

The Delaware Division of Public Health (DPH) is issuing this health update to provide the health care community with updated information about legionellosis.

Summary

- DPH is providing heightened awareness to an anticipated seasonal increase in Legionella infections and increase in cases resulting from changing building occupancies.
- Health care providers should maintain a high index of suspicion in adult patients with pneumonia.
- The preferred diagnostics tests for Legionnaires' disease are a culture of lower respiratory secretions (eg., sputum, bronchoalveolar lavage) on selective media and the Legionella urinary antigen test. DPH is encouraging providers to submit lower respiratory secretions if possible.

Background

Since 2000, the number of reported legionellosis cases has been increasing in both Delaware and the United States overall. Delaware experienced 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 Delaware to increase imminently due to a combination of the following:

- Seasonality: Legionellosis cases follow a seasonal pattern in Delaware. *Legionella* bacteria grow best in warm, humid, and wet weather, and most *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. CDC has also posted information on *Legionella* [and building reopenings](#) on its 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 health care-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

Prevention

- The key to preventing Legionnaires is to reduce the risk of *Legionella* growth and spread. Building owners and managers can do this by maintaining and implementing [Water Management Programs](#) (WMPs). Please contact the Delaware Division of Public Health legionella resource mailbox for any questions or comments regarding WMPs at legionellaresourceaccount@delaware.gov

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 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, please inform the laboratory that Legionella is suspected as testing requires the use of specialized media and respiratory protection.

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.

Why is obtaining a sputum culture important?

- **Unlike the urine antigen test, culturing specimens from patients can detect all species and serogroups of *Legionella*.**
- **Isolating Legionella from clinical specimens helps investigators identify where exposure occurred and prevent additional cases.**

Testing

Legionellosis is a reportable disease in Delaware. Report all legionellosis cases to the DPH Office of Infectious Disease Epidemiology by fax 302-622-4149, email at reportdisease@delaware.gov, or calling 1-888-295-5156.

Treatment

If your patient has Legionnaires' disease, please see the most recent [IDSA-ATS guidelines for treatment of community-acquired](#) and the most recent [IDSA-ATS guidelines for treatment of hospital-acquired pneumonia](#). Note that first line treatment, however, does not always include *Legionella*-directed antibiotics (e.g., macrolides and respiratory fluoroquinolones). While it is preferred that you obtain diagnostic testing before antibiotic administration, antibiotic treatment should not be delayed to facilitate this process.

If your patient has **Pontiac fever**, antibiotic treatment should not be prescribed. It is a self-limited illness that does not benefit from antibiotic treatment. Patients usually recover within 1 week.

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

Any questions or concerns regarding this information should be directed to the Delaware Division of Public Health Office of Infectious Disease Epidemiology at 302-744-4990.

More Information

- 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>