

# Giardiasis

## PROTOCOL CHECKLIST

- Enter available information into Merlin upon receipt of initial report
- Review background information on the disease and its epidemiology ([section 2](#)), surveillance case definition ([section 3](#)), and laboratory testing ([section 4](#))
- Investigate cases ([section 5](#))
  - Contact provider, if necessary, to gather more information
  - Interview patient
    - Review disease facts ([section 2](#))
      - Modes of transmission
      - Incubation period
      - Symptoms
    - Ask about exposure to relevant risk factors ([section 5](#))
      - Travel
      - 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 ([section 7](#))
      - Recommend exclusions for patients or symptomatic contacts ([section 7](#))
    - Provide education on controlling further spread ([section 6](#))
      - 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 ([section 7](#))
  - Enter additional data obtained from investigation into Merlin ([section 5](#))

## 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 *Giardia*, early enough to make a difference to the course of the outbreak.
3. To allow a better understanding of the descriptive epidemiology of cases, to focus primary case prevention efforts, and to formulate better prevention strategies.
4. To detect outbreaks of illnesses due to *Giardia*; to understand the events that lead to outbreaks and thus be able to focus outbreak prevention efforts (for possible future outbreaks). Note there are numerous other ways outbreaks are commonly detected, and pathogen-specific surveillance 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 business day of identification/diagnosis.

#### C. County health department investigation responsibilities

1. Investigate cases and individuals with potential exposure. See [section 5](#) for more information.
2. Follow up with 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, common exposures, etc., to detect possible clusters of infected individuals.

### 2. THE DISEASE AND ITS EPIDEMIOLOGY

#### A. Etiologic agent

*Giardia intestinalis* includes both *G. duodenalis* and *G. lamblia*. It 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 forms 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

Giardiasis can cause a variety of intestinal symptoms, which include:

- Diarrhea
- Gas/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 autoimmune deficiency syndrome [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 and cats) may be a source for some human exposures. Infected young children are an important source of parasites detected in recreational waters.

*Giardia intestinalis* (*G. duodenalis*, *G. lamblia*) can be subdivided based on molecular analysis into what are known as different genetic assemblages (A, B, C, D, E, F, G and H). Most human *Giardia* infections are transmitted person-to-person and involve *Giardia* assemblages (subgroups) A and B. Further discussion about these assemblages and the common reservoirs of each assemblage can be found at [www.cdc.gov/parasites/giardia/infection-sources.html](http://www.cdc.gov/parasites/giardia/infection-sources.html).

## 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 (e.g., 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
- Swallowing water while swimming or playing in recreational water that is contaminated with *Giardia*, such as water park attractions, pools, hot tubs, and inflatable water slides
- 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
- Similar exposures while 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 1,000–1,200 reports of giardiasis each year, 2013–2017. The majority (~89%) of these patient infections appear to be sporadic. The highest rates of illness occur in the 0–4-year age group (~20 cases per 100,000 population). Increases in giardiasis cases are commonly observed during July and August.

### 3. CASE DEFINITION

#### A. Background

An illness caused by the protozoan *Giardia lamblia* (also known as *G. intestinalis* or *G. duodenalis*) and characterized by diarrhea, abdominal cramps, nausea, vomiting, fever, anorexia, bloating, weight loss, or malabsorption. Asymptomatic infections are common, but asymptomatic cases do not meet the surveillance case definition.

#### B. Clinical criteria for case classification

One or more of the following:

- Diarrhea, **or**
- Abdominal cramps, **or**
- Nausea, **or**
- Vomiting, **or**

- Fever, **or**
- Anorexia (loss of appetite), **or**
- Bloating, **or**
- Weight loss, **or**
- Malabsorption.

**C. Laboratory criteria for case classification**

One or more of the following:

- Identification of *G. lamblia* cysts or trophozoites (e.g., microscopic detection), **or**
- Detection of Giardia nucleic acid (e.g., polymerase chain reaction [PCR]), **or**
- Detection of *G. lamblia* antigen by immunodiagnostic test (e.g., unspecified immunoassay [IA], enzyme immunoassay [EIA], immunofluorescence assay [IF], direct fluorescent antibody [DFA], indirect fluorescent antibody [IFA]).

**D. Epidemiological criteria for case classification**

A person who is epidemiologically linked to a confirmed giardiasis case.

