

Legionnaires' Disease: Considerations for Investigating a Possible Facility-Acquired Case

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Legionnaires' Disease: Background



 Atypical pneumonia caused by Legionella bacteria

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- Atypical pneumonia caused by Legionella bacteria
- Grows and spreads in building water systems
- Facilities should promptly investigate cases of Legionnaires' disease to prevent outbreaks

Symptoms: 2023 and 2024 Data



75% presented with cough

69% presented with shortness of breath



81% presented with fever

Symptoms: 2023 and 2024 Data



75% presented with cough

69% presented with shortness of breath







32% presented with
altered mental status
24% presented with choice

24% presented with chest pain

Underlying Conditions: 2023 and 2024 Data



80% of cases were 50 years or older



80% of cases had an underlying medical condition

Confirmatory Diagnostic Testing



Urine antigen test (UAT)

This test **only** detects Legionella pneumophila serogroup 1.

Confirmatory Diagnostic Testing



Urine antigen test (UAT)



These tests must be resulted from sputum or lower respiratory specimens to meet case definition.

Treatment



Legionnaires' disease can be treated with antibiotics: **respiratory fluoroquinolones** or **macrolides**

Prognosis



Case fatality rate is approximately **5-10%**. Prognosis is best with diagnosis and treatment at time of admission.

Source: National Library of Medicine article

Legionella Bacteria: Growth Conditions





Legionella grow and amplify in water **77°F** to **113°F**.

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Stagnation and **biofilm** formation contribute to *Legionella* growth.

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Stagnation and **biofilm** formation contribute to *Legionella* growth.



Legionella is transmitted by inhalation or aspiration of contaminated water.

Examples of Exposure Sources





Current Surveillance Trends



Lab-Confirmed Legionnaires' Disease Cases

From **2020–2024** Wisconsin averaged **224** cases per year.



Seasonality of Legionnaires' Disease

Average confirmed Legionnaires' disease cases by month, 2020-2024.



Lab-Confirmed Legionnaires' Disease Cases In January-May 2025, we are seeing more sporadic cases in Wisconsin.



Seasonality of Legionnaires' Disease

Confirmed Legionnaires' disease cases, January-April 2025



Over **half** of Legionnaires' disease cases in Wisconsin are from the **southeastern region**.



Sporadic Legionnaires' Disease Cases: Trends

Proportion of cases with **inpatient health care**, **skilled nursing**, or **assisted living facility** exposure—January through April

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N Investigating a Case



Epidemiologic Considerations for Investigating Possible Facility-Associated Cases

Clinical: Gathering information about **cases**, including potential exposures to water.



Environmental: **Assessment** and **testing** of the water system.



Ongoing modification of the facility's **Water Management Program.**

Clinical Considerations for Possible Facility-Associated Legionellosis Cases

When did **signs** and **symptoms** begin?



What **diagnostic testing** has been completed?



Clinical Considerations: What Facilities Can Do

Train staff to recognize **signs** and **symptoms** of Legionnaires' disease.



Develop a **line list** of ill residents and arrange for appropriate diagnostic testing.



Ensure that cases are reported to **local public health.**

LEGIONELLOSIS

(Legionnaires' disease, Pontiac fever)



Legionellosis is an infection caused by Legionella bacteria. There are two different types of legionellosis: Pontiac fever and Legionnaires' disease. Pontiac fever is a mild respiratory illness and Legionnaires' disease is a type of pneumonia. Most of the time, legionellosis happens as a single event, but outbreaks involving large numbers of people have happened. Those who have a compromised immune system, who smoke, or who are 50 years or older are more likely to be affected by legionellosis.

How is it spread?

- Legionella bacteria can be found in both natural and man-made water sources.
- Legionella bacteria grow well in warm water (e.g., cooling towers, hot tubs, plumbing systems, hot water heaters, decorative fountains).
- People become sick when they breathe in mist from a water source that has Legionella bacteria.
- It cannot normally be spread from person to person.

What are the signs and symptoms? Muscle aches

Symptoms usually start two to 10 days after breathing in mist or water droplets that have Legionella bacteria. Coughing

- Headache
 - Tiredness

- Fever
- Diarrhea (occasionally)

Loss of appetite

What are the treatment options?

- Treatment depends on whether the person has Pontiac fever or Legionnaires' disease.
- Pontiac fever requires supportive care only and will go away on its own.
- Legionnaires' disease requires treatment with antibiotics.

How can it be prevented?



- There are no vaccines against Legionella bacteria.
- To prevent Legionella bacteria from growing, it is important to make sure that water systems in buildings are being properly cared for and maintained.

BUREAU OF COMMUNICABLE DISEASES

Resource: Fact Sheet

https://www.dhs.wisconsin.gov/library/collection/p-<u>42066</u>



Environmental Considerations for Possible Facility-Associated Legionellosis Cases





20

Has there been a recent **change** or **disruption** to the water system?



Are any water-aerosolizing **devices** in use?

Environmental Considerations: What Facilities Can Do

Complete a thorough **environmental risk assessment** of the facility water system and devices.



Collect water **samples** representing the water system and devices for testing at an **ELITE-certified laboratory**.



Consider implementing **immediate control measures** to prevent ongoing transmission.



Collaborate with **local public health** during investigations.

Consider hiring an independent **water management consultant**.



Water Management Program (WMP) Evaluation Tool

Ongoing Water Management Program Improvement



Resources are available to help you determine if your facility's Water Management Program is ASHRAE-188 compliant.

https://cdn.ymaws.com/www.cste.org/resource/resmgr/2015ps/Legionella WPM EvalTool FINA.pdf 34

Questions?

