

July 7, 2023

## Health Notice for District of Columbia Health Care Providers Guidance on Testing and Reporting of Legionellosis

### SUMMARY

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The number of cases of Legionnaires' disease (LD) in the U.S. have increased nearly ninefold since 2000<sup>1\*</sup>. In 2019, health departments reported almost 9,000 cases of LD in the United States<sup>2</sup>. However, LD is underrecognized and underdiagnosed. A study done in 2021 estimated that the true number of LD cases may be 1.8-2.7 times higher than what is reported<sup>3</sup>. The number of confirmed LD cases in DC in 2019 was 41. There was a decrease in confirmed LD cases in DC during the COVID-19 pandemic years of 2020 (7 cases) and 2021 (3 cases). In 2022 there was an increase in confirmed LD cases in DC (37 cases)<sup>2\*\*</sup>. As of July 2023, there has been 8 confirmed cases of LD in DC<sup>\*\*</sup>. DC Health encourages healthcare providers to maintain awareness of patients most at risk for legionellosis and to follow the guidelines below for appropriate specimen collection, testing, and management of patients. All cases of legionellosis are required to be reported to DC Health.

### BACKGROUND

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Legionellosis refers primarily to two diseases caused by *Legionella* bacteria: Legionnaires' disease (LD) and Pontiac fever (PF). Legionnaires' disease is a severe, sometimes fatal, type of pneumonia while Pontiac fever is a milder, self-limited illness with influenza-like symptoms and without pneumonia. The majority of legionellosis is caused by *Legionella pneumophila*, particularly serogroup 1 (Lp1)<sup>4</sup>.

The main way *Legionella* is transmitted is via inhalation of aerosolized water containing the bacteria. *Legionella* can be found in natural and freshwater environments, but is not generally present in sufficient numbers to cause disease. In human-made water systems, (e.g. hot water tanks and heaters, cooling towers, showerheads and sprinkler systems, hot tubs, decorative fountains and other water features), *Legionella* can grow in sufficient numbers to pose a health risk. *Legionella* is a particular risk in large, complex plumbing systems.

Symptoms of LD can include fever, cough, shortness of breath, myalgias, headache, malaise, chest discomfort, confusion, nausea, diarrhea and abdominal pain. LD has a mortality rate of 10% with a

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\* Data through 2019

\*\* Data pending CDC verification

25% mortality rate for healthcare facility-acquired LD<sup>5</sup>. Cases of LD are more commonly diagnosed in the summer and early fall, but can occur at any time of the year.

Risk factors for legionellosis include:

- Age ≥ 50 years
- Smoking (current or historical)
- Chronic lung disease (such as emphysema or chronic obstructive pulmonary disease [COPD])
- Compromised immune system due to disease or medication
- Underlying illness such as diabetes, renal failure, or hepatic failure
- Systemic malignancy
- Recent travel with an overnight stay outside of the home (10-15% of all reported cases of LD occur in people who traveled during their exposure period<sup>4</sup>)
- Recent care at a healthcare facility
- Exposure to hot tubs

## PREVENTION IN HEALTHCARE FACILITIES

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- The key to preventing LD is to adequately maintain water systems where *Legionella* could grow. If *Legionella* is found in a healthcare facility's water system, the facility should work to eliminate the bacteria. Healthcare facilities should develop comprehensive water management programs to reduce the risk of *Legionella* growth and spread. CDC investigations have shown that most LD outbreaks could have been prevented with more effective water management<sup>6</sup>.
- For comprehensive guidance on prevention of *Legionella* in facilities, see [Legionella Prevention with Water Management Programs | CDC](#)

## RECOMENDATIONS FOR HEALTHCARE PROVIDERS

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### Indications for LD Testing<sup>1</sup>

- Patients who have failed outpatient antibiotic therapy for community-acquired pneumonia
- Patients with severe pneumonia—in particular, those requiring intensive care
- Immunocompromised patients with pneumonia
- Patients with a travel history (travel away from home within 14 days before symptom onset)
- Hospitalized patients with risk factors for LD (see *Background* section above) with healthcare-associated pneumonia (pneumonia with onset ≥ 48 hours after admission)

- Patients with an overnight stay in a healthcare facility within 14 days before symptom onset
- Patients with pneumonia in the setting of an LD outbreak
  - CDC defines a cluster/outbreak as two or more cases associated with the same possible source during a 12-month period<sup>7</sup>.
- Patients with an epidemiologic link to a setting with a confirmed source of *Legionella* or that has been associated with at least one laboratory-confirmed case of LD

Testing is **particularly** important if any of the following are identified in the healthcare facility:

- Other patients with healthcare-associated LD diagnosed in the past 12 months
- Positive environmental tests for *Legionella* in the past 2 months
- Current changes in water quality that may lead to *Legionella* growth (such as low chlorine levels or nearby construction)
  - If you have concerns about the quality of the water entering your healthcare facility, please contact DC Water at (202) 612-3400 or online at [Report Problem](#)

#### Diagnostic Testing<sup>4</sup>

The best practice is to obtain **both** a lower respiratory secretion sample (e.g., sputum, bronchoalveolar lavage) for culture **AND** urine sample (for a urinary antigen test [UAT]) concurrently. Ideally, the lower respiratory culture sample should be collected **prior** to antibiotic administration, but antibiotic treatment should not be delayed pending this process (and culture can be attempted even after antibiotic therapy has been initiated).