**E. Case classification**

Confirmed: A clinically compatible illness in a person with laboratory evidence.

Probable: A clinically compatible illness in a person with epidemiological criteria.

**F. Criteria to distinguish a new case from previous reports**

Not applicable.

**4. LABORATORY SERVICES****A. Criteria for Diagnosis**

Diagnosis of giardiasis is made by examination of stool specimens. Because detection of *Giardia* can be difficult, patients may be asked to submit several stool specimens 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., PCR) are increasingly used in reference diagnostic labs since they can be used to identify *Giardia* species at the species level.

**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 for outbreak-related specimens**

1. Submitting specimens/isolates to BPHL
  - a. All submissions should be accompanied by Clinical Lab Submission Form 1847: [FloridaHealth.gov/programs-and-services/public-health-laboratories/forms-publications/index.html](http://FloridaHealth.gov/programs-and-services/public-health-laboratories/forms-publications/index.html).

- b. Electronic Laboratory Ordering (ELO) may also be used by entering the request into the Health Management System (HMS) State Laboratory System, placing a bar coded label on the ova and parasites (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 select code 1000-intestinal O&P and 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, Miami, or Tampa 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 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.
  - c. Follow packaging and shipping guidelines for diagnostic specimens (Biological Substance, Category B, UN3373). All suspect diagnostic specimens must be shipped and packaged according to International Air Transport Association (IATA) and Department of Transportation (DOT) Packaging Instructions 650 for Biological Substance, Category B Agents. Per these regulations, anyone who handles, offers for transport, or transports specimens must be trained and certified to do so.
  - d. Specimens and isolates should be sent at ambient temperature or cooler, but cool packs should not be in direct contact with vials.
  - e. For shipping guidance, please contact BPHL: [FloridaHealth.gov/programs-and-services/public-health-laboratories/locations/index.html](http://FloridaHealth.gov/programs-and-services/public-health-laboratories/locations/index.html)
  - f. Contact BPHL for packaging and shipping training dates. BPHL conducts approximately 20 face-to-face trainings per year throughout Florida, free of charge. DOH employees must register for the classes in the DOH online training system TRAIN-FL. For shipping guidance, contact BPHL. Additional shipping trainings are also available commercially through vendors.

#### D. Interpretation of results

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

## 5. CASE INVESTIGATION

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

#### A. Investigate and interview

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 an 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 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.
  - c. Calls should be made at different times of the day, with at least one attempt in the evening.
3. A standard Giardiasis Case Report Form that is based off the Extended Data screen in Merlin can be used to guide the interview: [FloridaHealth.gov/diseases-and-conditions/disease-reporting-and-management/disease-reporting-and-surveillance/\\_documents/extended-data-giardia.pdf](https://www.floridahealth.gov/diseases-and-conditions/disease-reporting-and-management/disease-reporting-and-surveillance/_documents/extended-data-giardia.pdf). Filling out the Extended Data screen in Merlin is encouraged.
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 members with a similar illness (anyone meeting the probable case definition should be reported and investigated in the same manner as a confirmed case)
    - ii. Travel (Determine dates of travel)
    - iii. Source(s) of drinking water as well as water from streams or lakes
    - iv. Recreational water exposure (this includes swimming, playing, or other exposure to lakes, streams, swimming pools, water parks, splash pads, or wading pools where water may have been swallowed)
    - v. Contact with pets, livestock, or other animals (including farms and petting zoos)
    - vi. Contact with diapered children or adults
  - 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 child care setting, food handlers, or employees in a health care 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:
    - i. Hand washing after defecation and diaper changing and before food preparation
    - ii. The importance of proper food handling and adequate cooking for meat
    - iii. Provide pointers about minimizing fecal contamination in daily life**See section 6 for recommendations on controlling further spread.**

