Preventing Cryptosporidiosis, Guide for People with Compromised Immune Systems

People with weakened immune systems include those with AIDS, cancer, transplant patients who are taking certain immunosuppressive drugs and those with *inherited* (present at birth) diseases that affect the immune system. People in poor health or with a weakened immune system are at higher risk for more severe and long, drawn-out illness. For people with AIDS, anti-retroviral therapy improves immune status. It also decreases or eliminates symptoms of crypto infection. Crypto is usually not cured. It may come back if the immune status worsens.

Cryptosporidiosis is a disease. It is caused by a *microscopic* (something seen under a microscope) parasite, Cryptosporidium parvum. A parasite lives inside another living *organism* (the host) and is able to live off its host. It can live in the intestine of humans and animals. It is passed in the waste of an infected person or animal. Both the disease and the parasite are 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 disinfection. During the past twenty years, this has become one of the most common causes of disease carried in water (drinking and recreational) in humans.

SYMPTOMS

Symptoms may include:

- Diarrhea.
- Loose or watery stool.
- Stomach cramps.
- Upset stomach.
- A slight fever.

Some people have no symptoms. Symptoms usually begin about 2 to 20 days after being infected. In persons with normal immune systems, symptoms usually last about 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.

DIAGNOSIS

If crypto is suspected, your caregiver may ask you to submit several stool samples over several days to see if you are infected. Tests for crypto are not usually done in most laboratories. So your caregiver should specifically request testing for the parasite.

HOW IS CRYPTO SPREAD?

Crypto lives in the intestine of infected humans or animals. Millions of crypto can be released in a bowel movement from an infected human or animal. You can become infected after accidentally swallowing the parasite. Crypto may be found in soil, food, water, or surfaces that have been contaminated with feces from infected humans or animals. Crypto is not spread by contact with blood. Crypto is contagious. This means it can be passed easily from one person to the next.

Crypto can be spread:

- By putting something in your mouth or accidentally swallowing something that has come in contact with the stool of a person or animal infected with crypto.
- By swallowing recreational water contaminated with crypto. Recreational water is water found 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.
- By eating uncooked food contaminated with crypto. Thoroughly wash with uncontaminated water all vegetables and fruits you plan to eat raw.
- By accidentally swallowing crypto picked up from surfaces (such as toys, bathroom fixtures, changing tables, diaper pails) contaminated with stool from an infected person.

PREVENTION

- Washing your hands often with soap and water is probably the single most important step you can take to prevent crypto and other illnesses. Always wash your hands before eating and preparing food. Wash your hands well:
  - After touching children in diapers.
  - After touching clothing, bedding, toilets, or bed pans soiled by someone who has diarrhea.
  - After gardening.
  - Any time you touch pets or other animals.
  - After touching anything that might have had contact with even the smallest amounts of human or animal stool, including dirt in your garden and other places.

Even if you wear gloves when you do these activities, you should still wash well when you finish. Children should be supervised by adults to make sure they wash their hands well.

