

Know the FACTS

Cryptosporidiosis (“crypto”)

Cryptosporidiosis is a disease that causes diarrhea and is spread by germs (cryptosporidium or “crypto”) found in the feces of infected people or animals. Infection occurs when someone swallows these germs, which then affect the small intestine.

How crypto spreads

Crypto is a common waterborne illness and is the **most common cause of recreational water illness**. Crypto germs can be transmitted by:

- swallowing contaminated water (e.g., pools, lakes, or drinking water).
- contact with infected animals (especially calves and goats) or their environments.
- person-to-person spread, especially in child care settings.
- touching contaminated surfaces (e.g., toys, changing tables) followed by the mouth.
- consuming contaminated food or unpasteurized drinks (e.g., raw milk or cider).



Symptoms of crypto

The most common symptom is prolonged, frequent watery diarrhea. Other symptoms include:

- stomach cramps or pain
- nausea
- vomiting
- fever
- weight loss
- dehydration

In healthy people, **symptoms usually last about two weeks** and may come and go before improving. Most recover without treatment, but it's important to drink plenty of fluids to prevent dehydration.

Reducing your risk of exposure

You can reduce your risk by **washing your hands often with soap and water**, especially after contact with animals or their environments. **Avoid swallowing water while swimming**, and **don't drink untreated water or unpasteurized milk or cider**. When traveling to areas with limited water treatment, be cautious with tap water, ice and raw foods. Limit intimate contact with anyone who has diarrhea or has recently been sick.



What to do if you think you have crypto

Contact your healthcare provider if you have concerns about your health. They may ask you to submit a stool sample in order to diagnose the illness.

People with crypto can spread the parasite in their stool while sick and for about two weeks after symptoms stop. To avoid passing it to others:

- wash hands often with soap and water.
- stay out of pools, lakes, and splash pads while sick and for two weeks after diarrhea ends.
- avoid bathing with others and refrain from sexual activity during this time.
- stay home from childcare or preschool until at least 24 hours after diarrhea stops.

Guidance for cleaning aquatic facilities

Animals and body fluids (such as fecal matter, vomit and blood) are the most common pool contaminants.

For detailed post-incident cleanup instructions, please refer to the next two pages, which outline recommendations from the Centers for Disease Control and Prevention (CDC).

Additional resources

- HCPH environmental health line:
513-946-7847
- Ohio Department of Health:
tinyurl.com/ODHCrypto



Hyperchlorination to Kill *Cryptosporidium* When Chlorine Stabilizer¹ is in Water

Recommendations for Aquatic Staff



Check for existing guidelines from your local or state regulatory agency before use. CDC recommendations do not replace existing state or local regulations or guidelines.

Cryptosporidium (or “Crypto”) is an extremely chlorine-tolerant parasite. This means Crypto can spread among swimmers even when the free chlorine concentration is well-maintained in the water in aquatic venues, such as pools and water playgrounds. If an outbreak of Crypto infections occurs in your community, the health department might ask you to hyperchlorinate.

Additionally, to help keep Crypto levels low, you might choose to hyperchlorinate periodically (for example, weekly). If necessary, before attempting to hyperchlorinate, consult an aquatic professional to determine the feasibility, the most optimal and practical methods, and needed safety considerations.

Hot tubs/spas, and some water playgrounds, can have much smaller amounts of water. In response to formed or diarrheal fecal incidents in small-volume venues, it might be more efficient to completely drain as much water as possible from the venue and associated plumbing; scrub and clean all accessible surfaces in contact with contaminated water; replace or clean filter media when appropriate, and refill with uncontaminated water from an approved source (for example, municipal water system).

1. Chlorine stabilizers include compounds such as cyanuric acid, dichlor, and trichlor.



Recommended Steps for Hyperchlorination When Chlorine Stabilizer is in the Water

Step 1: Close the aquatic venue to swimmers. If you have multiple venues that use the same filtration system—all of the venues will have to be closed to swimmers. Do not allow anyone to enter the venue(s) until the hyperchlorination process is completed.

Step 2: Using unstabilized chlorine (for example, sodium hypochlorite), raise the water's free chlorine concentration (see bullets below) and maintain water at pH 7.5 or less.¹

Step 3: Hyperchlorinate.² Chlorine stabilizer slows the rate at which free chlorine inactivates or kills Crypto, and the more stabilizer there is in the water the longer it takes to kill Crypto.

If the cyanuric acid concentration is 1–15 parts per million (ppm)³, using unstabilized chlorine.

- Raise the free chlorine concentration to 20 ppm⁴ and maintain it for 28 hours or
- Raise the free chlorine concentration to 30 ppm⁴ and maintain it for 18 hours or
- Raise the free chlorine concentration to 40 ppm⁴ and maintain it for 8.5 hours

If the cyanuric acid concentration is more than 15 ppm, lower the concentration to 1–15 ppm by draining partially and adding fresh water without chlorine stabilizer before attempting to hyperchlorinate.

Step 4: Confirm that the filtration system is operating while the water reaches and is maintained at the proper free chlorine concentration and pH for hyperchlorination.

Step 5: Backwash the filter thoroughly after hyperchlorination has been completed. Be sure to discharge directly to waste and according to state or local regulations. Do not return the backwash through the filter. Where appropriate, replace the filter media.

Step 6⁵: Allow swimmers back into the water only after hyperchlorination has been completed and the free chlorine concentration and pH are within the operating range allowed by the state or local regulatory authority.

Establish a fecal incident log.

Document each fecal incident by recording date and time of the event, whether it involved formed fecal matter or diarrhea and the free chlorine concentration and pH at the time of observation of the event. Before reopening the aquatic venue, record the procedures followed in response to the fecal incident (including the process used to adjust chlorine concentration and pH [if necessary], the free chlorine concentration and pH, and the hyperchlorination time). You can download a Water Contamination Response Log at <http://www.cdc.gov/healthywater/swimming/pools/disinfection-remediation-pools-hot-tubs.html>.



1. Ideally, the water temperature should be 77°F (25°C) or higher during the hyperchlorination process.
2. Alternative options could include circulating the water through a secondary disinfection system (for example, ultraviolet light or ozone) to theoretically reduce the number of Crypto oocysts in the aquatic venue(s) below one oocyst/100 mL as outlined in the Model Aquatic Health Code (MAHC) standard 4.7.3.3.2.4 (current edition of the MAHC is available at www.cdc.gov/mahc/currentedition/index.html) or draining the aquatic venue(s).
3. Murphy JL, Arrowood MJ, Lu, X, Hlavsa MC, Beach MJ and Hill VR. Effect of cyanuric acid on the inactivation of *Cryptosporidium parvum* under hyperchlorination conditions. *Environ Sci & Technol*, 2015;49:7348-55.
4. Many conventional test kits cannot measure free chlorine concentrations this high. Use chlorine test strips that can measure free chlorine in a range that includes 20–40 ppm (such as those used in the food industry) or make dilutions for use in a standard DPD test kit using chlorine-free water.
5. CDC does not recommend testing the water for Crypto after hyperchlorination is completed. Although hyperchlorination destroys Crypto's infectivity, it does not necessarily destroy the structure of the parasite or its DNA.