## B. 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 completes the Tri-Agency Foodborne Illness Survey/Complaint Form: [FloridaHealth.gov/diseases-and-conditions/food-and-waterborne-disease/\\_documents/triagency-form.pdf](http://FloridaHealth.gov/diseases-and-conditions/food-and-waterborne-disease/_documents/triagency-form.pdf). The CHD investigator should record the complaint in Florida Complaints and Outbreak Reporting System (FL-CORS) or forward it to their Regional Environmental Epidemiologist for entry into FL-CORS. The CHD should then send 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 FL-CORS complaints 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, attempts should be made to identify and interview all outbreak associated cases. 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 at [FloridaHealth.gov/diseases-and-conditions/food-and-waterborne-disease/\\_documents/guidelines-for-determination-of-a-joint-investigation.pdf](http://FloridaHealth.gov/diseases-and-conditions/food-and-waterborne-disease/_documents/guidelines-for-determination-of-a-joint-investigation.pdf). Technical assistance is also available from your Regional Environmental Epidemiologist, if needed, at [FloridaHealth.gov/diseases-and-conditions/disease-reporting-and-management/disease-reporting-and-surveillance/surveillance-and-investigation-guidance/\\_documents/environmental-epi-map.pdf](http://FloridaHealth.gov/diseases-and-conditions/disease-reporting-and-management/disease-reporting-and-surveillance/surveillance-and-investigation-guidance/_documents/environmental-epi-map.pdf).

## C. Merlin data entry

Create a case in Merlin under **giardiasis (Merlin disease code=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 associate all relevant labs. Please associate **ALL** labs received via electronic laboratory reporting (ELR) to the case. Confirmed cases can be epi-linked to confirmed and probable cases. Probable cases can only be epi-linked to confirmed cases.

# 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, and 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 including oral-anal contact during sexual activity.



2. General information on preventing disease may also be covered.
  - a. Wash hands thoroughly after contact with animals, particularly young livestock or animals with diarrhea.
  - b. 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 Healthy Swimming website at [www.cdc.gov/healthywater/swimming/](http://www.cdc.gov/healthywater/swimming/).
    - 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 [wwwnc.cdc.gov/travel/page/yellowbook-home](http://wwwnc.cdc.gov/travel/page/yellowbook-home).
    - 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.
  - c. 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.
  - d. 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 day care, 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: [FloridaHealth.gov/diseases-and-conditions/disease-reporting-and-management/disease-reporting-and-surveillance/surveillance-and-investigation-guidance/\\_documents/environmental-epi-map.pdf](http://FloridaHealth.gov/diseases-and-conditions/disease-reporting-and-management/disease-reporting-and-surveillance/surveillance-and-investigation-guidance/_documents/environmental-epi-map.pdf).

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

Sensitive situation is not defined in Florida Administrative Code, Chapter 64D-3 in relation to any specific disease. The examples provided in Florida Administrative Code, Chapter 64D-3 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.

Florida Administrative Code, Rule 64-D3-3.037(3) specifically gives county health officers the authority to decide what is a sensitive situation and provides broad authority to take necessary action to control disease.

For example, a County Health Officer 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 child care facility**

1. Exclusion: before returning to a child care facility, the patient should be asymptomatic for 48 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 two or more cases of gastrointestinal illness with similar symptoms occurring within 72 hours among children or staff who share an exposure or are in close contact and 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 maximum incubation period of the disease among children or staff who share an exposure or are in close contact and who do not live in the same household.
  - a. If an outbreak is identified, do an assessment of the facility and consult the Guidelines for Control of Outbreaks of Enteric Disease in Child Care Settings at [FloridaHealth.gov/diseases-and-conditions/disease-reporting-and-management/disease-reporting-and-surveillance/surveillance-and-investigation-guidance/\\_documents/guidelines-for-control-of-outbreaks-of-enteric-disease-in-child-care-settings.pdf](https://www.floridahealth.gov/diseases-and-conditions/disease-reporting-and-management/disease-reporting-and-surveillance/surveillance-and-investigation-guidance/_documents/guidelines-for-control-of-outbreaks-of-enteric-disease-in-child-care-settings.pdf).
  - b. For suspected or confirmed outbreaks of *Giardia* species:
    - i. Exclusion and isolation: All persons with diarrhea or other GI illness (often including abdominal pain, gas, foul-smelling stool, or anorexia) will be excluded from the facility. A child who develops symptoms of gastrointestinal illness while at the day care should be isolated from other children until the parent or guardian removes the child from the facility. Exclusion of asymptomatic carriers is not effective for outbreak control and is not recommended.
    - ii. Readmission: Release of persons from exclusion may occur when they are asymptomatic for 48 hours.
    - iii. Personal Control Measures: All persons, including (but not limited to) children, parents, siblings, staff, visitors, and service personnel, will be required to wash their hands with soap and water upon entering the facility, after using the bathroom, after assisting with toileting or diaper changes, after playing outside, before and after handling food or eating, and before leaving the facility.
      1. Hand hygiene procedures will be reviewed, monitored, and enforced daily.
      2. Adults will supervise children's hand washing; infants' hands will be washed after diaper changes.
      3. Staff involved in food preparation will not change diapers.
      4. Alcohol-based hand sanitizers may be used to supplement, but not replace, soap and water hand hygiene.
    - iv. Environmental Control Measures:
      1. Ensure that hand toys are limited to single-child use between cleaning and sanitizing (this may be accomplished, for example, by [1] collecting a toy after a child has finished playing with it and disinfecting it before allowing another child to play with it; or [2] removing toys from circulation after children finish playing with them and disinfecting them at intervals or at the end of the day).
      2. Ensure that food is served in individual portions.
      3. Prohibit use of swimming pools or water play features. If present during an outbreak, these features should be emptied until disease control measures end. If a feature cannot be emptied, consult county health department environmental health for advice on disinfection.
      4. Prohibit playing with clay, dough, or sand and other toys that cannot be disinfected. Potentially contaminated items that cannot be disinfected should be discarded.
      5. Prepare fresh disinfectant solutions daily accordingly to manufacturer's instructions.

