



NEW YORK CITY DEPARTMENT OF
HEALTH AND MENTAL HYGIENE
Oxiris Barbot, M.D.
Commissioner

2019 Alert # 13: Test for *Legionella* in Adults with Pneumonia

- Most Legionnaires' disease cases occur from June-October in New York City.
- Follow guidelines, and test for *Legionella* in adults with pneumonia, particularly patients who are ≥ 50 years or have lung disease, immune-suppression, or a history of smoking.
- Testing for *Legionella* includes both urine antigen testing and culture of sputum or bronchoalveolar lavage specimens.
- Report cases promptly to the NYC Health Department and submit all *Legionella* isolates to the Public Health Laboratory for sub-typing.

Please distribute to all clinical staff in Internal Medicine, Geriatrics, Primary Care, Infectious Diseases, Emergency Medicine, Family Medicine, Laboratory Medicine, and Infection Control.

June 6, 2019

Dear Colleagues,

Legionnaires' disease follows a seasonal pattern in New York City, with an increased number of cases reported from June to October each year. Providers should test for *Legionella* when evaluating adults with symptoms of pneumonia. Testing should include both urine antigen testing (UAT) and *Legionella* sputum/respiratory culture.

Legionnaires' disease is caused by *Legionella* bacteria. It is characterized by pneumonia occurring 2-10 days after exposure to an often unidentified environmental source. *Legionella* is a ubiquitous aquatic organism that grows in warm environments (77°–108°F). Exposure occurs through inhalation of contaminated aerosols from devices such as cooling towers, whirlpool spas, showers, and faucets, and through aspiration of contaminated water. Groups at higher risk include persons ≥ 50 years old, cigarette smokers, and persons with chronic lung disease, or persons with immunocompromising conditions. The case-fatality rate is estimated to be 10% for community-acquired Legionnaires' disease. Recommended treatment options include macrolide or quinolone antibiotics.

Diagnostic Testing

Culture of the organism from respiratory secretions or tissues is the gold standard for diagnosis and should be used in conjunction with the *Legionella* UAT (which is specific for *Legionella pneumophila*, serogroup 1). Culture has the added benefits of identifying non-*pneumophila* *Legionella* that may cause infection and of generating isolates that can be further analyzed using molecular techniques. Molecular comparison of clinical and environmental isolates grown in culture allows the Health Department to identify linked clusters of infection as well as potential environmental sources of these infections. UAT alone does not allow for these critical public health investigations and may not detect other *Legionella* species and serogroups, besides *L. pneumophila*, serogroup 1.

Please note the following regarding the diagnosis of legionellosis:

- Simultaneously test and treat for legionellosis. Early treatment results in better outcomes.
- Order urine antigen testing (UAT) and culture on sputum or other appropriate respiratory specimens to test for *Legionella*.
 - *Legionella* culture requires the use of specialized media. Please alert your microbiology laboratory that legionellosis is in your differential diagnosis so that the correct testing is performed. The best specimens for culturing *Legionella* are sputum or bronchoalveolar lavage fluid. Collect specimens prior to the start of antibiotic therapy.
 - Urine antigen testing (UAT) is widely available as a rapid method for detecting *Legionella*. UAT is most sensitive for detecting *L. pneumophila* serogroup 1. Although *L. pneumophila* serogroup 1 accounts for most laboratory confirmed *Legionella* cases, a negative UAT does not rule-out infection with other species and serotypes. Providers should also obtain specimens for culture to diagnose legionellosis.
- Serologic diagnosis is less useful for diagnosing acute infection and requires paired sera, collected 3–4 weeks apart to detect a fourfold rise in antibody titer to a level > 1:128. A single antibody titer is not diagnostic for legionellosis; convalescent serum must be obtained for comparison.

Additional information for clinicians on Legionnaires' disease is available at the Centers for Disease and Control and Prevention's *Legionella* page: cdc.gov/legionella

Recommendations for Providers

To help the NYC Health Department identify outbreaks of Legionnaires' disease:

- Maintain a high index of suspicion for legionellosis among all adults with pneumonia, whether community-acquired or nosocomial.
- Specifically request both culture and UAT for *Legionella* diagnosis, and collect appropriate specimens for testing.
- Report all Legionnaires' disease cases to the NYC Health Department by calling the Provider Access Line at 1-866-692-3641.
- Send all *Legionella* isolates to the NYC Public Health Laboratory for serotyping and molecular testing. Send isolates and a [laboratory test request form](#), or order through PHL eOrder (contact PHLeOrdersupport@health.nyc.gov to set up an account) to:
NYC Public Health Laboratory
455 First Avenue
New York, NY 10016
- If you have any laboratory related questions, please call the Public Health Laboratory Microbiology Section at (212) 447-6783.

As always, we appreciate our ongoing collaboration with NYC healthcare providers to help us address Legionnaires' disease as well as other infectious disease concerns in the City.

Sincerely,



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