

Cooling Towers & Legionnaires' Disease:

What You Need to Know

What is Legionnaires' Disease?

- Legionnaires' disease is a serious pneumonia (lung infection) caused by a type of bacteria called *Legionella*.
- Approximately 10% of infections are fatal.
- Legionnaires' disease is increasing in the United States—since the early 2000s the number of people who have become sick with Legionnaires' Disease has increased 9-fold.

How does it grow and spread?

- In building water systems, *Legionella* bacteria can grow, spread, and become a serious health issue.
- *Legionella* is spread through contaminated water droplets suspended in the air.
- People can become sick when they breathe in contaminated water droplets from building water systems that are not properly maintained.

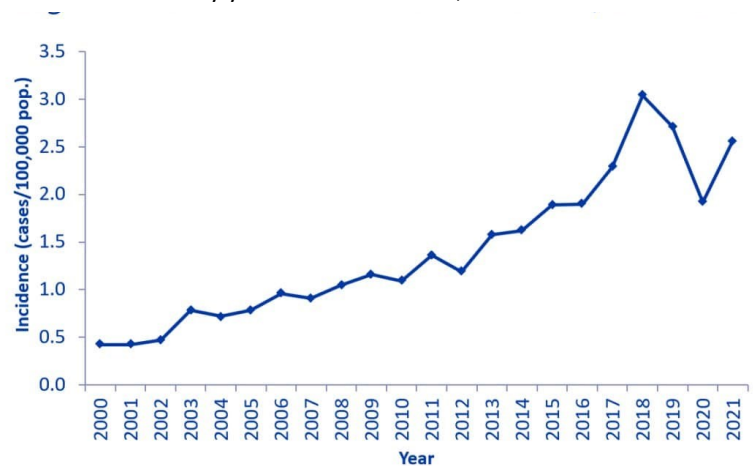
Where do outbreaks most commonly occur?

- Outbreaks have been linked to buildings with large water systems, such as hotels, hospitals, and long-term care facilities.
- Transmission of *Legionella* from building water systems to humans can occur through exposure to cooling towers, shower heads, hot tubs, or decorative fountains.
- Cooling towers are a frequent source of *Legionella* infections.

What can you do to prevent Legionnaires' Disease?

- Determine if your building water system is at increased risk of growing and spreading *Legionella*
- Develop and use a Water Management Program
- Stay up to date on new standards for building water system management

Figure 1. Reported cases of legionellosis per 100,000 population by year — United States, 2000-2021



Department of
Public Health

Legionella Risk Assessment for Buildings

Answer the following questions to help assess if your building needs a water management program or if certain devices within the building need a water management program to reduce the risk of *Legionella* growth and spread.

Building Questions 1-4

1. Is your building a healthcare facility where patients stay overnight, or does your building house or treat people who have chronic and acute medical problems or weakened immune systems?	YES	NO
2. Does your building primarily house people older than 65 years (like a retirement home or assisted-living facility)?	YES	NO
3. Does your building have a centralized hot water system (like a hotel or high-rise apartment complex)?	YES	NO
4. Does your building have more than 10 stories (including basement levels)?	YES	NO

If you answered YES to any of the above questions 1-4, you should have a water management program for *that building's* hot and cold water distribution system.

Device Questions 5-8

Devices in buildings that can spread contaminated water droplets should have a water management program even if the building itself does not.

Does your building have a cooling tower (*For a definition and examples of a cooling tower, visit https://www.cdc.gov/investigate-legionella/php/public-health-strategy/identifying-cooling-towers.html)	YES	NO
6. Does your building have a hot tub (also known as a spa) that is not drained between each use?	YES	NO
7. Does your building have a decorative fountain?	YES	NO
8. Does your building have a centrally-installed mister, atomizer, air washer, or humidifier?	YES	NO

If you answered NO to all of questions 1-4 but YES to any of questions 5-8, you should have a water management program for *that device*.



Water Management Program: An Overview

What is a Water Management Program (WMP)?

- A WMP is a written plan aimed at reducing the risk for Legionnaires' Disease associated with building water systems and devices.
- It will help to:
 1. Identify areas or devices in your building where *Legionella* bacteria might grow or spread
 2. Establish procedures to control hazardous conditions within the building water system
- *Legionella* WMPs are an industry standard for large buildings in the United States (ASHRAE 188-2021: *Legionellosis: Risk Management for Building Water Systems* August, 2021. ASHRAE: Atlanta).

How do you create a WMP?

- The key steps to creating a WMP are:
 1. Establish a water management program team
 2. Describe the building water system using text and flow diagrams
 3. Identify areas where *Legionella* can grow and spread, also known as control points
 4. Decide where to apply and how to monitor control measures
 5. Establish ways to intervene when control limits are not met
 6. Assess whether the program is running as designed and is effective
 7. Document and communicate all WMP activities



How often should a WMP be reviewed and revised?

- Program elements should be reviewed at least once per year or when any of the following events occur:
 1. Control measures are persistently outside of control limits
 2. Major maintenance or water service changes occur
 3. One or more cases of disease are thought to be associated with your system(s)
 4. Change occurs in applicable laws, regulations, standards, or guidelines

Where can I get more information on developing a WMP?

The Centers for Disease Control and Prevention have published a toolkit, which is a step by step guide to developing a WMP. It can be found here: <https://www.cdc.gov/control-legionella/php/toolkit/wmp-toolkit.html>



Additional Resources

CDC Water Management Program Toolkit—Developing a Water Management Program to Reduce Legionella Growth & Spread in Buildings: A Practical Guide to Implementing Industry Standards

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

ASHRAE Standard 188—Legionellosis: Risk Management for Building Water Systems

<https://www.ashrae.org/technical-resources/bookstore/ansi-ashrae-standard-188-2021-legionellosis-risk-management-for-building-water-systems>

ASHRAE Guideline 12—Minimizing the Risk of Legionellosis Associated with Building Water Systems

https://store accuristech.com/ashrae/standards/guideline-12-2023-managing-the-risk-of-legionellosis-associated-with-building-water-systems?product_id=2568228

Legionnaires' Disease Website, Centers for Disease Control and Prevention

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

World Health Organization: Water Safety in Buildings

<https://www.who.int/publications/i/item/9789241548106>

Legionella and the Prevention of Legionellosis, WHO

<https://www.who.int/publications/i/item/9241562978>

For questions or concerns, please contact:

Trevor Kanaskie or Cristian Garay

215-685-6742

Trevor.Kanaskie@phila.gov

Cristian.Garay@phila.gov

