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:


Legionellosis: cdc.gov/legionella/index.html


cdha.nshealth.ca/pathology-laboratory-medicine

Provincial Microbiology Users Manual