

Legionella



What is Legionella?

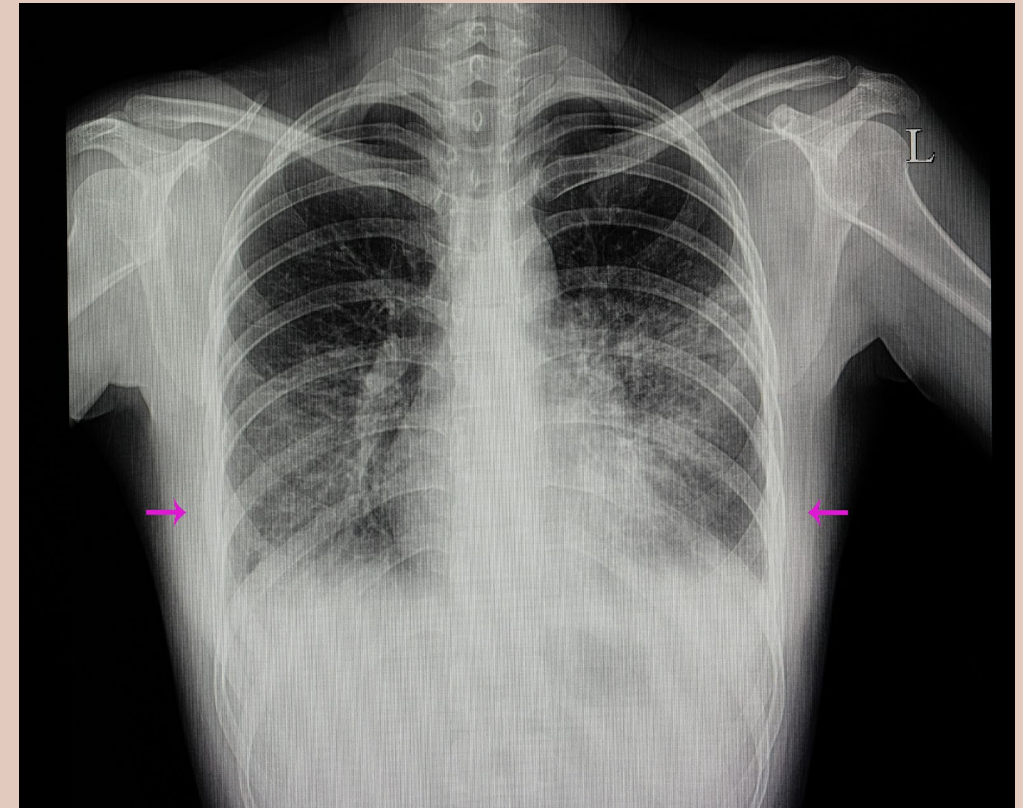
The background of the slide is a microscopic illustration of Legionella bacteria. The bacteria are depicted as pink, rod-shaped organisms with a dense, fuzzy outer layer of fine, hair-like structures called flagella. Several long, thin, pink flagella are shown extending from the bacteria, some curving and others straight. The bacteria are scattered across the frame against a dark blue background with some lighter blue and purple bokeh-like effects.

Legionella is a bacteria which can cause a serious type of pneumonia (lung infection) called Legionnaires' disease or a less serious illness called Pontiac fever.

Symptoms

Legionnaires' Disease can cause Pneumonia symptoms.
Signs and symptoms of Legionnaires' Disease can include:

- ▶ Cough
- ▶ Muscle aches
- ▶ Fever
- ▶ Shortness of breath
- ▶ Headache





Treatment

Legionnaires' Disease
is serious, but can be
treated with antibiotics.



What Owners and Managers of Buildings and Healthcare Facilities Need to Know about the **Growth** and **Spread** of *Legionella*

Legionella, the bacterium that causes Legionnaires' disease, occurs naturally in freshwater environments, like lakes and streams.

Generally the low amounts of these bacteria in freshwater do not lead to disease.

However, *Legionella* can pose a health risk when it gets into building water systems.

To do this:

- *Legionella* first has to grow (increase in numbers).
- Then it has to spread through small water droplets (aerosolization) that people can breathe in.

