

Drinking Water



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Preventing Waterborne Germs at Home



Waterborne germs can live and grow in our pipes and in devices that use water, such as humidifiers. Some of these germs can make people sick.

Germs especially like to live and grow in water when it is stagnant (not flowing) or when it is not treated with enough water treatment chemicals, such as chlorine. It is important to know where your tap water comes from and how to safely use it for purposes other than drinking.

How do germs live in pipes?

Sometimes waterborne germs, like bacteria, fungi, and amebas, live together in a group, called a biofilm. A biofilm releases a slimy, glue-like substance. This slime allows the germs to stick to surfaces. The slime keeps water treatment chemicals, such as chlorine, away from the germs, which helps the germs survive and multiply.

Some potentially harmful germs that can grow and multiply in your home's water system (and the types of illnesses they cause) include:

- [Nontuberculous mycobacteria](#) (cause lung, blood, or skin infection)
- [Legionella spp.](#) (cause lung infection)
- [Pseudomonas aeruginosa](#) (cause blood, lung, or skin infection)
- [Naegleria fowleri](#) (cause brain infection)
- [Acanthamoeba spp.](#) (cause brain and eye infection)

Waterborne germs can grow in pipes

According to federal and state laws, public water utilities must provide water that meets certain quality and safety standards for drinking. But tap water is not sterile, meaning it might have germs in it. Even when the public water system is working correctly, a small number of germs that naturally occur in the environment can still be in the water.

These germs can grow and multiply in the pipes inside a home or building if the conditions are right. For example, this can happen if you don't turn on the taps for long periods of time and the water sits still inside the pipes.

Some waterborne germs can make you sick

Most people may know that some waterborne germs can cause stomach illnesses, like vomiting or diarrhea, if they are swallowed. But these germs can also cause illnesses of the lungs, brain, eyes, or skin. When you turn on the water, especially if you haven't used the water in a while (for example, a week or more), [germs from biofilm](#) can come out of the faucet, showerhead, or other water devices. Some of these germs can make people sick when the water:

- Is inhaled as a mist
- Comes in contact with an open wound
- Goes up the nose (for example, when using a neti pot)
- Is used to rinse or store contact lenses, or is splashed in someone's eyes while they are wearing contacts

People at risk for getting waterborne illnesses

Most healthy people exposed to the germs that live in pipes do not get sick. However, certain groups of people may be more likely to get an infection. These groups include:

- People 50 years or older
- Current or former smokers
- People with a chronic lung disease (for example, chronic obstructive pulmonary disease [COPD] or emphysema)
- People who have health problems or take medicines that lower their body's ability to fight germs and sickness (for example, people whose immune systems are weakened because of cancer, an organ transplant, or HIV)
- People with underlying illnesses such as diabetes, kidney failure, or liver failure
- Infants under 6 months old
- Contact lens wearers

Steps to protect yourself and others from waterborne germs at home

You can take steps to protect yourself from waterborne germs in your home:

- [Flush your faucets and showerheads if you haven't used them recently](#)
- [Clean and maintain all devices that use water](#)
- [Communicating with your water utility](#)
- [Keep private water sources safe](#)
- [Check with your building manager, owner, or landlord](#)

Flush your faucets and showerheads if you haven't used them recently

If you have not used a faucet or showerhead in your home recently (for example, a week or more), flush the faucet or showerhead before using it for the first time. Turn on the cold water fully and adjust as needed to avoid water overflowing or splashing. Let the cold water run for 2 minutes. Turn off the cold water and turn on the hot water fully. Run the water until it starts to feel hot and then turn it off.¹ If your faucet or showerhead has one handle that controls both hot and cold water, follow the same steps. Put the handle all the way to the "cold" setting and run the water for 2 minutes; then move the handle all the way to "hot" and run the water until it starts to feel hot.

Clean and maintain all devices that use water

To help prevent exposure to waterborne germs in your home:

- Regularly clean all devices that use water to remove dirt, debris, germs, and other impurities
- Store and use the devices as recommended by the manufacturer

Always follow the manufacturer's recommendations regarding the using, cleaning, and maintaining your water-related devices, such as:

- Portable humidifiers
- Neti pots/nasal rinses
- Showerheads and faucet aerators
- Water heaters

What about water filters?

Most home water filters are not designed to remove germs from your water. They typically use a carbon filter to remove impurities like lead or to improve the taste of your water. Germs that live in biofilms can grow and multiply in these devices when they are not properly maintained and replaced according to the manufacturer's instructions.

