



Cryptosporidiosis Surveillance Protocol

Provider Responsibilities

1. Report all cases to your local health department within the timeframe indicated:
Sporadic case of Cryptosporidiosis- should be reported within 72 hours of diagnosis.
Outbreaks of Cryptosporidiosis- should be reported immediately (see definition of outbreaks in public health action section).

Laboratory Responsibilities

1. Report all positive Cryptosporidium tests to the local health department in the patient's county of residence within 72 hours of result. Send or fax a copy of the laboratory result to the local health department in the county of residence of the case patient.

Public Health Action

For investigation of sporadic cases:

Initial report must be filed within 72 hours of first notification

1. Complete the Public Health Sections of the WVEDSS Foodborne Disease Reporting Form. Use of the WVEDSS Foodborne Disease Reporting Form will prompt a complete and appropriate investigation. Ask if within the last 5 to 30 days the case-patient has a history of exposure to behaviors that may be associated with Cryptosporidia infection including:

- Exposure to animals or other wildlife contaminating water supplies
- Consumption of untreated water
- Attendance or employment at a day care or child care facility

2. Identify other cases, including probable cases (symptomatic persons who are epidemiologically linked to a culture-confirmed case), and investigate completely as in above.

3. Enter case investigation and laboratory information from the form into the WVEDSS system. Print a copy and store according to your local records retention policies.

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4. Institute appropriate control measures:

In child care centers:

- Emphasize improved sanitation and personal hygiene
- Emphasize hand hygiene by staff and children, especially after toilet use or handling of soiled diapers
- Identify and treat all symptomatic children, child care workers and family members
- Cases with diarrhea should be excluded from the child care center until they become asymptomatic

In institutional settings:

- Emphasize hand hygiene by staff, especially after handling soiled linens
- Identify and treat all symptomatic residents, and workers
- Symptomatic residents should be cohorted to the extent possible
- In addition to standard precautions, contact precautions for the duration of illness should be used for incontinent residents

People with diarrhea should not use public recreational water (e.g. swimming pools, lakes, ponds). People diagnosed with cryptosporidiosis should not use recreational water for 2 weeks after symptoms resolve.

For investigation of a suspected outbreak:

Outbreak is defined as greater than expected numbers of cases reported during a certain time frame –OR- 2 or more epidemiologically linked cases from 2 or more households

Foodborne disease outbreak is defined as two or more persons who experience a similar illness after ingestion of a common food. Please note two exceptions: one case of botulism or chemical poisoning constitutes an outbreak.

Waterborne disease outbreak is defined as two or more persons who experience a similar illness after consumption or use of water intended for drinking. Outbreaks in association with recreational water may include exposure to or unintentional ingestion of water. Please note that a single case of chemical poisoning also constitutes an outbreak.

1. Obtain case histories for preliminary reports as in sporadic cases above. Focus on possible common source exposures.

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2. Verify the diagnosis
3. Gather a 72 hour food history and water ingested and recreational water contact for up to 2 weeks prior to onset of illness
4. Contact IDEP and notify of suspected outbreak
5. Consult outbreak investigation protocol for complete instructions on investigation of an outbreak.
(http://www.wvdhhr.org/idep/pdfs/idep/Outbreaks/Outbreak_Investigation_Protocol.pdf)

Epidemiologic investigations may be necessary in cases involving common source, daycare centers, or institutions. Consult with an epidemiologist at IDEP if a common source outbreak is suspected.

Disease Control Objectives

Reduce the incidence of secondary cases of Cryptosporidiosis by:

- Appropriate investigation of outbreaks and clusters to identify and remove any common source of disease.
- Identification and exclusion of cases and probable cases (symptomatic epi-linked contacts) from high-risk settings such as daycare and food preparation.
- Identify cases which might be a source of infection for other persons (e.g. a diapered child, daycare attendee or foodhandler) and prevent further transmission.
- Identify transmission sources of public health concern (e.g. a recreational water source or a contaminated public water supply) and promptly institute appropriate control measures.

Disease Prevention Objectives

Reduce the incidence of Cryptosporidiosis by:

- Education of the general public about the risks of drinking untreated surface water, including private supplies or water from streams or lakes while camping or hiking.
- Education of the public about handwashing before eating, after handling raw meat, after contact with animals, and after use of the toilet.
- Education of the public that people with diarrhea should not use public recreational water facilities (e.g. swimming pools, lakes, ponds).

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Disease Surveillance Objectives

- Determine the incidence of Cryptosporidiosis in West Virginia
- Identify demographic characteristics of persons with Cryptosporidiosis
- Identify behavioral risk factors associated with Cryptosporidiosis

Public Health Significance

Cryptosporidiosis has a worldwide distribution and occurs sporadically in West Virginia, although outbreaks are known to occur. Children are infected more frequently than adults. Prevalence is higher in areas of poor sanitation and in institutions with children who are not toilet trained, especially daycare centers. Cases occur more commonly in the summer and early fall months as recreational water activities are more prevalent during that time.

Until 1993, when over 400,000 people in Milwaukee became ill with diarrhea after being exposed to water contaminated with the parasite at a water park, few people had heard of *Cryptosporidium parvum*, or the disease it causes, cryptosporidiosis. Today, however, public health and water utility officials are increasingly called on to provide information and make decisions about the control of this protozoan found in public water supplies, recreational water and other areas.

