



NEW YORK CITY DEPARTMENT OF
HEALTH AND MENTAL HYGIENE
Mary T. Bassett, MD, MPH
Commissioner

2018 Alert # 10: 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, Pediatrics, Geriatrics, Primary Care, Infectious Diseases, Emergency Medicine, Family Medicine, Laboratory Medicine, and Infection Control.

June 4, 2018

Dear Colleagues,

Legionnaires' disease follows a seasonal pattern in New York City (NYC), 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 urine antigen testing (UAT) *and* *Legionella* sputum/respiratory culture. Testing for *Legionella* urine antigen guides clinical treatment of the patient and *Legionella* culture further assists the Health Department with detecting outbreaks and linking them to potential environmental sources of *Legionella* exposure.

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 9% 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 rapid non-culture diagnostics like the *Legionella* UAT. Culture has the added benefits of identifying non-*pneumophila* *Legionella* that may cause infection (see below) and of generating isolates that can be further analyzed using molecular techniques. Molecular comparison of patient and environmental isolates grown in culture allow 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.

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 culture test is ordered. 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 *Legionella* cases, a negative UAT does not rule-out infection from other species and serotypes. Furthermore, UAT does not produce an isolate for further characterization and comparison to other isolates to help determine possible environmental sources of infection. 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 Legionellosis Resource Site, <http://www.cdc.gov/legionella/index.htm>

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 NYC Health Department by calling the Provider Access Line at 1-866-692-3641.
- Send all *Legionella* isolates to the NYC DOHMH Public Health Laboratory for serotyping and molecular testing. Send isolates and a laboratory test request form (available at <http://www1.nyc.gov/assets/doh/downloads/pdf/labs/testing-services.pdf>) to:
Public Health Laboratory
455 First Ave, Room 136
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 infectious disease concerns in the City.

Sincerely,

A handwritten signature in black ink, appearing to read "Demetre C. Daskalakis". The signature is fluid and cursive, with a long horizontal stroke at the end.

Demetre C. Daskalakis, MD MPH
Deputy Commissioner
Disease Control
NYC Department of Health and Mental Hygiene