- Culture: Isolation of *Legionella* from lower respiratory secretions, lung tissue, pleural fluid, or a normally sterile site on media selective for growth of *Legionella* (i.e., Buffered Charcoal Yeast Extract agar) is confirmatory.
  - Detects all *Legionella* species and serogroups (unlike a UAT)
  - Allows comparison of clinical and environmental isolates.
  - Affected by appropriate antibiotic treatment
- UAT: Detects lipopolysaccharide antigen (Lp1) of the *Legionella* bacterium in urine
  - **Only** detects *L. pneumophila* serogroup 1 (the most common cause of LD)
    - If a patient has pneumonia, and has a positive *Legionella* UAT, the patient should be considered to have LD.
  - Test can remain positive for a few weeks after infection, even with antibiotic treatment.
  - All species and serogroups of *Legionella* are potentially pathogenic, so a patient with a negative UAT result could have LD caused by other *Legionella* species and serogroups.

Support from the DC Public Health Laboratory (DC PHL)

The DC PHL is available to serve as a resource for clinical laboratories with *Legionella* species identification and serogrouping from clinical samples.

- A lower respiratory specimen (i.e., sputum, BAL) should be collected for culture, preferably before antibiotic treatment.
- Once the specimen is collected and packaged appropriately please complete the [Chain of Custody and Test Requisition Forms](#). DC PHL can then send a courier to your facility to collect the samples.
- DC PHL will provide culture results within 10 business days
- If your laboratory has the capacity to culture for *Legionella*, then the DC PHL can also accept bacterial isolates for serogrouping and molecular epidemiology.
- For questions regarding sample collection or transport please call (202) 727-8956 during regular business hours (8:30am – 5:30pm, Monday-Friday). For requests outside of regular business hours, please call our 24/7 on-call phone at (202) 868-6561.

#### Treatment<sup>4</sup>

- Macrolides and respiratory fluoroquinolones are the preferred antibiotic agents for the treatment of LD. Review the most recent [IDSA-ATS guidelines for treatment of community-acquired pneumonia](#) and [IDSA-ATS guidelines for treatment of hospital-acquired pneumonia](#) for treatment guidelines.
- Pontiac fever is a self-limited illness that does not benefit from antibiotic treatment. Patients usually recover within 1 week.

## REPORTING REQUIREMENTS

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- All cases of legionellosis are required to be reported to DC Health within **48 hours** after provisional diagnosis or the appearance of suspicious symptoms. Timely reporting is important so that we can quickly identify and investigate cases that may be part of clusters or outbreaks and accurately assess the burden of disease in DC.
- Cases should be reported online using the **DC Health Provider Portal** at <https://dccovid.force.com/provider/s/login>.

## CONSULTATION

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The DC Health *Legionella* Surveillance Program is available to serve as a resource for healthcare facilities in DC. Please do not hesitate to contact us ([legionella.epi@dc.gov](mailto:legionella.epi@dc.gov)) for any of the following:

- Development of communications related to LD
- Coordination of testing of lower respiratory specimens at the DC PHL
- Referral to resources and guidance related to LD or water management

- Consultation with CDC subject matter experts

## REFERENCES

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1. What Clinicians Need to Know about Legionnaires' Disease, at [cdc.gov/legionella/downloads/fs-legionella-clinicians.pdf](https://cdc.gov/legionella/downloads/fs-legionella-clinicians.pdf)
2. Legionnaires' Disease Surveillance Summary Report, United States, 2018-2019, at [cdc.gov/legionella/health-depts/surv-reporting/surveillance-reports.html](https://cdc.gov/legionella/health-depts/surv-reporting/surveillance-reports.html)
3. Collier SA, Deng L, Adam EA, et al. Estimate of burden and direct healthcare cost of infectious waterborne disease in the United States. Emerg Infect Dis. 2021;27(1):140–9.
4. Diagnosis, Treatment, and Prevention, at [cdc.gov/legionella/clinicians/diagnostic-testing.html](https://cdc.gov/legionella/clinicians/diagnostic-testing.html)
5. Clinical Features, at [cdc.gov/legionella/clinicians/clinical-features.html](https://cdc.gov/legionella/clinicians/clinical-features.html)
6. Vital Signs, Legionnaires' Disease, at [cdc.gov/vitalsigns/Legionnaires/](https://cdc.gov/vitalsigns/Legionnaires/)
7. Outbreaks, at [cdc.gov/legionella/outbreaks.html](https://cdc.gov/legionella/outbreaks.html)

## ADDITIONAL RESOURCE

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- [DC Health's Legionellosis \(Legionnaires' disease and Pontiac fever\) webpage](#)

Please contact DC Health regarding legionellosis at:  
Phone: (844) 493-2652 | Fax: (202) 442-8060 | Email: [legionella.epi@dc.gov](mailto:legionella.epi@dc.gov)