our public health goal should be to intervene with people who are still symptomatic from their infection. If a person with a reported case is already free of diarrhea by the time CHD staff get ready to contact him/her, there is little value in doing an interview or an educational intervention.
2. Prioritization groups and actions
  - a. Group 1: the report appears (before any interviewing is done) to be for a person in a sensitive situation (i.e., a daycare attendee or staff, food handler, or employee in a healthcare setting with direct patient care), to be part of an outbreak (regardless of how long it has been since event date), or to be part of a laboratory-defined cluster.

Note: CHD staff can detect some outbreaks and sensitive situations before they contact individual reported patients. For example, some case reports will include the information that the person is in a sensitive situation. The person reporting a case

(e.g., physician or infection preventionist) should be asked for this information both routinely and as individual case reports are taken. CHD staff should be reviewing their reported cases of each disease (by apparent ethnicity, street address, report source, race, onset or report date, age group, etc.) in order to detect apparent clusters, which would put the reported cases that are part of that cluster in Group 1. Some people will self-report that they are part of outbreaks, and some outbreaks will be reported to or come to a CHD's attention in other ways.

Action: locate and interview case (see 5B below). Take needed follow-up action. Enter all available information in Merlin and report the case.

- b. Group 2: cases in people whose case-report is received while they are likely to still be symptomatic and infectious (see table and notes below).

The table below shows the number of days since earliest known date (event date) when interview attempts should be made routinely. Use the column that corresponds to the earliest known date for each case. For example, if the earliest date you have for a case is onset on September 10, you would interview up to 6 days later, or September 16. If the earliest date you have for a case is specimen collection on September 23, you would interview up to four days later, September 27. If the earliest date you have for a case is lab report on September 18, you would only interview within one day.

Usual duration of illness (in days)	# of days from onset date	# of days from diagnosis date	# of days from specimen collection date	# of days from lab report date
14	14	1	5	2

Action: locate and interview case to determine whether the person may have put or be putting others at risk in a sensitive situation; is part of a recognized or unrecognized outbreak; and convey a brief, focused educational intervention about how to avoid infecting others. If case turns out to be in a sensitive situation or part of an outbreak, take necessary follow-up action. **See [Section 6](#) for recommendations on controlling further spread and [Section 7](#) for recommended exclusions for symptomatic cases in sensitive situations.** Enter all available information in Merlin and report the case.

- c. Group 3: all others reported cases.

Action: mail or e-mail information to case or guardian, if address available. Interview is not necessary. Enter all available information in Merlin and report the case.

## B. Investigate and interview as necessary based on case report prioritization:

1. The purposes of investigation, interview, and/or counseling are to:
  - a. Determine whether the person with the reported case may have put or be putting others at risk in a sensitive situation;

- b. Determine whether the person with the reported case may be part of a recognized or unrecognized outbreak, as a trigger to further investigation; and
  - c. Convey a highly focused, brief educational intervention to a person who is still symptomatic (or their parent or guardian) about how to avoid infecting others.
2. Contact the case to complete an interview as soon as possible after being reported to optimize recall.
  - a. If contact information for the case-patient is not received in the initial case report, contact the reporting physician or laboratory to obtain contact information.
  - b. Make at least three phone call attempts to reach the case, if still within the prioritization time frame.
  - c. Calls should be made at different times of the day, with at least one attempt in the evening.
3. Currently, there is no standard Giardiasis Case Report Form or Extended Data screen in Merlin.
4. Items to cover during interview include:
  - a. Provide brief background on disease, including possible modes of transmission, incubation period, symptoms, etc.
  - b. Activities during exposure period (3-25 days before onset):
    - i. Contact with any acquaintances or household member with a similar illness (anyone meeting the probable case definition should be reported and investigated in the same manner as a confirmed case);
    - ii. Attendance or work at a child care facility by the case or a household member;
    - iii. Source(s) of drinking water, including water at home and work, as well as streams, lakes or other untreated sources;
    - iv. Recreational water exposures: lakes, rivers, swimming pools, water slides, etc.;
    - v. Travel outside the area;
    - vi. Contact with livestock and other animals;
    - vii. **Note:** If the patient reports **no** gastrointestinal symptoms, the patient seems to be an instance of secondary transmission, or the infection was acquired outside of the U.S., there is no need to collect exposure information for the exposure period.
  - c. Determine if others (e.g., family, friends, co-workers, customers, patients, etc.) are known or thought to be ill with similar symptoms. If so, inquire about possible common source exposures. Obtain the name, phone number or address and clinical information of the other ill people. Anyone meeting the probable case definition should be reported and investigated in the same manner as a confirmed case.
  - d. Determine if the case or any of their symptomatic household or other close contacts are associated with **sensitive situations**. Sensitive situations for enteric diseases generally include attendees or employees of a daycare/ childcare setting, food handlers, or employees in a healthcare setting with direct patient care.
  - e. Determine the dates and times he/she worked to determine the risk of transmission to others. **See [Section 7](#) for recommended exclusions for symptomatic persons or contacts in sensitive situations.**
  - f. Provide basic instruction to patients and potentially exposed contacts about hand washing after defecation, diaper changing, and before food preparation; about the importance of proper food handling and adequate cooking for meat; and, in general, provide pointers about minimizing fecal contamination in daily life. **See [Section 6](#) for recommendations on controlling further spread.**

