



Micro-Organisms

What's Lurking in the Water?

Brought to you by the State of Alaska Drinking Water Program
For more information, please visit our website at www.dec.alaska.gov/eh/dw

There are many unseen things living in water, and some can be very harmful to your health. Water treatment helps to eradicate these organisms. Below you'll find some basic information on some common micro-organisms found in water. Minimize your infection risks by frequently washing your hands, drinking clean water, washing your produce, and staying away from infected persons. Waterborne diseases are often not diagnosed, so if you get sick, consult a physician for diagnosis and treatment!

BACTERIA

Micro-organisms that come in a variety of shapes. Parasitic bacteria (bacterial pathogens) are a major cause of human death and disease

PROTOZOA

Single-celled organisms that can only live in moist or wet habitats. Some protozoa are parasites, which can transmit diseases to humans

VIRUS

An infectious agent that replicates inside living cells of other organisms and can carry diseases to humans

COMMON WAYS TO KILL MICRO-ORGANISMS

- **BOILING.** Boiling water for at least one minute can kill virtually all disease-causing organisms.
- **DISINFECTION.** Disinfecting uses chemicals like chlorine, or UV light to inactivate most bacteria and viruses. Some protozoa can be resistant to disinfection.
- ▲ **FILTERING.** Filtering water physically removes organisms, like protozoa. Filtration is normally used in conjunction with disinfection to make water safe to drink.

FYI

CYST

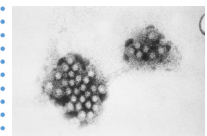
A hardy, thick-walled spore able to survive for lengthy periods outside a host; a stage in the life cycle of certain organisms

PARASITE

An organism that lives in another organism (a host) and derives nutrients at the host's expense

PATHOGEN

A bacterium, protozoan, virus, or other micro-organism that can cause disease in its host



NOROVIRUS

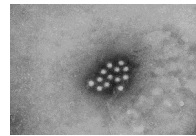
AKA "WINTER VOMITING VIRUS" OR "NORWALK VIRUS"

INFO The norovirus is the most common cause of viral gastroenteritis, affecting people of all ages. Infection spreads rapidly either by person-to-person transmission or through contaminated food and water. Outbreaks can be traced to one infected person handling food.

SYMPTOMS Nausea, forceful vomiting, diarrhea, pain, lethargy, weakness, fever.



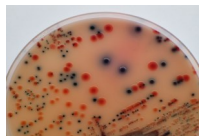
viruses



HEPATITIS A

AKA "INFECTIOUS HEPATITIS"

INFO One of, if not the most, common waterborne viruses in Alaska is spread through fecal-contaminated food and water as well as insufficiently cooked shellfish. Proper sanitary and hygienic measures and the hepatitis A vaccine can help prevent infection. **SYMPTOMS** Nausea, vomiting, diarrhea, yellow skin, fever, abdominal pain, fatigue, jaundice, dark urine.



E. COLI

AKA "TRAVELER'S DIARRHEA"

INFO *E. coli* lives in the digestive tracts of mammals and pathogenic strains can spread through fecal-contaminated water, raw produce, raw dairy products, and ingestion of infected water while swimming. **SYMPTOMS** Bloody diarrhea, stomach cramps, nausea, vomiting. More serious symptoms include pale skin, weakness, bruising, small amounts of urine.



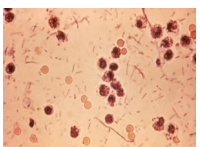
bacteria



LEGIONELLA

AKA "PONTIAC FEVER" OR "LEGIONNAIRE'S DISEASE"

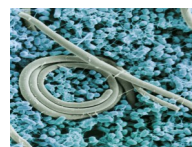
INFO This bacteria is found in water systems and can survive in warm water conditions. Some common places to find it are spas and ice-making machines. It cannot be transmitted person-to-person, but is consumed or inhaled. It is the second-most common cause of severe pneumonia. **SYMPTOMS** Chest pain, dry or bloody cough, fever, diarrhea, nausea, joint pain.



SHIGELLA

AKA "MARLOW SYNDROME" OR "SHIGELLOSIS"

INFO *Shigella* spreads through poor hygienic practices, such as unsanitary food handling and fecal-contaminated water. Raw, unwashed produce and raw dairy products are also culprits, as the bacteria can spread from manure or the cow's udder. **SYMPTOMS** Diarrhea (usually bloody or slimy), fever, stomach cramps, severe dehydration.



SALMONELLA

AKA "TYPHOID FEVER"

INFO *Salmonella* is spread through contaminated water, improper food handling, and feces. The bacteria may also be present on small animals such as hamsters (and other small rodents), baby chicks and ducklings, and reptiles, and can spread to humans. **SYMPTOMS** Diarrhea, high fever, abdominal cramps, sore throat, constipation, feeling achy and weak.



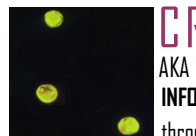
GIARDIA LAMBLIA

AKA "BEAVER FEVER"

INFO *Giardia* lives in mammals' intestines and is passed through stools. *Giardia* can survive for months in cyst form and once inside a host, the cyst dissolves to release the parasite. The most common infection method is drinking contaminated water. **SYMPTOMS** Diarrhea, gas, greasy stool, stomach cramps, nausea.



protozoa



CRYPTOSPORIDIUM

AKA "CRYPTOSPORIDIOSIS"

INFO Like *Giardia*, *Crypto* lives in the intestines and is passed through fecal matter in cyst form. *Crypto* is one of the most common causes of waterborne diseases. It can be found in soil, food, water, and any place where contaminated feces have been. It is not transmitted by blood. **SYMPTOMS** Stomach pain, dehydration, nausea, vomiting, fever, weight loss.



Please note: Many of these organisms can manifest as similar illnesses with different strains and names, but these are the more common ones encountered with water