



Communicable Disease Case Reporting and Investigation Protocol **LEGIONELLOSIS (LEGIONNAIRES' DISEASE, PONTIAC FEVER, EXTRAPULMONARY LEGIONELLOSIS)**

I. IDENTIFICATION AND DEFINITION OF CASES

A. **Clinical Description:** An illness caused by *Legionella* spp. with acute onset and presenting as one of three clinically and epidemiologically distinct forms:

- **Legionnaires' disease**, which presents as pneumonia, diagnosed clinically and/or radiographically. Evidence of clinically compatible disease can be determined by: (a) a clinical or radiographic diagnosis of pneumonia in the medical record, or, (b) if "pneumonia" is not explicitly recorded, a description of clinical symptoms consistent with a diagnosis of pneumonia. Symptoms may vary, but must include acute onset of lower respiratory illness with fever and/or cough. Additional symptoms may include myalgia, shortness of breath, headache, malaise, chest discomfort, confusion, nausea, diarrhea, and/or abdominal pain.
- **Pontiac fever**, a milder illness without pneumonia. Symptoms may vary, but must include acute onset of one or more of the following symptoms: fever, chills, myalgia, malaise, headache, fatigue, nausea, and/or vomiting.
- **Extrapulmonary legionellosis**, an illness that presents outside the lungs (e.g., endocarditis, wound infection, joint infection, graft infection). This diagnosis is made when there is clinical evidence of disease at an extrapulmonary site along with laboratory testing that indicates evidence of *Legionella* at that site.

B. **Laboratory Criteria:**

- **Confirmatory laboratory evidence:**
 - Isolation of any *Legionella* organism from lower respiratory secretions, lung tissue, pleural fluid, or extrapulmonary site
 - Detection of any *Legionella* species from lower respiratory secretions, lung tissue, pleural fluid, or extrapulmonary site by a validated nucleic acid amplification test (PCR)
 - Detection of *Legionella pneumophila* serogroup 1 antigen in urine using validated reagents
 - Fourfold or greater rise in specific serum antibody titer to *Legionella pneumophila* serogroup 1 using validated reagents
- **Supportive laboratory evidence:**
 - Fourfold or greater rise in antibody titer to specific species or serogroups of *Legionella* other than *L. pneumophila* serogroup 1 (e.g., *L. micdadei*, *L. pneumophila* serogroup 6)
 - Fourfold or greater rise in antibody titer to multiple species of *Legionella* using pooled antigens
 - Detection of specific *Legionella* antigen or staining of the organism in lower respiratory secretions, lung tissue, pleural fluid, or extrapulmonary site associated with clinical disease by direct fluorescent antibody (DFA) staining, immunohistochemistry (IHC), or other similar method, using validated reagents

C. **Wisconsin Surveillance Case Definition:**

- **Confirmed:** A clinically compatible* case that meets one of the confirmatory laboratory criteria for diagnosis.
- **Probable:** A clinically compatible* case with an epidemiologic link during the incubation period (i.e., 14 days before onset of symptoms for cases of Legionnaires' disease and 3 days before onset of symptoms for cases of Pontiac fever).
An epidemiologic link is defined as: (a) exposure to a setting with a confirmed source of *Legionella* (e.g., positive environmental sampling result associated with a cooling tower, public accommodation), or (b) exposure to a setting with a suspected source of *Legionella* that is associated with at least one confirmed case.
- **Suspect:** A clinically compatible* case that meets one of the supportive laboratory criteria for diagnosis.

*See clinical descriptions of the three forms of legionellosis in section I.A above.

D. **Criteria to Distinguish a New Case:**

- An individual should be considered a new case if their previous illness was followed by a period of recovery prior to acute onset of clinically compatible symptoms and subsequent laboratory evidence of infection.
- The recovery period for legionellosis can vary based on patient-specific factors. Consultation with DPH is encouraged for case classification of individuals without clear periods of recovery or subsequent acute illness onset.

