

PENNSYLVANIA DEPARTMENT OF HEALTH

2022- PAHAN -645 - 06-08 - ADV

Anticipated Increase in Legionellosis Cases Due to Seasonality and Changes in Building Occupancy

DATE:	June 08, 2022
TO:	Health Alert Network
FROM:	Denise A. Johnson, M.D., FACOG, FACHE, Acting Secretary of Health
SUBJECT:	Anticipated Increase in Legionellosis Cases Due to Seasonality and Changes in Building Occupancy
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.

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Summary

- The Pennsylvania Department of Health (PADOH) is alerting health care providers to an anticipated seasonal increase in *Legionella* infections combined with a potential increase in cases resulting from changing building occupancies as described in [2020 PA-HAN 507](#), [2021 PA-HAN 579](#), and on [CDC’s website](#).
- Health care providers should maintain a high index of suspicion 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 PADOH Bureau of Laboratories for serotyping.
- 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, 2018, and 2019. Although the number of legionellosis cases decreased in 2020 due to the impact of the COVID-19 pandemic, cases rose in 2021 to near pre-pandemic levels. Current expectations are for the number of legionellosis cases in Pennsylvania to increase imminently due to a combination of the following.

- Seasonality: 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.
- Changes in building occupancy: *Legionella* grows well in stagnant water. For this reason, reductions in water usage due to reduced operation, temporary shutdowns, or changes in building occupancy due to COVID-19 may increase *Legionella* growth in building water systems. Buildings or areas within a building that reopen without thoroughly flushing and disinfecting their water systems or cleaning and maintaining other devices that use water (such as decorative fountains or cooling towers) may expose individuals to the bacteria. Instructions for preparing water systems prior to reopening buildings were described in [2020 PA-HAN 507](#). CDC has also posted information on [Legionella and building reopenings](#) on their website.

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

- Legionnaires' disease is a severe illness with pneumonia. Symptoms are similar to those for COVID-19 and 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:

- Male sex
- Age ≥ 50 years
- Current or past cigarette smoking
- 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.

- ***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 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 PADOH Bureau of Laboratories for serotyping.
- 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

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.

Serologic assays can be nonspecific and are not recommended in most situations.

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 site of infection.

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).

Any questions or concerns regarding these recommendations should be directed to the local health department or PADOH (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>

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.

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This information is current as of June 08, 2022 but may be modified in the future.