You can take steps to reduce the risk for *Legionella* in your building.



Where *Legionella* Can Grow or Spread

Legionella can grow in many parts of building water systems that are continually wet, and certain devices can then spread contaminated water droplets. **Some examples of devices where *Legionella* can grow and/or spread through aerosolization or aspiration (when water accidentally goes into the lungs while drinking) include:**

- Hot and cold-water storage tanks
- Water heaters
- Water hammer arrestors
- Expansion tanks
- Water filters
- Electronic and manual faucets
- Aerators
- Faucet flow restrictors
- Showerheads and hoses
- Pipes, valves, and fittings
- Centrally installed misters, atomizers, air washers, and humidifiers
- Non-stream aerosol-generating humidifiers
- Infrequently used equipment including eyewash stations
- Ice machines
- Hot tubs
- Decorative fountains
- Cooling towers
- Medical equipment
(such as CPAP machines, hydrotherapy equipment, bronchoscopes)



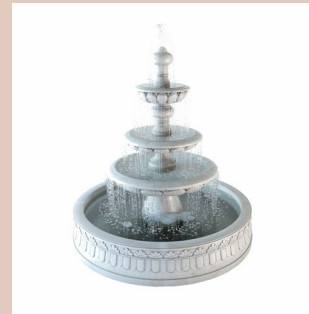
Common sources of Infection

Outbreaks of Legionnaire's disease are often associated with large or complex water systems, like those found in hospitals, hotels, and cruise ships.

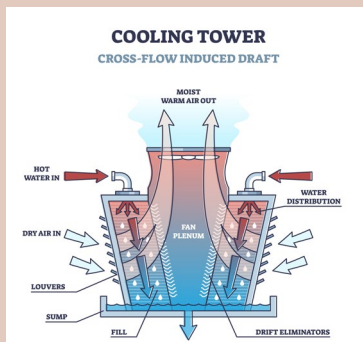
The ***most likely sources*** of infection include:



Water used for showering (potable water)



Decorative Fountains




Cooling towers (parts of large air conditioning systems)



Hot Tubs






Legionella are usually spread through water droplets in the air.

People can get Legionnaires' disease or Pontiac fever when they breathe in small droplets of water in the air that contain the bacteria.





Less commonly, people can
get sick by aspiration of
drinking water
containing *Legionella*.



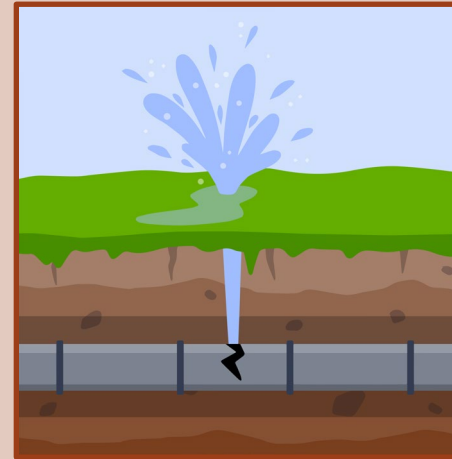
In general, people do not spread Legionnaires' disease and Pontiac fever to other people.