II. REPORTING

- A. **Wisconsin Disease Surveillance Category II – Methods for Reporting:** This disease shall be reported to the patient’s local health officer or to the local health officer’s designee within 72 hours of recognition of a case or suspected case, per Wis. Admin. Code § [DHS 145.04 \(3\) \(b\)](#). Report electronically through the Wisconsin Electronic Disease Surveillance System (WEDSS), or mail or fax a completed Acute and Communicable Disease Case Report ([F-44151](#)) to the address on the form.
- B. **Responsibility for Reporting:** According to Wis. Admin. Code § [DHS 145.04\(1\)](#), persons licensed under Wis. Stat. ch. [441](#) or [448](#), laboratories, health care facilities, teachers, principals, or nurses serving a school or day care center, and any person who knows or suspects that a person has a communicable disease identified in [Appendix A](#).
- C. **Clinical Criteria for Reporting:** Clinically compatible illness
- D. **Laboratory Criteria for Reporting:** Laboratory evidence of infection by culture or non-culture-based methods. All positive results should be reported.

III. CASE INVESTIGATION

- A. **Responsibility for case investigation:** It is the responsibility of the local health department (LHD) to investigate or arrange for investigation of suspected or confirmed cases as soon as is reasonably possible. A case investigation may include information collected by phone, in person, in writing, or through review of medical records or communicable disease report forms, as necessary and appropriate.
- B. **Required Documentation:**
1. Complete the WEDSS disease incident investigation report, including appropriate disease-specific tabs.
 2. Upon completion of investigation, set WEDSS disease incident process status to “Sent to State.”
- C. **Additional Investigation Responsibilities**
1. Assess patient’s risk for possible health care-associated Legionnaires’ disease (e.g., exposure to one or more health care settings or long-term care facilities during the 14 days prior to onset of symptoms). If health care-associated Legionnaires’ disease is suspected, notify the Wisconsin Division of Public Health (DPH), Bureau of Communicable Diseases (BCD). If a patient had 10 or more days of continuous stay at a healthcare facility during the 14 days before onset of symptoms (presumptive health care-associated case), an environmental investigation may be warranted in collaboration with BCD.
 2. Determine whether any of the below apply to the case. If so, notify the BCD, since further investigation may be warranted:
 - a. Lived or worked at an assisted living or senior living facility during the exposure period
 - b. Lived in a congregate setting during the exposure period
 - c. Remained in the same facility for the entire exposure period without leaving the premises
 3. Determine whether the case is potentially outbreak-related or travel-associated (e.g., patient reported overnight accommodation during the incubation period*) and, if so, notify the BCD.
- *The incubation period is 14 days before onset of symptoms for cases of Legionnaires’ disease and 3 days before onset of symptoms for cases of Pontiac fever.

IV. PUBLIC HEALTH INTERVENTIONS AND PREVENTION MEASURES

- A. In accordance with Wis. Admin. Code § [DHS 145.05](#), local public health agencies should follow the methods of control recommended in the current editions of *Control of Communicable Diseases Manual*, edited by David L. Heymann, published by the American Public Health Association, and the *American Academy of Pediatrics’ Red Book: Report of the Committee on Infectious Diseases*, unless otherwise specified by the state epidemiologist.

- B. Strongly encourage clinicians to order both the *Legionella* urinary antigen test and a *Legionella* culture of sputum or other lower respiratory specimen. If a routine sputum culture was already ordered, encourage clinical laboratories to forward residual sputum to the Wisconsin State Laboratory of Hygiene for *Legionella* culture (and PCR, if antibiotic treatment has already started), since routine sputum cultures are not expected to detect *Legionella*.
- C. Provide the patient with appropriate health education and offer the DHS legionellosis fact sheet, both of which are available on DHS' legionellosis webpage. Additionally, direct the patient to the CDC webpage for prevention of waterborne disease in the home.

V. CONTACTS FOR CONSULTATION

- A. Local health departments and tribal health agencies:
<https://www.dhs.wisconsin.gov/lh-depts/index.htm>
- B. Bureau of Communicable Diseases, Communicable Diseases Epidemiology Section: 608-267-9003
- C. Wisconsin State Laboratory of Hygiene: 1-800-862-1013

VI. RELATED REFERENCES

- A. Heymann DL, ed. Legionellosis. In: *Control of Communicable Diseases Manual*. 20th ed. Washington, DC: American Public Health Association, 2015: 334-337.
- B. American Academy of Pediatrics. *Legionella pneumophila* Infections. In: Kimberlin DW, Brady MT, Jackson MA, Long SS, eds. *Red Book: 2018 Report of the Committee on Infectious Diseases*. 31st ed. Itasca, IL: American Academy of Pediatrics; 2018: 498-501.
- C. Centers for Disease Control and Prevention website: <https://www.cdc.gov/legionella/index.html>