Common types of water filters include:

- Pitcher and countertop filters
- Refrigerator and icemaker filters
- Under sink filters
- Showerhead and faucet filters

You can also get whole-home water filters, which are installed at the point where water enters your home. That way, all the water coming out of every tap and showerhead is filtered. Some whole-home water filters remove water treatment chemicals, such as chlorine. If you decide you want a water filter, knowing what you want your water filter to do is an important first step to choosing the right one.

People with weakened immune systems should talk to their healthcare provider and a water disinfection specialist about whether they should consider installing a specialized whole-home water filter.

Get more information:

- [Guide to Water Treatment Technologies for Household Use](#)
- [Choosing Home Water Filters and Other Water Treatment Systems](#)

Portable Humidifiers

Germs can live in humidifiers unless you empty all water from them daily, clean them properly on a regular basis, and allow them to air dry after cleaning. These germs can spread through the mist the humidifier creates when you turn it on.

Follow the manufacturer's instructions for cleaning and drying your humidifier to prevent germs from growing and spreading. Consider using distilled or boiled (and then cooled) water or water disinfected with chlorine bleach in portable humidifiers.

Neti Pots/Nasal Rinses

Always follow the manufacturer's instructions when [using and cleaning devices to clear or flush sinuses, like neti pots or nasal rinses](#). Never use water straight from the tap to rinse your sinuses. Instead, **use distilled water or tap water that you have boiled (and then cooled) to rinse sinuses**. If distilled or boiled water is not available, [disinfect tap water](#) or filter it before you use it. If using filtered water, it is essential to use a filter with a label that reads "NSF 53" or "NSF 58," or contains the words "cyst removal" or "cyst reduction."

Showerheads and Faucet Aerators

Clean showerheads and faucet aerators whenever you can see buildup to help prevent germs from growing within the faucet. The aerator is the mesh screen screwed into your faucet that helps with water flow. You may need to remove the showerhead and hose and soak them in a solution (such as white vinegar) to remove buildup. Follow the manufacturer's instructions for cleaning.

Water Heaters

Set the Water Heater Temperature

Keeping your home's water heater temperature set at an appropriate level can help reduce the growth of some germs (such as *Legionella*). A water temperature of 130–140°F can kill many harmful germs, but also increases the risk of scalding. If you set the water heater above 120°F, take extra precautions to mix cold and hot water (using thermostatic valves) at the faucet or

shower to avoid scalding. This is especially important if young children, older adults, or other people at increased risk of scalding live in your home. Ask your healthcare professional about your risk of *Legionella* infection to decide on the best course of action.

Flush the Water Heater

Regularly flushing your water heater can prevent germs from growing, make it last longer, and is recommended by most manufacturers. If you decide to flush your water heater, follow the manufacturer’s instructions or have a professional do the work. Many manufacturers recommend flushing your water heater:

- Annually
- Before you move into a home
- After plumbing work
- If the water is discolored

Communicate with your water utility

Sometimes events disrupt the flow of water into your home. These can be planned (for example, your water utility makes repairs to the water system) or unplanned (for example, a water main breaks). Germs may be able to enter the pipes in your home during these disruptions. You can take steps to stay informed and ensure the water in your home is safe to use:

- Sign up to receive messages and advisories (e.g., boil water advisories) about your water. This may require opting in with your utility or local government alert system.
 - Follow all recommendations related to water use during the advisory.
- Contact your water utility if you notice a decrease in water pressure throughout your home or see brown or discolored water.
 - After a loss in water pressure, flush water through each faucet and shower in your home until it starts to get hot **and** runs clear (with no discoloration). Contact your water utility for more recommendations.

Keep private water sources safe

In homes that use private wells or other private water sources, the homeowner is responsible for the safety of the water. [Guidance and recommendations](#) to keep well water safe are available from CDC.

Check with your building manager, owner, or landlord

If you live in an apartment building or other building with multiple housing units, you can talk to your building’s owner, manager, or landlord about what [steps they are taking to protect](#) residents from waterborne germs.

^[1] This guidance was adapted from [work by the Water Research Foundation](#)  (Project 4572).

More information

- [Sinus Rinsing for Health or Religious Practice](#)
- [Guide to Drinking Water Treatment Technologies for Household Use](#)
- [Choosing Home Water Filters and Other Water Treatment Systems](#)
- [Legionella Causes, How It Spreads, and People at Increased Risk](#)
- [Private Groundwater Wells](#)
- [Cleaning and Disinfecting Cisterns After Floods and Heavy Rains](#)  [PDF – 1 page]