### C. Environmental evaluation

During routine case investigations of giardiasis, if a particular food or water exposure is suspected as the likely source of infection, then the CHD investigator should complete the Tri-Agency Foodborne Illness Survey/Complaint Form ([http://www.foodandwaterdisease.com/forms/TriAgency\\_Foodborne\\_Illness\\_Form\\_Electronic\\_2-16-2011.pdf](http://www.foodandwaterdisease.com/forms/TriAgency_Foodborne_Illness_Form_Electronic_2-16-2011.pdf)). The CHD investigator should record the complaint in their complaint log, and forward it to the appropriate agency with jurisdiction.

For each interviewed sporadic case of giardiasis with an environmental exposure that could affect many people (e.g., a restaurant, water park, or high-risk commercially distributed food item), review complaint logs and recent giardiasis cases in Merlin for additional cases that may be linked to the same facility or exposure source. When a community outbreak of giardiasis is identified, most or all cases will be in the high-priority Group 1 and be a high priority for interview and investigation. A joint investigation/environmental assessment for single, sporadic cases of giardiasis is not necessary. If additional cases are suspected or an outbreak is detected, the regional environmental epidemiologist should be notified and a joint investigation/environmental assessment will be conducted with the appropriate regulatory authority. Investigation guidelines and forms for when and how to perform a joint investigation/environmental assessment are available on the Food and Waterborne Disease Program's Investigation Tools webpage ([http://www.foodandwaterdisease.com/investigation\\_information.htm](http://www.foodandwaterdisease.com/investigation_information.htm)). Technical assistance is also available from your Regional Environmental Epidemiologist, if needed ([http://www.foodandwaterdisease.com/contact\\_docs/RegionalEpidemiologist\\_ContactsList.pdf](http://www.foodandwaterdisease.com/contact_docs/RegionalEpidemiologist_ContactsList.pdf)).

### D. Merlin data entry

Create a case in Merlin under disease code **GIARDIASIS-00710**. Enter the data collected into Merlin, being sure to include all required fields on the Basic Data screen, complete the Case Symptoms screen, and attach all relevant labs. Please attach **ALL** labs received via electronic laboratory reporting (ELR) to the case.

## 6. CONTROLLING FURTHER SPREAD

### A. Patient/household education on prevention recommendations

1. Case reports prioritized for investigation (i.e., part of an outbreak, in a sensitive situation, or still likely to be symptomatic) should be educated on preventing transmitting infection to others.
  - a. Wash hands after using the toilet, changing diapers, handling soiled clothing or linens.
  - b. People with diarrhea should not prepare food for others.
  - c. People with diarrhea should not use recreational water venues (e.g., pools, lakes, interactive fountains, water parks) until two weeks after symptoms resolve.
  - d. Avoid contact with immunosuppressed people.
  - e. Avoid fecal exposure during sexual activity.
2. General information on preventing disease may also be covered.
  - a. Avoid water that might be contaminated.