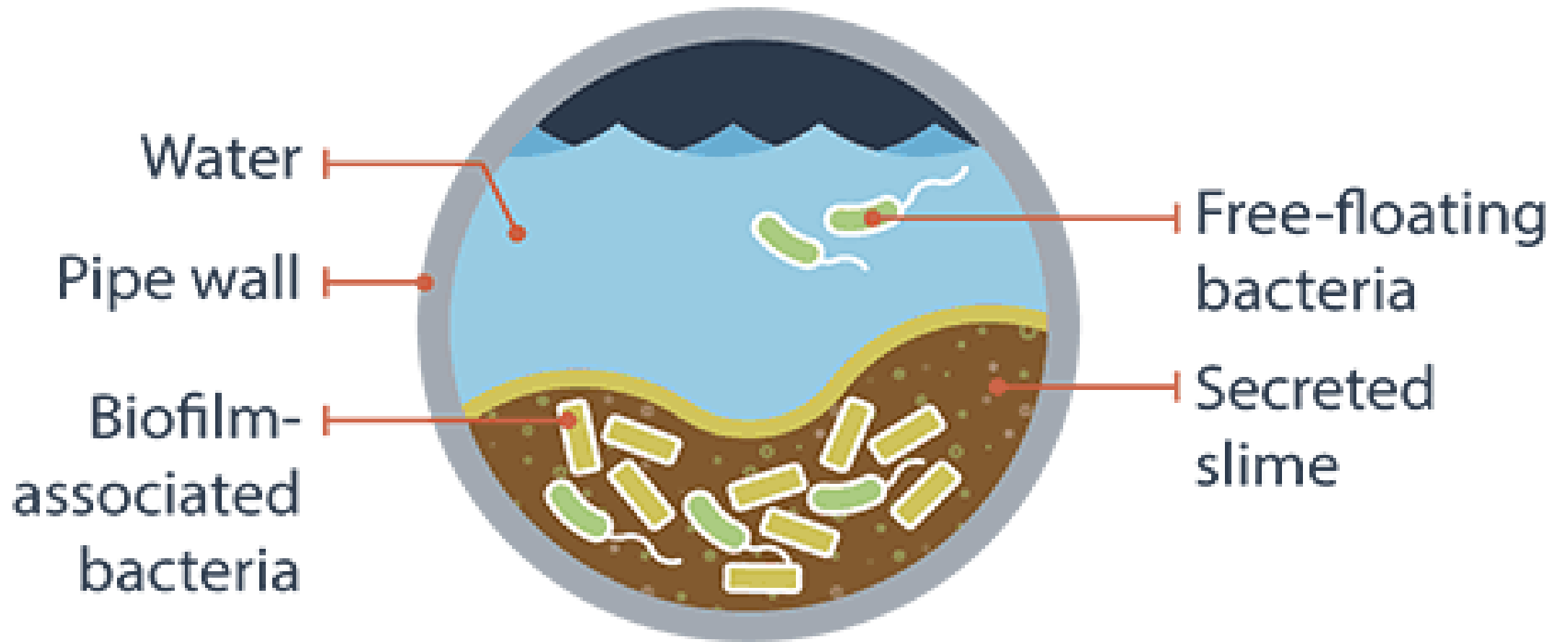
Factors That Lead to *Legionella* Growth

A variety of internal and external factors can lead to a *Legionella* problem in your building, including:

- Construction
- Water main breaks
- Changes in municipal water quality
- Biofilm
- Scale and sediment
- Water temperature fluctuations
- pH fluctuations
- Inadequate levels of disinfectant
- Changes in water pressure
- Water stagnation



Legionella can live and grow in biofilm



Cross section of pipe



People at Increased Risk

Most healthy people exposed to *Legionella* **do not** get sick.

People at increased risk of getting sick are:

- People ages 50 years or older
- Current or former smokers
- People with a chronic lung disease (like chronic obstructive pulmonary disease or emphysema)
- People with weak immune systems or who take drugs that weaken the immune system (like after a transplant operation or chemotherapy)
- People with cancer
- People with underlying illnesses such as diabetes, kidney failure, or liver failure



Prevention

Stagnant water favors *Legionella* growth.

To reduce the risk, you should:

- remove dead legs / dead ends in pipe-work
- flush out infrequently used outlets (including showerheads and taps) at least weekly and
- clean and descale shower heads and hoses at least quarterly.



Make Sure Water Temperatures Are Right

Legionella grows best within a certain temperature range (77°F-113°F). To keep water outside the range for *Legionella* growth, it is important to keep cold water cold and keep hot water hot.