Persons at greatest risk of exposure to infection are children in day care, their close contacts, men who have sex with men, backpackers and campers (via ingestion of unfiltered, untreated drinking water), travelers to disease-endemic areas, and persons drinking water from shallow wells. Cryptosporidiosis is most particularly a danger for the immunocompromised, especially HIV-positive persons and persons with [AIDS](#)

Public water supplies that are exposed to human or animal feces should be treated with a combination of filtration, chlorination and stringent maintenance of distribution systems. Community-wide outbreaks may result from contaminated water supplies, such as water parks, lakes and swimming pools. Because the oocyst form of the parasite is resistant to chlorine, appropriately functioning filtration systems are critical for the safety of public water supplies.

Handwashing after toilet use and before handling food or eating is an important preventive measure, especially in the day care setting.

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Clinical Description

Disease spectrum varies from asymptomatic to severe diarrhea and possibly life threatening complications in the immunocompromised. Symptoms typically include watery, non-bloody diarrhea. Other symptoms include abdominal cramps, fatigue, vomiting, anorexia and weight loss. Fever and vomiting are common among children. In immunocompetent persons, the illness is self-limited usually lasting 1 to 20 days. However in immunocompromised persons, especially those with HIV infection, chronic, severe diarrhea can develop, resulting in malnutrition, dehydration, and death.

Etiologic Agent

Cryptosporidium species are oocyst-forming coccidian protozoa. Oocysts are excreted in feces and are the infectious form. The most common species causing disease in humans are *Cryptosporidium hominis*, which only infects humans, and *Cryptosporidium parvum*, which infects humans, cattle and other mammals.

Reservoir

Humans, cattle and other domesticated animals. Contaminated water supplies can also harbor these organisms.

Mode of Transmission

The principal mode of transmission of cryptosporidiosis is fecal-oral. Persons become infected by fecal-oral transfer of oocysts from the feces of an infected individual. Localized outbreaks may occur from fecally contaminated water, such as stream/lake waters and swimming pools or water parks. Eating food contaminated by an infected food handler can be a source, but this has been rarely documented.

Swallowing recreational water contaminated with *Cryptosporidium* Recreational water includes water in swimming pools, hot tubs, jacuzzis, fountains, lakes, rivers, springs, ponds, or streams that can be contaminated with sewage or feces from humans or animals. *Cryptosporidium* can survive for days in swimming pools with adequate chlorine levels.

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Incubation Period

2-14 days, average 7 days

Period of Communicability

Cryptosporidia can be infectious for as long as cysts appear in the stool. This usually occurs at the onset of symptoms and can persist for several weeks after symptoms resolve (mean of 7 days).

Outbreak Recognition

An outbreak is defined as greater than expected numbers of cases reported during a certain time frame or when clustered cases of cryptosporidiosis are reported. Cryptosporidiosis most commonly occurs from July to October, during the summer months when recreational bathing is prevalent and private drinking water supplies become low or scarce. Outbreak recognition and investigation requires timely and complete epidemiological investigation (risk factors, history of exposure to recreational water, food history, etc.) paired with timely and complete laboratory investigation. During outbreaks, institute an epidemiological investigation of clustered cases in an area or institution to determine the source of the infection and mode of transmission. See Public Health Action section for details of outbreak investigation.

Case Definition

Clinical description

An illness caused by the protozoan *Cryptosporidium parvum* and characterized by diarrhea, abdominal cramps, loss of appetite, low-grade fever, nausea, and vomiting. Infected persons may be asymptomatic. The disease can be prolonged and life-threatening in severely immunocompromised persons.

Laboratory criteria for diagnosis

The detection—in symptomatic or asymptomatic persons—of *Cryptosporidium*

1. oocysts in stool by microscopic examination, or
2. in intestinal fluid or small-bowel biopsy specimens, or
3. oocyst or sporozoite antigens by immunodiagnostic methods, e.g., ELISA, or
4. by PCR techniques when routinely available, or
5. demonstration of reproductive stages in tissue preparations.

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Case classification

Confirmed, symptomatic: a laboratory-confirmed case associated with one of the symptoms described above

Confirmed, asymptomatic: a laboratory-confirmed case associated with none of the above symptoms

Preventive Interventions

- Wash hands well with soap and water after using the toilet, cleaning the toilet, after changing diapers, and after handling soiled towels or linens.
- Wash hands well with soap and water before, during, and after preparing food.
- Avoid swallowing recreational water. Protect others by not swimming, if you are experiencing diarrhea (especially children in diapers).
- In a daycare or institutional setting, dispose of feces soiled material in a sanitary manner.
- When hiking or camping, avoid drinking untreated water from shallow wells, streams, lakes, rivers, ponds etc. Bringing water to a full, rolling boil for 1 minute is sufficient to kill Cryptosporidia. Chemical treatment and filtration are other alternatives.
- Do not consume untreated ice or drinking water when traveling in areas where the water supply might be unsafe.
- Avoid sexual practices that may involve direct contact with feces.

Treatment

Supportive care as needed for dehydration and electrolyte abnormalities. A 3 day course of nitazoxanide is approved for children \geq 12 months of age and adults

Surveillance Indicators

- Proportion of investigations with complete demographic information.
- Proportion of investigations with complete information on high risk occupations.
- Proportion of cases with complete risk factor investigation.

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References

1. Pickering LK, ed. Red Book: 2003 Report of the Committee on Infectious Diseases. 26th ed. American Academy of Pediatrics; 2003: 283-285.
2. Heymann DL, ed. Control of Communicable Diseases Manual. 18th ed. American Public Health Association; 2004: 229-231.
3. Aronson SS, Shope TR, ed. Managing Infectious Disease in Child Care and Schools. American Academy of Pediatrics; 2005: 63.
4. Procedures to Investigate Waterborne Illness. 2nd ed. International Association for Food Protection; 1996: 9-15.
5. <http://www.cdc.gov/ncidod/dpd/parasites/cryptosporidiosis/default.htm>

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