



THE CITY OF NEW YORK

DEPARTMENT OF HEALTH AND MENTAL HYGIENE

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nyc.gov/health

2008 Advisory #21: Possible Increase in Legionnaire's Disease in the Bronx

- In 2006 and 2007, the highest rate of Legionnaire's disease in NYC occurred among Bronx residents.
- Epidemiologic and environmental investigations did not identify a common source of exposure.
- Since June 1, 2008, there has been a recurrence of increased reports of confirmed and suspected Legionnaire's disease among Bronx residents.
- Providers should have a high level of suspicion for Legionnaire's disease when evaluating patients presenting with signs of pneumonia.
 - Culturing *Legionella* from respiratory specimens (sputum or bronchoalveolar lavage) is the preferred method of diagnosis. Notify your lab to ensure that they use the appropriate culture media to test for *Legionella*.
 - Urinary antigen testing is also recommended but should be accompanied by an attempt to isolate *Legionella* by culture.
- Report cases promptly to the NYC Health Department and submit all *Legionella* isolates to the Public Health Laboratory for serogrouping and molecular 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

July 16, 2008

Dear Colleagues,

Starting in the fall of 2006 and throughout 2007 the highest rate of Legionnaire's disease in New York City was in the Bronx. The Bronx rate in 2006 and 2007 was 4.3 /100,000, compared to the citywide rate of 2.3 /100,000. Extensive interviewing of patients, and environmental sampling in one section of the Bronx in June 2007, did not identify a common source of exposure. Since January 2008, the citywide incidence of Legionnaire's disease is less than for the same time period in 2007 (44 confirmed or suspect cases diagnosed January 1, 2008 to July 14, 2008 compared to 64 for January 1, 2007 to July 14, 2007). However, since June 1, 2008, the majority of confirmed or suspect cases have been in Bronx residents (10 of 19 cases). The ten occurred in five neighborhoods: Fordham-Bronx Park (n=3), Pelham-Throgs Neck (n=3), Northeast Bronx (n=2), Hunts Point-Mott Haven (n=1), and Crotona-Tremont (n=1). All ten were diagnosed by a positive *Legionella* urinary antigen test only, so that cultures are not available to compare the patients' isolates to determine if their infections are due to a common strain.

Legionnaire's disease is caused by the bacteria *Legionella* and is characterized by pneumonia, occurring 2-14 days after exposure to an environmental source. *Legionella* is a ubiquitous aquatic organism that thrives in warm environments (32°- 45°C). Exposure occurs through inhalation of contaminated aerosols from devices such as cooling towers, whirlpool spas, showers, and faucets, and through aspiration of contaminated water. **Person-to-**

person transmission has not been demonstrated. Groups at high risk include the elderly, cigarette smokers, persons with chronic lung or immunocompromising disease, and persons receiving immunosuppressive drugs. The case-fatality rate has declined substantially since it was first described and is estimated to be 5-40%. Recommended treatment options include the macrolide or quinolone antibiotics.

Diagnostic Testing: Culture of the organism from respiratory secretions or tissues is the gold standard for diagnosis and provides the added benefit of allowing molecular typing so that the patient's isolate(s) can be compared to isolates from environmental sources and other patients. Please note the following regarding the diagnosis of legionellosis:

- *Legionella* requires special media (Buffered Charcoal Yeast Extract). Please alert your microbiology laboratory that you are considering legionellosis in your patient. The best specimens for culturing *Legionella* are sputum or bronchoalveolar lavage fluid.
- Urine antigen testing is widely available as a rapid method for detecting *L. pneumophila* serogroup 1. However, it must be noted that the antigen test is most sensitive for *L. pneumophila* serogroup 1, which accounts for the majority of *Legionella* cases. Therefore, a negative urine antigen test does not rule out legionellosis due to other species and serotypes and, depending on clinical suspicion, specimens for culture and serology may be indicated to avoid underdiagnosis of legionellosis. Furthermore, urine antigen testing does not allow molecular comparison to help determine the environmental source.
- Serologic diagnosis requires paired sera, 3-4 weeks apart to detect a fourfold rise in antibody titer to a level > 1:128. A single antibody titer of any level is not diagnostic of legionellosis. For diagnosis, convalescent serology must be obtained.

There is additional information for clinicians on Legionnaire's disease at the Centers for Disease and Control and Prevention's Legionellosis Resource Site at <http://www.cdc.gov/legionella/index.htm>. We also recommend the following reference: Fields BS, Benson RF, Besser RE Legionella and Legionnaires' disease: 25 years of Investigation. *Clin Microbiol Rev.* 2002 Jul;15(3):506-26.

In summary, to help us determine whether there is an increase in Legionnaire's disease in the Bronx, as well as potential common sources of exposure, the DOHMH requests your assistance with the following:

- Maintain a high index of suspicion for legionellosis among all patients with community-acquired pneumonia, and specifically request both culture and urine antigen testing for legionellosis when indicated.
- Report all cases to the DOHMH. To report a suspect or confirmed case of legionellosis, or to obtain additional information, please contact the Bureau of Communicable Disease at:
During business hours: 212-788-9830
After hours, contact the Poison Control Center: 212-764-7667 or 1-800-222-1222
- Obtain respiratory or tissue cultures **AND** utilize rapid urine antigen testing on all suspect cases. Please **send all positive cultures** to the NYCDOHMH Public Health Laboratory for serotyping and molecular testing. Send attention to:

NYC DOHMH Public Health Laboratory
455 First Ave, Room 136
New York, NY 10016

If you have any laboratory related questions, please call Lillian Lee, Chief of Microbiology, at 212-447-6970 or 347-865-5434.

As always we appreciate our ongoing collaboration with healthcare providers in New York City to help us address emerging infectious disease concerns.

Sincerely,

Daniel Cimini

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