

According to the World Health Organization, a child dies from a waterborne illness every two minutes.

What makes water safe to drink?

Water in its purest form is one oxygen molecule bonded to two hydrogen molecules and is essential for life. It is rarely this pure, because it often contains biological, chemical, and physical contaminants—some of which can cause illness.

Biological contaminants tend to be the most common. They occur in nature and easily infect, causing many of the symptoms (for example, diarrhea) we associate with unsafe water.

Chemical contaminants are from natural or manmade sources and can have varying health effects. They are also a growing concern as we consider what makes water safe.

Physical characteristics of water are the most noticeable but not the most important, because clear, odorless water could still be contaminated with biological and chemical contaminants. On the other hand, water that is slightly colored and has a taste could be safe to drink. These factors can impact how well we are able to treat water and are worth considering.

Removing Contaminants

Filtration, reverse osmosis, distillation, chlorination, pasteurization, and UV disinfection can all be used to improve water quality. One or more of these processes are usually listed on water bottle labels.

Many of these processes can be replicated successfully at home to ensure your water is safe!

Improving Water Quality at Home

- **Filters** may be purchased or made. Filter effectiveness varies significantly by design and quality and should at least remove some or most of the biological contaminants we've talked about. They may also remove some of the chemical contaminants.
 - See *Choosing a Filter for Your Home* information sheet for more details.
 - All filters need to be regularly maintained and/or replaced to maintain their effectiveness.
- **Chlorination** will kill bacteria and many viruses but is not as effective for some other microscopic organisms.
 - Add 6–8 drops of unscented household bleach to each gallon of drinking water.
 - Mix the water after adding the bleach, letting it sit for 30 minutes.
 - After 30 minutes, the chlorine will have killed the contaminants and dissipated. The water will have a slight chlorine odor and will be safe for consumption.
- **Pasteurization** is the use of heat to kill biological contaminants in a liquid. It kills bacteria, viruses, and other microscopic organisms.
 - Bring water to a boil for 1–3 minutes, and allow it to cool.
 - Be sure to store it in a closed container with a tap or pour spout. Do not allow hands or cups to be dipped into the stored water.
- **UV disinfection** can easily be done at home using a process called *SODIS*. This uses the sun's UV rays to kill bacteria, viruses, and other microscopic organisms.
 - See *Using SODIS* information sheet for more details.

If you have any questions about water treatment, please reach out to CompassionLink at info@compassionlink.org. We will be happy to answer your questions.

Sources:

- <https://www.who.int/news-room/fact-sheets/detail/drinking-water>