



# Department of Health

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TO: Healthcare Providers, Healthcare Facilities, Clinical Laboratories, and Local Health Departments (LHDs)

FROM: New York State Department of Health (NYSDOH)  
Bureau of Communicable Disease Control (BCDC)

## HEALTH ADVISORY: LEGIONELLOSIS

*For All Clinical Staff in Internal Medicine, Pulmonary and Intensive Care Medicine, Geriatrics, Primary Care, Infectious Diseases, Emergency Medicine, Family Medicine, Laboratory Medicine, and Infection Control/Epidemiology*

### SUMMARY

- While legionellosis is diagnosed year-round, providers are reminded to maintain a high index of suspicion for legionella during the summer and early fall, as the incidence usually increases during these seasons.
  - **In patients with suspected pneumonia, test for *Legionella* infection.** Legionnaires' Disease cannot be distinguished from other causes of pneumonia based on clinical or radiologic examination. Culture of the organism from respiratory secretions or tissues is the gold standard for diagnosis.
    - Culture has the added benefit of allowing for a molecular comparison of clinical isolate(s) to environmental isolates, to identify a potential source of infection in the setting of a potential outbreak.
    - When ordering culture, specify the intent to identify *Legionella*, as laboratory procedures for identifying this organism are different from standard respiratory specimen cultures.
- Report cases promptly to the local health department where the patient resides. Public health staff may request that *Legionella* isolates be sent to the Department's Wadsworth Center for serogrouping and molecular typing.
  - LHD contact information is available at: [https://www.health.ny.gov/contact/contact\\_information/](https://www.health.ny.gov/contact/contact_information/).
  - If you are unable to reach the LHD where the patient resides, please contact the NYSDOH Bureau of Communicable Disease Control at 518-473-4439 during business hours or 866-881-2809 evenings, weekends, and holidays.

## **INFORMATION FOR HEALTHCARE PROVIDERS, FACILITIES AND CLINICAL LABORATORIES**

Testing for *Legionella* guides clinical treatment of the patient and assists LHDs and NYSDOH with detecting outbreaks and linking cases to potential environmental sources of *Legionella*. This is especially critical for persons at risk for Legionnaires' disease, including but not limited to persons > 50 years old, current or former smokers, persons with chronic lung disease, or persons with immunocompromising conditions. The case-fatality rate is estimated to be 9% for community-acquired Legionnaires' disease. Empiric treatment of community-acquired pneumonia should include adequate coverage for *Legionella* with either a macrolide (e.g., azithromycin) or a fluoroquinolone (e.g., levofloxacin). Full detail on treatment regimens is available from the Infectious Diseases Society of America and the American Thoracic Society at: [http://cid.oxfordjournals.org/content/44/Supplement\\_2/S27.full.pdf+html](http://cid.oxfordjournals.org/content/44/Supplement_2/S27.full.pdf+html). Respiratory tract specimens should ideally be obtained before initiation of antibiotics, although antibiotics should not be delayed to obtain a specimen.

Facilities are also reminded of their requirements under 10 NYCRR Part 4, Protection Against *Legionella*, Subpart 4-2 Healthcare Facilities. Both a current 'Environmental Assessment of Water Systems in Healthcare Settings' form (EAF; NYSDOH form 5222) and a Sampling and Management Plan for the potable water systems are required. If the facility also has a cooling tower it must be compliant with Subpart 4-1, Cooling Towers.

### *Diagnostic Testing*

Culture of the organism from respiratory secretions or tissues is the gold standard for diagnosis. Culture has the added benefit of being able to compare clinical isolate(s) to environmental isolates to identify a potential source of infection in the setting of a potential outbreak. Please note the following regarding the diagnosis of legionellosis:

- The best specimens for culturing *Legionella* are sputum or bronchoalveolar lavage fluid. *Legionella* culture requires specialized media (buffered charcoal yeast extract agar {BCYE}). Please specifically request that the clinical specimen be cultured for *Legionella* (not a general respiratory bacterial culture), and alert your microbiology laboratory that legionellosis is in the differential diagnosis.
- 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 due to other *Legionella* species and serotypes. Furthermore, UAT does not allow for molecular comparison of organisms to help determine the environmental source. **Providers should also obtain respiratory 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. It is important to note that because paired sera are required, results are delayed and thus may not be useful for acute case diagnosis or during active outbreak investigations.
- Additional information for clinicians on Legionnaires' disease is available at the Centers for Disease and Control and Prevention's Legionellosis Resource Site: <https://www.cdc.gov/legionella/index.html>

## **INFORMATION FOR LOCAL HEALTH DEPARTMENTS:**

NYSDOH is reminding LHDs of the following actions that should be taken locally:

- Regularly provide education to providers and healthcare facilities about legionellosis. Educations should emphasize the messages described above and should be repeated when appropriate (e.g. local increase in cases or during cluster or outbreak investigations).
- Interview cases as soon as possible, but within 3 business days of the report. If cases are potentially part of a cluster or outbreak, attempts to interview should occur sooner.
  - Once the interview is completed, the Communicable Disease Electronic Surveillance System (CDESS) should be promptly updated with the newly obtained information.
  - Epidemiology staff should compare this information with that obtained from other reported cases and share appropriate, deidentified information with environmental health staff.
  - Environmental health staff should review the epidemiological information collected to identify possible points of exposure to *Legionella* for these cases.
    - Points of exposure should include a variety of environmental conditions including, but not limited to: water main failure or replacement, construction, water use for firefighting, use of recreational spas and pools, outdoor and indoor water displays.
    - Based upon the environmental exposures identified, sample collection should be considered.
    - Staff in the NYSDOH's Bureau of Water Supply Protection and the regional offices are available to assist by providing maps of the impacted areas for coordination of an environmental health response.
  - Environmental health staff should use the cooling tower registry to determine compliance of cooling towers according to Part 4, Protection Against *Legionella*, Subpart 4-1, Cooling towers.
  - Based on patient travel history, a center-point for a cluster should be established. Noncompliant cooling towers that are within close proximity should be contacted for the collection of *Legionella* culture samples and for the review of appropriate documentation required by Subpart 4-1.
  - When an unusual increase in cases is identified, either by public health staff or via the Department's automated geo-temporal analysis, LHDs can use the Department's specially trained interview team to re-interview existing cases and directly interview any new cases during the investigation. Requests for interview assistance should be made by contacting the regional epidemiologist.
- Provide health education to the public about legionellosis, including but not limited to the following messages.
  - Legionellosis is not transmitted from person to person.
  - Certain host factors place persons at greater risk for acquiring Legionnaires' disease. Persons with severe immunosuppression from organ transplantation or chronic underlying illness, such as hematologic malignancy or end-stage renal disease, are at the greatest risk for acquiring, and dying from, Legionnaires' disease.
  - Persons with diabetes mellitus, chronic lung disease, non-hematologic malignancy, HIV, persons over the age of 50, and persons with a current or past history of smoking are at moderately increased risk.
- Advise the public and providers when there is an unusual increase in cases and/or when a cluster or outbreak is being investigated. All efforts should be coordinated with BCDC and the Department's Public Affairs Group, which can be reached at (518) 474-7354.

Questions regarding clinical or epidemiological information should be directed to your LHD or the NYSDOH Bureau of Communicable Disease Control at (518) 473-4439 and [bcdc@health.ny.gov](mailto:bcdc@health.ny.gov).

Questions regarding environmental issues should be directed to your LHD or the NYSDOH Bureau of Water Supply Protection (518) 402-7650 and [hcf.legionella@health.ny.gov](mailto:hcf.legionella@health.ny.gov).