- i. Do not drink untreated water from shallow wells, lakes, rivers, springs, ponds, and streams.
  - ii. Do not drink untreated water or use ice made from untreated water during community-wide outbreaks of disease caused by contaminated drinking water.
  - iii. Do not swallow recreational water. For more information on recreational water-related illness, visit CDC's Health Swimming website at: (<http://www.cdc.gov/healthyswimming/>).
  - iv. Do not drink untreated water or use ice made from untreated drinking water in countries where the water supply might be unsafe. For information on traveler's health and giardiasis, visit CDC's Yellow Book at: (<http://wwwnc.cdc.gov/travel/page/yellowbook-2012-home.htm>).
  - v. Obtain recommendations on safe drinking water sources if severe flooding occurs. Shallow private wells in flooded areas may need to be checked before use.
- b. If you are unable to avoid using or drinking water that might be contaminated, then you can make the water safer to drink by doing one of the following:
- i. Heat the water to a rolling boil for at least one minute (at altitudes greater than 6,562 feet [ $>2,000$  meters], boil water for three minutes).
  - ii. Use a filter that has an absolute pore size of one micron or smaller, or one that has been NSF rated for "cyst removal."
  - iii. If you cannot heat the water to a rolling boil or use a recommended filter, then try chemically treating the water by chlorination or iodination. Using chemicals may be less effective than boiling or filtering because the amount of chemical required to make the water safe is highly dependent on the temperature, pH, and cloudiness of the water.
- c. Avoid food that might be contaminated.
- i. Use safe, uncontaminated water to wash all food that is to be eaten raw.
  - ii. Wash and/or peel all raw vegetables and fruits before eating.
  - iii. Avoid eating uncooked foods when traveling in countries with minimal water treatment and sanitation systems.

## B. Isolation of cases

People with diarrhea should stay home from daycare, school, or work until they are asymptomatic for 24 hours. Follow-up or release from isolation based on stool results is not required. **See [Section 7](#) for recommended exclusions for symptomatic cases in sensitive situations.**

## C. Management of contacts

1. Symptomatic contacts: symptomatic contacts should be investigated and managed in the same manner as a confirmed case. Symptomatic contacts of confirmed cases meet the probable case definition and should be reported in Merlin. **See [Section 7](#) for recommended exclusions for symptomatic contacts in sensitive situations.**
2. Asymptomatic contacts: contacts who are symptom-free may be permitted to continue in their sensitive situation.

**D. Laboratory testing during outbreaks**

1. Laboratory testing should be performed to assist in public health decision making and for epidemiologic studies.
2. Symptomatic contacts may be required to submit stool specimens to establish the etiology of the outbreak.
3. Once the etiologic agent for the outbreak has been identified (4-6 specimens) further testing is usually not required for public health purposes.

**E. Food or water is implicated as the source of an outbreak**

Contact your Regional Environmental Epidemiologist for investigation assistance and guidance ([http://www.foodandwaterdisease.com/contact\\_docs/RegionalEpidemiologist\\_ContactsList.pdf](http://www.foodandwaterdisease.com/contact_docs/RegionalEpidemiologist_ContactsList.pdf)).

**7. MANAGING SPECIAL SITUATIONS****A. Determining a sensitive situation**

Sensitive situation is not defined in Chapter 64D-3, F.A.C., in relation to any particular disease. The examples provided in Chapter 64D-3, F.A.C., are all related to enteric infections, but we should not assume that all sensitive situations are equal for all diseases, especially given the markedly different age distributions, and presumed different risk of transmission by age.

Section 64-D3-3.037(3), F.A.C., specifically gives CHD directors the authority to decide what is a sensitive situation, and provides broad authority to take necessary action to control disease.

For example, a CHD director may use his/her discretion to designate an elementary school, or the lower grades of an elementary school, as a sensitive situation, but he/she is not required to do so. This decision should be based on evidence of transmission within a particular setting.

**B. Case or symptomatic contact attends or works at a day care facility**

1. Exclusion: before returning to a day care facility, patient should be asymptomatic for 24 hours. Follow-up or release from isolation based on stool test results is not required.
2. Instruct the operator and other staff in proper methods for food handling and hand washing, especially after changing diapers.
3. Interview the operator and check attendance records to identify other cases that occurred during the previous month.
4. Instruct the operator to notify the CHD immediately if new cases of diarrhea occur. Call or visit once each week for two weeks after onset of the last case to verify that surveillance and appropriate hygienic measures are being implemented. Manage newly symptomatic children as outlined above.