- Keep your hands out of and away from your mouth.
- Avoid swimming in recreational water (pools, hot tubs, lakes or rivers, the ocean, etc.) if you have crypto and for at least 2 weeks after diarrhea stops. You can pass crypto in your stool and contaminate water for several weeks after your symptoms have ended. You are not protected in a chlorinated pool because crypto is chlorine resistant. It can live for days in pools. When swimming in lakes, rivers, or pools, and when using hot tubs, avoid swallowing water. Several outbreaks of crypto have been traced to swallowing contaminated water while swimming. Crypto can also remain alive in salt water for several days. So swimming in polluted ocean water may also be unsafe.
- Avoid fecal exposure during sex. Infected people may have crypto on their skin in the anal and genital areas, including the thighs and buttocks. But since you cannot tell if someone has Crypto, you may want to take these precautions with any sex partner:
  - “Rimming” (kissing or licking the anus) is so likely to spread infection that you should avoid it, even if you and your partner wash well before.
  - Always wash your hands well after touching your partner's anus or rectal area.
- If you touch a farm animal, particularly a calf, lamb, or other young animal, or visit a farm where animals are raised, wash your hands well with soap and water before preparing food or putting anything in your mouth. Do not touch the stool of any animal. After you visit a farm or other area with animals, have someone who is not immunocompromised clean your shoes, or wear disposable gloves if you clean them yourself. Wash your hands after taking off the gloves.
- Most pets are safe to own. But someone who is not immunocompromised should clean their litter boxes or cages, and dispose of the stool. If you must clean up after a pet, use disposable gloves. Wash your hands afterwards. The risk of getting crypto is greatest from pets that are less than 6 months old, animals that have diarrhea, and stray animals. Older animals can also have crypto. But they are less likely to have it than younger animals. If you get a puppy or kitten that is less than 6 months old, have the animal tested for crypto before bringing it home. If any pet gets diarrhea, have it tested for crypto.
- Fresh vegetables and fruits may be contaminated with crypto. Therefore, wash all vegetables or fruit well that you will eat uncooked. If you take extra steps to make your water safe (see below for ways to do so), use this safe water to wash your fruits and vegetables. When you can, peel fruit that you will eat raw, after washing it. Do not eat or drink unpasteurized milk or dairy products. Cooking kills crypto. Therefore, cooked food and heat-processed foods are probably safe if, after cooking or processing, they are not handled by someone infected with crypto, or exposed to possibly contaminated water.
- Do not drink water directly from lakes, rivers, streams, or springs. Because you can not be sure if your tap water contains crypto, you may wish to avoid drinking tap water. This includes water or ice from a refrigerator, which is usually made with tap water. Because public water quality and treatment vary, always check with the local health department and water utility to see if they have issued any special notices about the use of tap water by immunocompromised persons. You may also wish to take these additional measures:
  - Boil your water.
  - Filter your water with certain home filters.
  - Drink certain types of bottled water.
  - Processed carbonated (bubbly) drinks in cans or bottles are probably safe. But drinks made at a fountain

might not be because they are made with tap water.
  - If you choose to take these extra measures, use them all the time, not just at home. If the public health department advises boiling the water, do not drink tap water unless you boil it.
- Boiling is the best extra measure to ensure that your water is free of crypto and other germs. Heating water at a rolling boil for 1 minute kills crypto, according to CDC and EPA scientists. After the boiled water cools, put it in a clean bottle or pitcher with a lid. Store it in the refrigerator. Use the water for drinking, cooking, or making ice. Water bottles and ice trays should be cleaned with soap and water before use. Do not touch the inside of them after cleaning. If you can, clean water bottles and ice trays yourself. Not all available home water filters remove crypto. All filters that have the words “reverse osmosis” on the label protect against crypto. Some other types also work, but not all filters that are supposed to remove objects 1 micron or larger from water are the same. Look for the words “absolute 1 micron.” Some “1 micron” and most “nominal 1 micron” filters will not work against crypto. Also look for the words “Standard 53” and the words “cyst reduction” or “cyst removal” for an NSF-tested filter that works against crypto.
- Filters collect germs from your water. So someone who is not immunocompromised should change the filter cartridges for you. If you do it yourself, wear gloves and wash your hands afterwards. Filters may not remove crypto as well as boiling does. Even good brands of filters may sometimes have manufacturing flaws that allow small numbers of crypto to get past the filter. Poor filter maintenance or failure to replace filter cartridges as recommended by the manufacturer can cause your filter to fail.
- Soft drinks and other beverages may or may not contain crypto. You need to know how they were prepared to know if they might contain crypto. If you drink prepared drinks, look for drinks prepared to remove crypto. Bottled water labels reading “well water,” “artesian well water,” “spring water,” or “mineral water” do not guarantee that the water does not contain crypto. But water that comes from protected well or protected spring water sources is less likely to contain crypto than bottled water or tap water from less protected sources, such as rivers and lakes. Any bottled water (no matter what the source) that has been treated by one or more of the methods listed in the top part of the water filters table is considered safe.
- If you travel to developing nations, you may be at a greater risk for crypto because of poorer water treatment and food sanitation. Warnings about food, drinks, and swimming are even more important when visiting developing countries. Avoid foods and drinks, especially raw fruits and vegetables, tap water or ice made from tap water, unpasteurized milk or dairy products, and items purchased from street vendors. These items may be contaminated with crypto. Steaming-hot foods, fruits you peel yourself, bottled and canned processed drinks and hot coffee or tea are probably safe. Talk with your caregiver about other guidelines for travel abroad.

TREATMENT

There is no effective treatment for crypto. 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 a caregiver about fluid replacement therapy options for babies. Anti-diarrheal medicine may help slow down diarrhea. But consult with your caregiver before taking it.

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