

DATE:	June 12, 2023
TO:	Health Alert Network
FROM:	Debra L. Bogen, MD, FAAP, Acting Secretary of Health
SUBJECT:	Anticipated Increase in Legionellosis Cases Due to Seasonality
DISTRIBUTION:	Statewide
LOCATION:	n/a
STREET ADDRESS:	n/a
COUNTY:	n/a
MUNICIPALITY:	n/a
ZIP CODE:	n/a

This transmission is a “Health Advisory” provides important information for a specific incident or situation; may not require immediate action.

HOSPITALS: PLEASE SHARE WITH ALL MEDICAL, PEDIATRIC, INFECTION CONTROL, NURSING AND LABORATORY STAFF IN YOUR HOSPITAL

EMS COUNCILS: PLEASE DISTRIBUTE AS APPROPRIATE

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LOCAL HEALTH JURISDICTIONS: PLEASE DISTRIBUTE AS APPROPRIATE

PROFESSIONAL ORGANIZATIONS: PLEASE DISTRIBUTE TO YOUR MEMBERSHIP

Summary

- In Pennsylvania, legionellosis cases increase each year during the summer and fall months (May-November).
- Health care providers should maintain a high index of suspicion for Legionnaire’s disease in adult patients with pneumonia.
- The preferred diagnostic tests for Legionnaires’ disease are culture of lower respiratory secretions (e.g., sputum, bronchoalveolar lavage) on selective media AND the *Legionella* urinary antigen test. Submit *Legionella* isolates to the Pennsylvania Department of Health (DOH) Bureau of Laboratories for characterization.
- Report all legionellosis cases to the health department via PA-NEDSS or by calling PADOH (877-PA-HEALTH) or the local health department.

Background

Since 2000, the number of reported legionellosis cases has been increasing in both Pennsylvania and the United States overall. Pennsylvania had exceptionally high case counts in 2017-2019. The reported cases in 2017-2019 were 31%-59% higher than the previous 5-year average number of cases. Legionellosis cases follow a seasonal pattern in Pennsylvania. *Legionella* bacteria grow best in warm, humid, and wet weather, and the majority of *Legionella* infections occur between May and November each year.

Many symptoms of COVID-19, such as cough, fever, and shortness of breath, are similar to those of Legionnaire’s disease. Due to these similarities, clinicians may test certain patients presenting with these

symptoms for COVID-19 and not for Legionnaire's disease. Delayed diagnosis of Legionnaire's disease may slow appropriate treatment. For this reason, it is recommended that all patients hospitalized with pneumonia of unknown cause, be tested for legionellosis.

Legionellosis can manifest as Legionnaires' disease, Pontiac fever, or extrapulmonary legionellosis.

- **Legionnaires' disease** is a severe illness with pneumonia. Symptoms include cough, shortness of breath, fever, muscle aches, and headaches. Some patients also experience diarrhea, nausea, and confusion. Most patients are hospitalized, and treatment is required. The case-fatality rate is about 10% for community-acquired Legionnaires' disease and about 25% for healthcare-acquired disease.
- **Pontiac fever** is a milder illness, frequently characterized by fever and muscle aches. Patients with Pontiac fever do not develop pneumonia, do not require treatment, and typically recover within a week.
- **Extrapulmonary legionellosis** is a *Legionella* infection at a site outside the lungs (e.g., endocarditis, wound infection, joint infection, or graft infection). Symptoms and treatment vary according to site of infection.

Risk factors for *Legionella* infection include:

- Age \geq 50 years
- Current or former smoker
- Underlying conditions such as chronic lung disease, cancer, diabetes, renal disease, or immunocompromising conditions

Legionella infection occurs when a person inhales aerosolized water containing the bacteria. Potential sources include cooling towers, whirlpool spas, showers, faucets, and decorative fountains. Patients may also be infected through aspiration of contaminated drinking water. Person-to-person transmission of Legionellosis has been documented only once. Most *Legionella* infections are sporadic, but outbreaks can occur.

