



***Cryptosporidium* Infection—Immunocompromised Persons**

Who might be immunocompromised or have a weakened immune system?

Examples of persons with weakened immune systems include those with AIDS; cancer and transplant patients who are taking certain immunosuppressive drugs; and those with inherited diseases that affect the immune system (e.g., congenital agammaglobulinemia, congenital IgA deficiency). The risk of developing severe disease may differ depending on each person's degree of immune suppression. Following all the recommendations in this fact sheet can be a great personal burden, so consult with your health care provider to determine whether your medical condition makes it advisable to follow all of these recommendations.

What is cryptosporidiosis?

Cryptosporidiosis is a diarrheal disease caused by a microscopic parasite, *Cryptosporidium*, that can live in the intestine of humans and animals and is passed in the stool of an infected person or animal. Both the disease and the parasite are also known as "Crypto." The parasite is protected by an outer shell that allows it to survive outside the body for long periods of time and makes it very resistant to chlorine-based disinfectants. During the past 2 decades, Crypto has become recognized as one of the most common causes of waterborne disease (recreational water and drinking water) in humans in the United States. The parasite is found in every region of the United States and throughout the world.

What are the symptoms of cryptosporidiosis?

The most common symptom of cryptosporidiosis is watery diarrhea. Other symptoms include:

- Stomach cramps or pain
- Dehydration
- Nausea
- Vomiting
- Fever
- Weight loss

Some people with Crypto will have no symptoms at all. While the small intestine is the site most commonly affected, Crypto infections could possibly affect other areas of the digestive tract or the respiratory tract.

How long after infection do symptoms appear?

Symptoms of cryptosporidiosis generally begin 2 to 10 days (average 7 days) after becoming infected with the parasite.

How long will symptoms last?

In persons with healthy immune systems, symptoms usually last about 1 to 2 weeks. The symptoms may go in cycles in which you may seem to get better for a few days, then feel worse before the illness ends.

How does cryptosporidiosis affect you if your immune system is severely weakened?

In persons with AIDS and in others whose immune system is weakened, Crypto can be serious, long-lasting, and sometimes fatal. If your CD4+ cell count is below 200/mm³, Crypto is more likely to cause severe symptoms and complications, including prolonged diarrhea, dehydration, and possibly death. If your CD4+ count is above 200/mm³, your illness may not last more than 1 to 3 weeks, or

slightly longer. However, you could still carry the infection, which means that the Crypto parasites are living in your intestine but are not causing illness. As a carrier of Crypto, you could infect other people. If your CD4+ count later drops below 200/mm³, your symptoms may reappear. For persons taking immunosuppressive drugs, the Crypto infection usually resolves when the doses are reduced or the drugs are stopped. Persons taking immunosuppressive drugs need to consult their health care provider if they believe they have cryptosporidiosis.

Immunosuppressed Persons	
CD4+ cell count <200	<ul style="list-style-type: none"> • More likely to develop diarrhea and other symptoms that last for a long time
CD4+ cell count >200	<ul style="list-style-type: none"> • Symptoms may last 1 to 3 weeks or slightly longer • May carry Crypto parasites in their intestines, but have no symptoms (these people could infect other people) • If their CD4+ count drops below 200, their symptoms might reappear.

How is cryptosporidiosis spread?

Cryptosporidium lives in the intestine of infected humans or animals. An infected person or animal sheds Crypto parasites in the stool. Millions of Crypto parasites can be released in a bowel movement from an infected human or animal. Shedding of Crypto in the stool begins when the symptoms begin and can last for weeks after the symptoms (e.g., diarrhea) stop. You can become infected after accidentally swallowing the parasite. Crypto may be found in soil, food, water, or surfaces that have been contaminated with the feces from infected humans or animals. Crypto is not spread by contact with blood. Crypto can be spread:

- By putting something in your mouth or accidentally swallowing something that has come into contact with stool of a person or animal infected with Crypto.
Note: You may not be able to tell by looking whether something has been in contact with stool.
- By swallowing recreational water contaminated with Crypto. Recreational water is water in swimming pools, hot tubs, Jacuzzis, fountains, lakes, rivers, springs, ponds, or streams. Recreational water can be contaminated with sewage or feces from humans or animals.
- By swallowing water or beverages contaminated with stool from infected humans or animals.
- By eating uncooked food contaminated with Crypto. Thoroughly wash with uncontaminated water all vegetables and fruits you plan to eat raw. See below for information on making water safe.
- By touching your mouth with contaminated hands. Hands can become contaminated through a variety of activities, such as touching surfaces (e.g., toys, bathroom fixtures, changing tables, diaper pails) that have been contaminated by stool from an infected person, changing diapers, caring for an infected person, changing diapers, caring for an infected person, and handling an infected cow or calf.
- By contact with skin around an infected person's anus (especially important with sex partners).

I have been diagnosed with cryptosporidiosis. Should I worry about spreading the infection to others?

Yes, Crypto can be very contagious. Infected individuals should follow these guidelines to avoid spreading Crypto to others.

- Wash your hands frequently with soap and water, especially after using the toilet, after changing diapers, and before eating or preparing food.

- Do not swim in recreational water (pools, hot tubs, lakes, rivers, oceans, etc.) if you have Crypto and for at least 2 weeks after the diarrhea stops. You can pass Crypto in your stool and contaminate water for several weeks after your symptoms have ended. You do not even need to have a fecal accident in the water. Immersion in the water may be enough for contamination to occur. Water contaminated in this manner has resulted in outbreaks of cryptosporidiosis among recreational water users. **Note:** You may not be protected in a chlorinated recreational water venue (e.g., swimming pool, water park, splash pad, spray park) because Crypto is chlorine-resistant and can live for days in chlorine-treated water.
- Avoid sexual practices that might result in oral exposure to stool (e.g., oral-anal contact)
- Avoid close contact with anyone who has a weakened immune system.
- Children with diarrhea should be excluded from child care settings until the diarrhea has stopped.

What should I do if I think I may have cryptosporidiosis?

See your health care provider.

How is a cryptosporidiosis diagnosed?

Your health care provider will ask you to submit stool samples to see if you are infected. Because testing for Crypto can be difficult, you may be asked to submit several stool specimens over several days. Tests for Crypto are not routinely done in most laboratories. Therefore, your health care provider should specifically request testing for the parasite.

What is the treatment for cryptosporidiosis?

People who are in poor health or who have a weakened immune system are at higher risk for more severe and more prolonged illness. If you have diarrhea, drink plenty of fluids to prevent dehydration. Rapid loss of fluids because of diarrhea can be life-threatening in babies; parents should consult their health care provider about fluid replacement therapy options for babies. Anti-diarrheal medicine may help slow down diarrhea, but consult with your health care provider before taking it.

Nitazoxanide has been FDA-approved for treatment of diarrhea caused by *Cryptosporidium* in people with healthy immune systems and is available by prescription. However, the effectiveness of nitazoxanide in immunosuppressed individuals is unclear. Some drugs, such as paromomycin, may reduce the symptoms of Crypto and new drugs are being tested. However, Crypto is usually not cured in people with immunosuppression and may come back if the immune status worsens.

For persons with AIDS, anti-retroviral therapy that improves immune status will also decrease or eliminate symptoms of Crypto infection. See your health care provider to discuss treatment and anti-retroviral therapy used to improve immune status.

This fact sheet is for information only and is not meant to be used for self-diagnosis or as a substitute for consultation with a health care provider. If you have any questions about the disease described above or think that you may have a parasitic infection, consult a health care provider.

From http://www.cdc.gov/crypto/factsheets/infect_ic.html