6. Regularly clean and disinfect tables and other frequently touched surfaces.
  7. Clean and disinfect potty chairs after each use.
  8. Clean and disinfect bathrooms multiple times during the day.
- v. Cohorting: Children who are asymptomatic for 24 hours, with or without the use of antibiotics, may be readmitted into a cohort situation at the discretion of the County Health Officer or designee. Release from cohorting is based on one of the above readmission criteria as enforced by the County Health Officer or designee.

### **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 [FloridaHealth.gov/diseases-and-conditions/disease-reporting-and-management/disease-reporting-and-surveillance/surveillance-and-investigation-guidance/\\_documents/environmental-epi-map.pdf](http://FloridaHealth.gov/diseases-and-conditions/disease-reporting-and-management/disease-reporting-and-surveillance/surveillance-and-investigation-guidance/_documents/environmental-epi-map.pdf).

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

Exclusion: before returning to a health care 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 [www.cdc.gov/healthywater/swimming/pdf/fecal-incident-response-guidelines.pdf](http://www.cdc.gov/healthywater/swimming/pdf/fecal-incident-response-guidelines.pdf).

## **8. IMPORTANT LINKS**

### **A. CDC's Parasites - *Giardia***

[www.cdc.gov/parasites/giardia/](http://www.cdc.gov/parasites/giardia/)

### **B. Tri-Agency Foodborne Illness Survey/Complaint Form**

[FloridaHealth.gov/diseases-and-conditions/food-and-waterborne-disease/\\_documents/triagency-form.pdf](http://FloridaHealth.gov/diseases-and-conditions/food-and-waterborne-disease/_documents/triagency-form.pdf)

### **C. CDC's Healthy Swimming website**

[www.cdc.gov/healthywater/swimming/](http://www.cdc.gov/healthywater/swimming/)

### **D. CDC's Yellow Book**

[wwwnc.cdc.gov/travel/yellowbook/2016/infectious-diseases-related-to-travel/giardiasis](http://wwwnc.cdc.gov/travel/yellowbook/2016/infectious-diseases-related-to-travel/giardiasis)

**E. CDC's Fact Sheet: A Guide to Water Filters**

[www.cdc.gov/parasites/crypto/gen\\_info/filters.html](http://www.cdc.gov/parasites/crypto/gen_info/filters.html)

**9. REFERENCES**

- A. Heymann, D.L. (Ed.). (2015). *Control of communicable diseases manual* (20<sup>th</sup> ed.). Washington: American Public Health Association.
- B. American Academy of Pediatrics. (2018). *Red Book: 2018 Report of the Committee on Infectious Diseases* (31<sup>th</sup> ed.). Grove Village, IL: American Academy of Pediatrics.
- C. Giardiasis Surveillance --- United States, 2006—2008 *Surveillance Summaries* June 11, 2010 / 59(SS06); 15-25 [www.cdc.gov/mmwr/preview/mmwrhtml/ss5906a2.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5906a2.htm).