

Overview

Legionnaires' disease and Pontiac fever (a less severe, usually self-resolving version of the disease) are caused by *Legionella*, a naturally occurring, opportunistic pathogen. *Legionella* becomes a major health concern when it proliferates in the plumbing systems of healthcare facilities, which house highly vulnerable populations and often have complex water systems.

1 in 4 patients who contract Legionnaires' disease while at a healthcare facility will die.¹

Risk Factors

- Immunocompromised
- Respiratory therapy equipment
- Chronic lung disease (e.g., COPD, emphysema) or underlying conditions (e.g., diabetes, renal failure, hepatic failure)
- Current or former smoker
- Aged 50+



Signs & Symptoms

Legionnaires' has an incubation period of 2-14 days. Symptoms include:

- Shortness of breath
- Cough (productive or non-productive)
- Fever
- Abdominal pain
- Diarrhea
- Nausea
- Lethargy
- Headache
- Pneumonia
- Respiratory failure

Transmission Pathways



Inhaling aerosolized water



Aspiration



Generally, **NOT**
spread person-to-person

Sources of Infection

- Devices (showerheads, sink faucets, water fountains, ice machines)
- Nebulizers, CPAP machines, hydrotherapy equipment, bronchoscopes
- Decorative fountains
- Hot tubs
- Heating and cooling (central air-conditioning, hot water tanks or heaters, humidifiers, cooling towers)
- Soil

Evaluation and Identification

- Chest X-rays cannot be used to distinguish pneumonia caused by *Legionella* from pneumonia caused by other pathogens. A thorough clinical evaluation, including assessing patients for potential exposures (travel, recreational water usage, medical equipment, etc.) is essential.
- Laboratory testing: Urine Antigen Test paired with either PCR or culture of lower respiratory specimen.

Treatment

- The first-line treatment for healthcare-associated or community-acquired pneumonia doesn't always include *Legionella*-directed antibiotics. Obtaining diagnostic testing is preferred before starting antibiotics, but treatment should not be delayed to accommodate testing.²
- *Legionella*-directed treatment typically includes respiratory fluoroquinolones (levofloxacin or moxifloxacin) or azithromycin, but these antibiotics may not be indicated in all clinical contexts.

Almost all cases of Legionnaires' disease are hospitalized, and may require ICU admission and mechanical ventilation.

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

2. <https://www.cdc.gov/legionella/hcp/clinical-guidance/index.html>

Be Prepared: Critical Questions to Prevent Legionellosis

- Does your facility have a water management program?
- Has your facility conducted a risk assessment that meets CMS requirements to identify areas of potential *Legionella* growth and spread?³
- How often are your water systems tested for *Legionella*?
- If your building has cooling towers, how often are they tested for *Legionella*?
- Who is head of your facility's water maintenance?
- Have any faucets or showers gone unused for an extended period?
- Has any nearby construction affected your water supply?
- What is your protocol for a patient with legionellosis?

The Centers for Medicare & Medicaid Services (CMS) **requires** healthcare facilities to follow ASHRAE-compliant water management programs.^{3, 4}

Steps to Create and Implement a Water Management Program (WMP)⁵

WMPs are unique to each facility to ensure the disinfection and maintenance of a building's water system and aim to reduce the risk of *Legionella* by preventing sediment, scale, corrosion, and biofilm growth.



1. Establish a WMP team *
2. Describe the building water systems
3. Identify areas where *Legionella* could grow
4. Decide where control measures should be applied and how to monitor them
5. Establish ways to intervene when control limits are not met
6. Make sure the program is running as designed and is effective
7. Document and communicate all activities

**This team should include someone who understands accreditation standard and licensing requirements, someone with IP expertise, an ID clinician, and a risk and quality management staff.*

Go to <https://www.cdc.gov/control-legionella/media/pdfs/toolkit.pdf> to develop your facility's Water Management Program!

Identifying an Outbreak

Either of the following instances are considered an outbreak:

- **1 case** with **≥10 days of continuous stay** at a healthcare facility during incubation
- **2 cases** in individuals that have spent **any portion** of their incubation period in the same healthcare facility within the last 12 months



Immediate Control Measures

During an outbreak, implementing the following control measures is recommended:

- Limit showers (use sponge baths)
- Avoid non-sterile water usage in patient rooms
- Provide bottled water to susceptible individuals
- Restrict non-sterile ice consumption
- Clean respiratory equipment with sterile water only if not already standard procedure
- In the affected patient's room and frequented areas:
 - Cease use of all associated faucets or install temporary point-of-use microbial filters
 - Conduct *Legionella* water testing
- Initiate retrospective (12 months) and prospective (up to 6 months) surveillance for other patients with pneumonia



If you identify a patient with legionellosis, notify the Philadelphia Department of Public Health. PDPH will launch an investigation into potential sources of exposure.



TO REPORT A CASE: Call PDPH at **215-685-6741** during business hours and ask to speak with a Surveillance Coordinator.

3. <https://www.cms.gov/medicare/provider-enrollment-and-certification/surveycertificationgeninfo/downloads/qso17-30-hospitalcah-nh-revised-.pdf>

4. <https://www.cdc.gov/control-legionella/php/healthcare/federal-requirement.html>

5. <https://www.cdc.gov/control-legionella/php/healthcare/water-management.html>