LEGIONELLA BACTERIA: Health Hazards

WHAT IS *LEGIONELLA*?

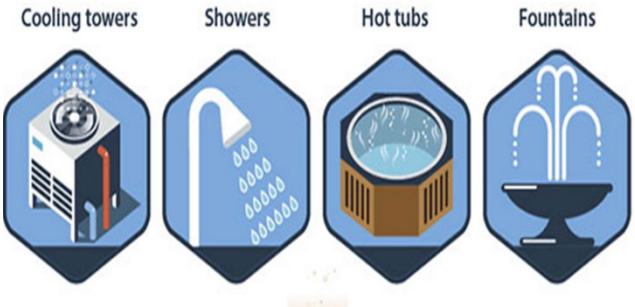
Legionella bacteria reside in many natural environments and human-engineered systems that support growth of biofilm (i.e., slime that forms on surfaces in contact with water).

When inhaled, *Legionella* bacteria can cause a serious type of pneumonia (lung infection) called Legionnaires' disease, the leading cause of reported waterborne disease outbreaks in the United States.

WHERE IS *LEGIONELLA*?

Legionella bacteria are found in rivers, lakes, and soils. Building water systems and devices that can grow and spread *Legionella* include:

- Cooling towers (structures that contain water and a fan as part of centralized air cooling systems for buildings or industrial processes)
- Hot tubs
- Decorative fountains and water features
- Hot water tanks and heaters
- Large, complex plumbing systems
- Showerheads and sink faucets



CONDITIONS THAT FAVOR THE GROWTH OF *LEGIONELLA*

Important factors that provide an environment for *Legionella* to multiply include water temperature, water stagnation or low flow, the type of plumbing material and components, and the presence of biofilm, sludge, rust, scale, or organic matter.

Water temperature for optimal *Legionella* growth is between 68°F and 113°F.

During periods of **water stagnation or low flow**, which can occur when a building has low or no occupancy, hot water temperature decreases and cold water temperature increases.

A decrease in **residual disinfectant levels** can also occur, which is favorable to the development of biofilm.

WHAT CAN INCREASE RISK FOR LEGIONNAIRE'S DISEASE?

Not all people who come in contact with *Legionella* bacteria will become sick; however, there are factors that can increase the risk of developing Legionnaire's disease:

- Exposure to *Legionella,* primarily through breathing in airborne droplets that contain bacteria (e.g., inhaling steam from contaminated water while taking a shower)
- A high enough concentration of *Legionella* in the air and when inhaled
- Being elderly, smoker, or having an underlying medical condition, including immunosuppression

Legionnaire's disease *cannot* be transmitted from person-to-person.

REPORTING

If you believe your work area may be at risk for high levels of *Legionella* growth or exposure to aerosols containing *Legionella*, contact EH&S at phdept@uw.edu or (206) 616-1623.

Please report any suspected illness associated with a *Legionella* exposure using the UW Online Accident Reporting System (OARS).

BACKGROUND

The U.S. Centers for Disease Control and Prevention (CDC) and **Occupational Safety and Health Administration (OSHA)** estimate that each year there are between 8,000 18,000 cases of Legionnaires' disease in the United States, with more than 10% of these cases resulting in fatalities.

Additionally, a 2019 report from the National Academy of Sciences, Engineering, and Medicine (NASEM) suggests that the actual number of Legionnaires' disease cases could be much higher, ranging from 52,000 to 70,000 annually. It's important to note that the majority of Legionnaires' disease outbreaks are linked to exposure to *Legionella* bacteria in building water systems.

MORE INFORMATION

- *Legionella* -- Centers for Disease Control and Prevention (CDC)
- Legionnaires' Disease -- Occupational Safety & Health Administration (OSHA)
- Preventing Occupation Exposure to *Legionella* (CDC)
- Legionellosis (Legionnaires' Disease and Pontiac Fever) (OSHA)
- Legionellosis -- Washington State Department of Health

Contact EH&S at (206) 616-1623 or phdept@uw.edu for more information.