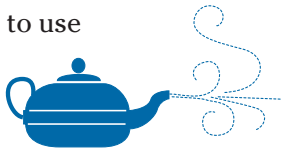
tapwater customers plan to use as drinking water or for cooking or washing food. In these situations, officials will also test the water supply for *Cryptosporidium*.

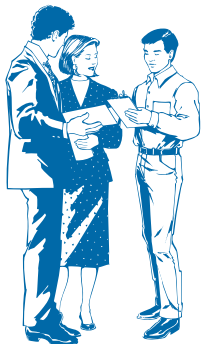


There are also federal safeguards for drinking water tests to ensure citizens receive safe drinking water on a regular basis. However, there is no fail-safe way to protect your drinking water from *Cryptosproidium* contamination, but each safety measure helps officials take further steps to provide safe drinking water and alert the public to potential health threats.

What can you do?

There is more to be learned about keeping drinking water safe from *Cryptosporidium*, and research is underway. Until we know more, here's what you can do to protect yourself and your family:

- Practice good personal hygiene by washing your hands and make sure your family does too.
- Learn about your local drinking water "report card" by reading the annual *Consumer Confidence Report* published by your local drinking water supplier each July.
- Contact your local drinking water supplier with any questions about your drinking water or water supply.
- Support programs, which protect water from contamination and that, improves the drinking water quality.
- The DNR has more information about drinking water and groundwater protection on its website at **dnr.wi.gov.** Choose "Drinking Water & Groundwater" from the drop-down program menu and select from a variety of listed topics.



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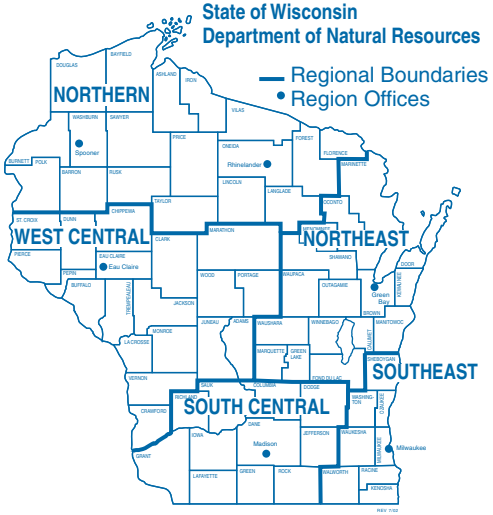

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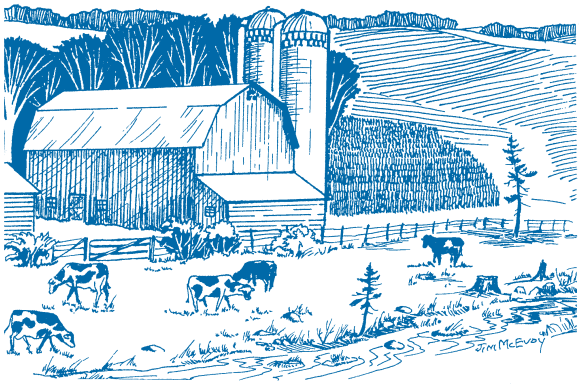
Cryptosporidium:

A Risk to Our Drinking Water

Produced by Department of Natural Resources in cooperation with the State Department of Health & Family Services. Reviewed by the GCC Education Subcommittee.

Wisconsin Department of Natural Resources
Bureau of Drinking Water & Groundwater

What is Cryptosporidium?



Cryptosporidium (pronounced krip'-toe-spore-rid'-ee-um) is a one-celled primitive form of animal life called a protozoan. It was first discovered in 1895, but wasn't known as a waterborne disease until 1987.

Cryptosporidium protozoans form oocysts (oh'-a-sists), which are dormant microscopic forms of *Cryptosporidium*. These oocysts are very tough and can survive all kinds of environmental extremes. This means they can survive a long time in the natural environment.

Typically, *Cryptosporidium* is found in rivers, lakes, and streams contaminated with animal feces. It is also common in water bodies where wastewater is discharged from sewage treatment plants. Cattle, especially calves, are thought to be a major source of *Cryptosporidium*.

Water from public and private wells usually doesn't contain these protozoans if they are built to meet the state regulations. Wells that are abandoned, like old windmills or open pits, or wells that are constructed improperly, can become contaminated from surface runoff entering the well.

The Environmental Protection Agency has determined that drinking water should contain no trace of this contaminant in order to protect your health. In only a few cases has treated drinking water samples shown evidence of *Cryptosporidium.* The following chart gives examples of levels of oocysts per liter in the environment:

Raw Sewage 5,000

Treated Wastewater.....1,000

Western U.S. Rivers.....2 to112

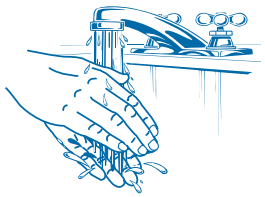
A 1995 Wisconsin DNR study found *Cryptosporidium* in all regions of the state and in most surface waters such as: lakes, rivers, streams, and wetlands. Of the 567 samples taken, only 25 of them (5.1%) tested positive. This means people should take precautions against exposure to *Cryptosporidium* because one never knows where it will appear. *Cryptosporidium* is tough to test for and it can be found anywhere, but not all the time.

Health concerns

Cryptosporidiosis is the disease which people develop when *Cryptosporidium* oocysts are ingested. People can be exposed to these oocysts through contaminated food, water, or more commonly in settings such as day care and child care facilities.

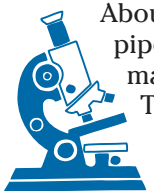
Symptoms of Cryptosporidiosis include: diarrhea, stomach cramps, nausea, fatigue, dehydration and headaches, which may last seven or more days. For people whose immune systems are weakened by transplant surgery, cancer chemotherapy or AIDS, Cryptosporidiosis can last longer and become life threatening.

Newly-formed *Cryptosporidium* oocysts are shed in feces and are infectious to others. To prevent transmitting cryptosporidiosis to others, infected people should thoroughly wash their hands after using the toilet and continue this process for at least two weeks after the diarrhea stops. Good hygiene is a **must** to prevent exposure to *Cryptosporidium* as well as other disease-causing organisms and germs.



Testing water and treating it

Detecting *Cryptosporidium* in drinking water requires public water systems to sample large volumes of water because organisms are not concentrated.



About 10 liters of water is piped through a filter and the material collected is examined. Testing takes about one week and costs the consumer and/or water system $450 - $550 a sample.

Removing Cryptosporidium from the drinking water supply

All public water systems that use lakes for their source of drinking water must treat the water before distributing it to customers. The most effective treatment is to use multiple barriers to remove and inactivate the *Cryptosporidium* oocysts. Typical barriers include: protecting water sources from contamination, optimized filtration, disinfection, UV, ozone, membranes, and creating a contaminant-free distribution system. Because chlorine treatment (about 1 part per million) does not inactivate *Cryptosporidium*, it is very important to protect rivers, lakes, and streams from contamination.

Protecting public health

Milwaukee's outbreak of cryptosporidiosis was a warning sign that more effective water treatment methods are needed to protect the public from *Cryptosporidium* and many water systems are responding by making the necessary improvements.

Currently, there are steps put in place by state and federal agencies to protect public health in the event your water supply becomes contaminated. Today, when the usual treatment steps fail at the water treatment facility, the state Department of Natural Resources and local officials will advise water customers to boil for one minute any