Develop & Implement

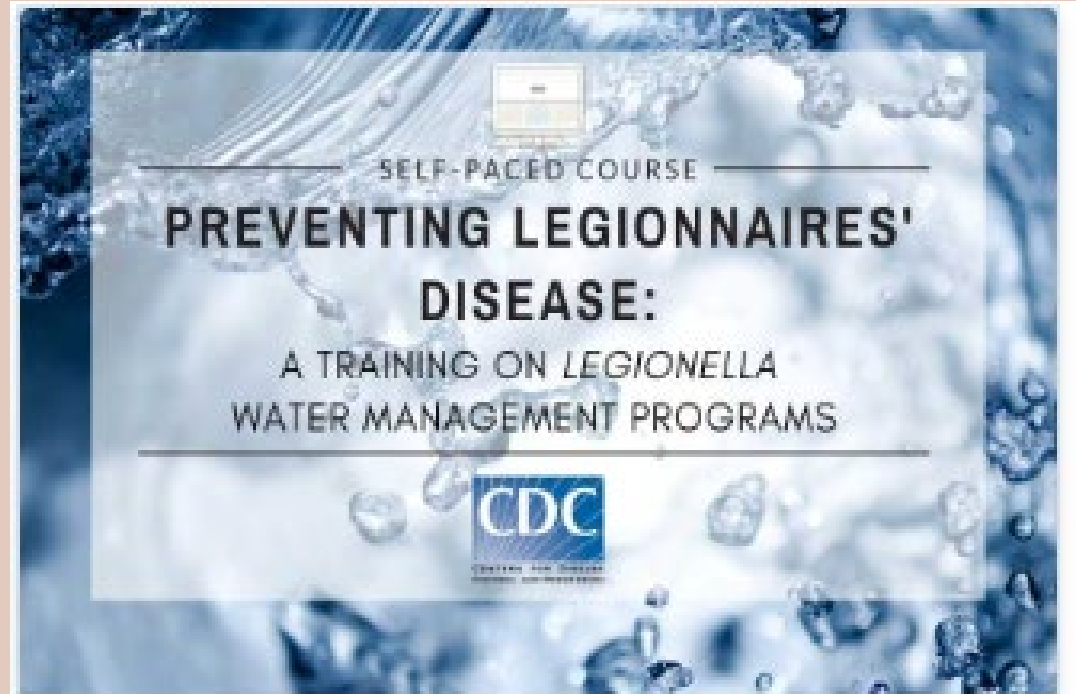
A Water Management Program to help identify hazardous conditions and take steps to minimize the growth and transmission of *Legionella* and other waterborne pathogens in building water systems.



Online Training



Preventing Legionnaires' Disease: A Training
on *Legionella* Water Management Programs
(PreventLD Training)



Preventing Legionnaires' Disease
(PreventLD Training)

Preventing Legionnaires' Disease: A Training
on Legionella Water Management Programs
(PreventLD ? ...)



Resources:

<https://www.cdc.gov/legionella/index.html>

<https://www.cdc.gov/control-legionella/php/toolkit/wmp-toolkit.html>

[https://www.cdc.gov/control-legionella/php/training/index.html#:~: text = Start%20Course,training%20addresses%20how%20to%20manage](https://www.cdc.gov/control-legionella/php/training/index.html#:~:text=Start%20Course,training%20addresses%20how%20to%20manage)

www.cdc.gov/project-firstline/media/pdfs/Healthcare-Germs-Environment-WaterAndWetSurfaces-508.pdf

[Western Region Public Health Training Center at the University of Arizona](#)[External icon](#)



GERMS LIVE IN WATER AND ON WET SURFACES.

WHERE IS THE RISK?
Know where germs live to stop spread and protect patients



- Tap water is safe to drink, but it is not sterile. It always has some germs in it.
- Most of the time, the germs in tap water aren't a problem for healthy people, but they can cause illness in patients with very weak immune systems.
- Germs in water can spread to surfaces and people and cause harm.
- If medical instruments and equipment (e.g., devices and central lines) get wet, bacteria can grow. When those devices are used, that bacteria can then get into a patient's body or blood and cause infection.

Germs That Live in Water

- *Acinetobacter*
- *Serratia*
- *Pseudomonas*
- *Legionella*

Healthcare Tasks Involving Water

- Toileting
- Cleaning
- Handwashing

Infection Control Actions to Reduce Risk

- Cleaning and disinfection
- Device sterilization
- Hand hygiene
- Use of personal protective equipment (gloves, gowns, eye protection)

 U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

 PROJECT FIRSTLINE

WWW.CDC.GOV/PROJECTFIRSTLINE





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