

LEGIONELLOSIS

Case definition

Confirmed case

Clinical illness [see “Clinical Evidence” below] with laboratory confirmation of infection:

- isolation of *Legionella* species or detection of the antigen from respiratory secretions, lung tissue, pleural fluid or other normally sterile fluids
- OR**
- a significant [e.g. fourfold or greater] rise in *Legionella* species IgG titre between acute and convalescent sera
- OR**
- IgG titre > 1:128 against *Legionella* species
- OR**
- demonstration of *L. pneumophila* antigen in urine.

PROBABLE CASE

Clinical illness with demonstration of *Legionella* species DNA.

CLINICAL EVIDENCE

Legionellosis comprises two distinct illnesses: Legionnaires’ disease, characterized by fever, myalgia, cough and pneumonia; and Pontiac fever, a milder illness without pneumonia.

Causative agent

The most common species causing infections is *Legionella pneumophila*, with most isolates belonging to serogroup 1. Related organisms have also been isolated, including *L. micdadei*, *L. bozemanii*, *L. longbeachae* **AND** *L. dumoffi*. Currently, 48 species of *Legionella* and at least 70 distinct serogroups are recognized.

Source

Man-made water supplies that aerosolize water, such as hot-water systems [showers], air conditioning cooling towers, evaporative condensers, humidifiers, whirlpool spas, respiratory therapy devices, drinking fountains and decorative fountains.

Susceptibility

Risk factors include increasing age [50 years of age or older], cigarette smoking, diabetes, chronic lung disease, renal disease, malignancy and compromised immunity.

Incubation

- Legionnaire's disease: usually 5-6 days, range 2-10 days.
- Pontiac fever: usually 24-48 hours, range 5-72 hours.

Transmission

Primarily airborne transmission: inhalation of mists from a contaminated water source (as named above). Other means are possible, such as water aspiration. Person-to-person transmission has not been documented.

Communicability

No person-to-person transmission.

Symptoms

There are two distinct clinical and epidemiological manifestations of legionellosis: Legionnaire's disease and Pontiac fever. Both conditions present with anorexia, malaise, myalgia, headache and fever. Abdominal pain and diarrhea are also common.

- **Legionnaire's disease** is further characterized by pneumonia and a non-productive cough. The illness can be quite severe and progress to respiratory failure. Case-fatality rates remain at approximately 15%.
- **Pontiac fever** is a self-limiting milder illness, which is accompanied by cough but does not progress to pneumonia or death. Clients with Pontiac fever usually recover spontaneously in 2-5 days.

Diagnostic testing

Respiratory tract washing, sputum, lung tissue or urine for culture/gram/rapid immune-chromatographic assay

Treatment

- For Legionnaire’s disease, either a respiratory fluoroquinolone, such as levofloxacin, or a macrolide [azithromycin]. Health care providers should consult their drug reference guidelines for appropriate dosing of the medication.
- Pontiac fever requires no specific treatment.

PUBLIC HEALTH MANAGEMENT & RESPONSE

Case management

- Contact the primary care provider to obtain clinical information about the case.
- Interview the case, review the clinical information and identify the possible source of exposure.
- If the case identifies a public water source or cooling tower source [including an institutional or public housing setting] or a recreational water source [e.g. whirlpool spa] and an inspection is required, contact Nova Scotia Environment [NSE]. Discuss the concern with the Medical Officer of Health prior to contacting the NSE District Manager for the region.
- Document the information on the [Nova Scotia Notifiable Disease Surveillance Case Report Form](#) and the [Other Disease Case Report Form](#) or designated electronic information system.

Exclusion

No exclusion is required.

Education

- Educate case about the disease, including the two distinct clinical manifestations, potential sources and transmission.
- Educate case about the use and maintenance of humidifiers and respiratory equipment. Tap water should not be used in respiratory therapy devices.
- Recommend to case that any contacts exhibiting symptoms should seek medical attention.
- Provide contact information for the Regional Environmental Health Consultant with Nova Scotia Environment if the case would like more information regarding environmental control measures.

Outbreak response

Consult the [Guidelines for Communicable Disease Prevention and Control for Child Care Settings](#) if an outbreak is suspected in a child care setting.

Surveillance forms

novascotia.ca/dhw/populationhealth/surveillanceguidelines/NS_Notifiable_Disease_Surveillance_Case_Report_Form.docx

novascotia.ca/dhw/populationhealth/surveillanceguidelines/Other_Disease_Case_Report_Form.pdf

General Information Sheet

REFERENCES:

Public Health Agency of Canada. [2009]. Case Definitions for Communicable Diseases under National Surveillance. *CCDR 2009*; 3552, 1-123. Retrieved from phac-aspc.gc.ca/publicat/ccdr-rmtc/09pdf/35s2-eng.pdf

Control of Communicable Diseases Manual, 20th edition. 2014. David L. Heymann, editor. American Public Health Association.

Legionellosis: cdc.gov/legionella/index.html

Report of the Committee on Infectious Diseases, 2015. American Academy of Pediatrics.

cdha.nshealth.ca/pathology-laboratory-medicine

[Provincial Microbiology Users Manual](#)