5. Outbreak: defined as  $\geq 2$  cases of gastrointestinal illness with similar symptoms occurring within 72 hours among children or staff who do not live in the same household; if the etiologic agent is known, an outbreak is defined as two or more cases occurring within the incubation period for the disease.
  - a. If an outbreak is identified, do a sanitary inspection and consult the Guidelines for Control of Outbreaks of Enteric Disease in Child Care Settings at: ([http://www.doh.state.fl.us/Disease\\_ctrl/epi/surv/enteric.pdf](http://www.doh.state.fl.us/Disease_ctrl/epi/surv/enteric.pdf)).
  - b. Phase 1: Giardiasis outbreak suspected or confirmed; phase 1 continues for two incubation periods after control measures have been put into place.
    - i. Exclusion: all persons with diarrhea, vomiting, or other gastrointestinal symptoms should be excluded until asymptomatic for 24 hours.
    - ii. Children who develop symptoms while at the day care should be isolated from other children until the parent or guardian removes the child from the facility.
    - iii. Personal control measures: require all persons (including, but not limited to: children, parents, siblings, staff, visitors, and service personnel) to wash hands upon entering the facility, after using the bathroom, after assisting with toileting or diaper changes, after playing outside, and before and after handling food or eating. Adults will supervise children's hand washing, infants' hands will be washed after diaper changes and staff involved in food preparation should not change diapers.
    - iv. Environmental control measures
      - Ensure that hand toys are limited to single child use between cleaning and sanitizing
      - Ensure that food is served in individual portions
      - Prohibit use of swimming pools
      - Prohibit playing with dough or clay
      - Regularly clean tables and other contact surfaces during the day using an appropriate germicide
      - Clean and sanitize potty chairs after each use
      - Clean frequently during the day and sanitize at least once a day
  - c. Phase 2: if giardiasis cases continue to occur more than 20 days (two median incubation periods) after Phase 1 control measures were put in place, implement Phase 2 control measures.
    - i. Exclusion: all symptomatic children and staff will be excluded until asymptomatic for at least 24 hours with at least 72 hours of appropriate antibiotic. If not treated, patient must submit three consecutive negative specimens collected at least 24 hours apart and 24 hours after cessation of symptoms to return to day care facility.
    - ii. Cohorting: persons that have been asymptomatic for at least 24 hours may be readmitted into a cohort situation at the discretion of the CHD director or administrator or his/her designee. Persons on appropriate antibiotic therapy can be released from cohorting after 72 hours of treatment. If not treated, persons must submit three consecutive negative specimens collected at least 24 hours apart to be released from cohorting.

### **C. Case or symptomatic contact is a food handler**

1. Exclusion: before returning to food handling, patient must be asymptomatic.

2. Contact your Regional Environmental Epidemiologist at:  
([http://www.doh.state.fl.us/environment/medicine/foodsurveillance/about\\_us.htm](http://www.doh.state.fl.us/environment/medicine/foodsurveillance/about_us.htm))

**D. Case or symptomatic contact works at a healthcare or residential care facility**

Exclusion: before returning to a healthcare or residential care facility, patient must be asymptomatic.

**E. Contaminated Swimming Pools**

Fecal accidents in pools pose a significant risk to other bathers. However, the loose fecal matter oozing out from the diaper of a toddler with an infection is an even greater risk to others, and is much less likely to be detected than visible, formed stool. There are general guidelines for dealing with generic “stool-in-pool” events. Pool contamination from someone known to have giardiasis is unlikely to show up outside the context of an outbreak investigation.

For additional information regarding responding to fecal accidents in pools, see:  
<http://www.cdc.gov/healthywater/pdf/swimming/pools/fecal-incident-response-recommendations.pdf>.

## 8. IMPORTANT LINKS

- A. CDC's Parasites - *Giardia*  
<http://www.cdc.gov/parasites/giardia/>
- B. Tri-Agency Foodborne Illness Survey/Complaint Form  
([http://www.foodandwaterdisease.com/forms/Tri-Agency\\_Foodborne\\_Illness\\_Form\\_Electronic\\_2-16-2011.pdf](http://www.foodandwaterdisease.com/forms/Tri-Agency_Foodborne_Illness_Form_Electronic_2-16-2011.pdf))
- C. CDC's Healthy Swimming website  
<http://www.cdc.gov/healthywater/swimming/>
- D. CDC's Yellow Book  
<http://wwwnc.cdc.gov/travel/page/yellowbook-2012-home.htm>

## 9. REFERENCES

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- C. Giardiasis Surveillance --- United States, 2006—2008 *Surveillance Summaries* June 11, 2010 / 59(SS06); 15-25  
<http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5906a2.htm>