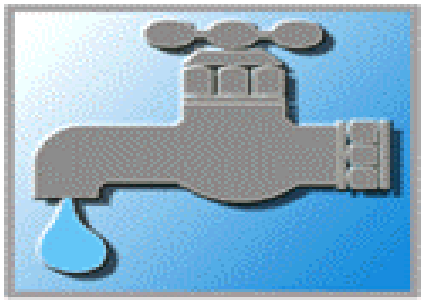


BACTERIOLOGICAL CONTAMINATION OF DRINKING WATER

Commonly Asked Questions and Answers

WHAT ARE BACTERIA AND COLIFORMS AND WHERE DO THEY COME FROM?

Bacteria are living organisms that are too small to see without a microscope. They are present all around us in air, soil, and water. Some types of bacteria can get into drinking water and make people sick. Coliforms are a type of bacteria that can be harmless, however, their presence in water indicates the possibility of contamination by more harmful bacteria or other organisms such as viruses or parasites. There are two types of coliforms, total coliforms (TC), which are common in the environment, and fecal coliforms (including *Escherichia coli* [*E. coli*]), which are normally present in the intestinal tract of warm-blooded animals, including humans. The presence of fecal coliforms or *E. coli* in water may indicate contamination from a sewer, septic system, feedlot, or animal yard.

WHAT IS A BOIL WATER ADVISORY?

By law, public water systems are required to regularly test the quality of the water they distribute to their customers. There are two levels of bacterial testing: a test for total coliforms (which, if positive, indicates that dirt may have contaminated the system) and a test for fecal coliforms or *E. coli.* Public water supplies are required to notify the public they serve when the water supply is contaminated; this notification may also include a "Boil Water Advisory or Order" if the contamination is from fecal coliforms or *E. coli*.

If you own a private drinking water well, the US Environmental Protection Agency (US EPA) recommends that you have your well tested for coliform bacteria every year. This is especially important in areas that flood periodically, or have septic systems or farm animals nearby. If the tests show bacteriological contamination, you should follow the boil water advisory precautions listed on the next page. You should also attempt to find and fix the source of contamination and disinfect your well and plumbing lines with chlorine. For additional information, contact the EPA Safe Drinking Water Hotline at: 1-800-426-4791 or http://www.epa.gov/safewater/faq/emerg.html

WHAT DOES IT MEAN IF THE WATER IS CONTAMINATED?

The presence of *E. coli* in water indicates that the water has been in contact with sewage or animal waste, and could contain disease-causing organisms. Most strains of *E. coli* do not cause illness themselves unless they are present in large numbers. There are some types of *E. coli* (for example O157:H7) that can make people very sick. However, the presence of *E. coli* in a water sample does not necessarily mean that the harmful type of *E. coli* is present. The importance of the presence of fecal coliforms or *E. coli* is that other disease-causing viruses, bacteria or parasites could also be present.

HOW DOES THE WATER BECOME CONTAMINATED?

Most surface water (lakes, streams, acequias) and some ground water (from wells) contain bacteria. Contaminated water should be disinfected if it is to be used for household or drinking purposes. If a water treatment system fails or if there is a break in water lines due to construction or repair, water could become contaminated and distributed throughout the system. Private wells can be contaminated if there are septic tanks or feedlots nearby or if surface water is entering the well.

HOW LIKELY AM I TO BECOME ILL FROM CONTAMINATED DRINKING WATER?

The likelihood of illness depends on the type and number of disease-causing organisms present in the water, the amount of water drunk and the resistance of the person. The presence of *E. coli* **only indicates the possibility** that disease-producing organisms are present in the water, but not the

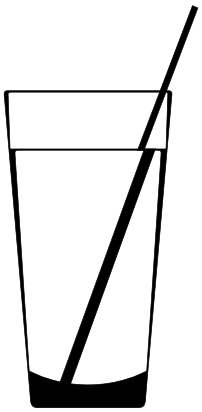
types or numbers. Infants and elderly people are more likely to become ill if they are exposed to viruses, bacteria or parasites because they have less immunity; however, there are other factors that may make a person more susceptible to intestinal infections including:

- Less stomach acidity (from antacid or acid-inhibiting medication or past stomach surgery)
- Recent antibiotic treatment (which can change the normally protective population of bacteria present in the intestine)
- Impaired immune function (from chronic illness especially cancer, immune-suppressive medication or radiation therapy) or HIV infection.

What Illness Might Result From Drinking Contaminated Water?

Waterborne illness is similar to intestinal illnesses from other exposures including contaminated food and close personal contact with a person who is ill. Many viruses, bacteria and parasites can cause illness. Symptoms may include nausea or vomiting, abdominal cramping, or diarrhea; other symptoms might include fever, headache, muscle aching and fatigue. Illness could occur as soon as 12 hours after exposure or could be delayed several days or a couple of weeks. Symptoms could last a few hours or several weeks.

What Steps Should I Take to Stay Healthy and Protect my Family?



1. **For Drinking or Cooking**, use bottled water or:
   - **Bring the water to a rolling boil and boil for five (5) minutes**. If the water is cloudy or has sediments, filter the water through a coffee filter before boiling. After 5 minutes of boiling, the water is safe to use for cooking or drinking.
   - Wash fruits and vegetables in bottled or purified (boiled) water.
   - Ice should be made with bottled or purified water.
   - Use disinfected (boiled) water for preparing foods (especially uncooked), beverages, and baby food.
2. **For Dishwashing,** use bottled water or:
   - Wash dishes in the hottest water available and detergent. After rinsing, soak the dishes for 5 minutes in water with bleach added as a final rinse.
3. **For Personal Hygiene:**
   - Brush your teeth with bottled or purified water.
   - Showering and bathing is safe as long as you keep water out of your mouth.
4. **Other Uses:**
   - Washing clothes in this water should be safe.
   - Pets should be given bottled or purified water.
   - Bacteria in water do not affect plants.

What Steps Should be Taken if Symptoms Occur?

With diarrhea of any cause, the most important treatment is to increase fluid intake to prevent dehydration. A person who is passing light colored urine every few hours and whose mouth is moist with saliva is well hydrated. If the person is vomiting or has high fever and is unable to drink enough to maintain hydration, they must get medical attention immediately. Other symptoms that indicate a need for medical attention include decreased mental alertness, severe abdominal pain and bloody diarrhea. In addition, those that have diarrhea that persists more than 2-3 days or is accompanied by loss of weight should also seek medical attention. Antibiotic treatment is not needed for most types of intestinal infection and may make some infections worse. Antibiotic treatment should be based on examination of the stool by a medical clinic or laboratory.

EPA Safe Drinking Water Hotline, 1-800-426-4791
***New Mexico Environment Department,* 1-877-654-8720**
New Mexico Department of Health, (505) 476-3572
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