Testing

The preferred diagnostic tests for Legionnaires' disease are the *Legionella* urinary antigen test AND culture of lower respiratory secretions. Serologic assays can be nonspecific and are not recommended in most situations. Testing is warranted for the following indications:

- Patients who have failed outpatient antibiotic therapy for community-acquired pneumonia
- Patients with severe pneumonia, particularly, those requiring intensive care
- Patients with pneumonia who are immunocompromised
- Patients who traveled away from their home in the 14 days prior to the onset of illness
- Patients with pneumonia who spent time in a location with a Legionnaires' disease outbreak
- Patients at risk for *Legionella* infection with healthcare-associated pneumonia (pneumonia with onset \geq 48 hours after admission)

Best practice is to obtain both the urinary antigen test and sputum culture concurrently. Sputum should ideally be obtained prior to antibiotic administration, but antibiotic treatment should not be delayed to facilitate this process.

- ***Legionella* urinary antigen test**

The most commonly used laboratory test for diagnosis of Legionnaires' disease is the urinary antigen test, which detects a molecule of the *Legionella* bacterium in urine. The test can remain positive for a few weeks after infection, even with antibiotic treatment. The urinary antigen test only detects the most common cause of Legionnaires' disease, *L. pneumophila* serogroup 1. However, other species and serogroups of *Legionella* are pathogenic, so a patient with a negative urinary antigen result could have Legionnaires' disease caused by other *Legionella* species and serogroups.

- **Culture of lower respiratory secretions (e.g., sputum, bronchoalveolar lavage) on selective media**

Culture can detect *Legionella* species and serogroups that the urinary antigen test does not, and it allows for comparison of clinical and environmental isolates in the event of an outbreak. When specimens are submitted for culture, laboratories must be informed that *Legionella* is suspected because it requires the use of specialized media (Buffered Charcoal Yeast Extract [BCYE] agar).

***Legionella* isolates should be forwarded to DOH Bureau of Laboratories for further characterization.**

- Ship isolates at room temperature. Slanted media is preferred. If plates are sent, please seal with parafilm. Package as Category B sample and ship (Monday through Thursday only) to:

PA Department of Health, Bureau of Laboratories
110 Pickering Way
Exton, PA 19341
610-280-3464

Treatment

For patients with Legionnaires' disease, follow the Infectious Diseases Society of America (IDSA)/American Thoracic Society (ATS) guidelines for treatment of [community-acquired](#) and [hospital-acquired](#) pneumonia. *Legionella*-directed antibiotics include macrolides and respiratory fluoroquinolones. While it is preferred that diagnostic testing specimens are obtained before antibiotic administration, antibiotic treatment should not be delayed to facilitate this process.

Patients with Pontiac fever should not be prescribed antibiotic treatment. It is a self-limited illness that does not benefit from antibiotics, and patients usually recover within 1 week.

Treatment of extrapulmonary legionellosis varies according to the site of infection.

Reporting

Report all legionellosis cases through the health department's web-based reportable disease surveillance system, PA-NEDSS (<https://www.nedss.state.pa.us/nedss/default.aspx>) or call the local health department or PADOH (877-PA-HEALTH). Timely reporting assists in the quick identification of potential clusters or outbreaks.

Any questions or concerns regarding these recommendations should be directed to the local health department or DOH (877-PA-HEALTH).

Further information on legionellosis is available at:

Pennsylvania Department of Health: www.legionellosis.health.pa.gov

Centers for Disease Control and Prevention (CDC): <https://www.cdc.gov/legionella/index.html>.

CDC's *Legionella* information for clinicians: <https://www.cdc.gov/legionella/clinicians.html>

Individuals interested in receiving PA-HANs are encouraged to register at [HAN Notification Registration \(mir3.com\)](#)

Categories of Health Alert messages:

Health Alert: conveys the highest level of importance; warrants immediate action or attention.

Health Advisory: provides important information for a specific incident or situation; may not require immediate action.

Health Update: provides updated information regarding an incident or situation; unlikely to require immediate action.

This information is current as of June 12, 2023 but may be modified in the future.