

Lyme Disease

Reporting Obligations

Individuals who have or may have Lyme disease shall be reported to the local Health Unit.

REPORTING FORM

Epidemiology

Aetiologic Agent:

Lyme disease is a tick-borne zoonotic disease caused by the bacterium, *Borrelia burgdorferi* (*B. burgdorferi*), a spirochete first identified in North America in 1982

Clinical Presentation:

Lyme borreliosis is generally divided into 3 stages in which infected persons may experience any of the following symptoms:

Early localized disease

- ▶ Erythema migrans (EM) or “bull’s eye” rash at the site of a recent tick bite, fever, malaise, headache, myalgia, neck stiffness, and arthralgia. EM is defined as a skin lesion that typically begins as a red macule or papule and expands over a period of days to weeks to form a round or oval expanding erythematous area ≥ 5 cm in size across the diameter. It appears 1-2 weeks (range 3-30 days) after infection and persists for up to 8 weeks ([see EM pictures](#)).

Early disseminated disease

- ▶ Multiple erythema migrans in approximately 15% of people occurs several weeks after infective tick bite, cranial nerve palsies, lymphocytic meningitis, conjunctivitis, arthralgia, myalgia, headache, fatigue, carditis (heart block).

Late disease

- ▶ May develop in people with early infection that was undetected or not adequately treated. Involves the heart, nervous system and joints; arrhythmias, heart block, and sometimes myopericarditis; recurrent arthritis affecting large joints (i.e. knees); peripheral neuropathy; central nervous system manifestations – meningitis; encephalopathy (i.e. behavior changes, sleep disturbance, headaches); and fatigue.

Modes of transmission:

Bite by a black legged tick carrying *B. burgdorferi* bacteria that has been attached for at least 24 hours.

Incubation Period:

For early localized disease, from 3 - 30 days after tick exposure with a mean of 7 - 10 days; early stages of the illness may not be apparent and the person may present with later manifestations.

Period of Communicability:

There is no evidence of person to person spread.

References

1. [Ministry of Health and Long Term Care, Infectious Diseases Protocol, 2017](#)

Risk Factors/Susceptibility

- Persons with history of tick bites in an area where ticks carry the *B. burgdorferi* bacteria, [Ontario Lyme Disease Risk Areas Map](#)
- Occupations/activities in tall grass or wooded areas where ticks reside

Diagnosis & Laboratory Testing

Diagnosis is based on clinical and epidemiological findings. Lab testing is used to support clinical suspicion of early and late disseminated Lyme disease. Serological evidence using the two-tier enzyme linked immuno-sorbent assay (ELISA) and Western Blot criteria is used to support clinical diagnosis of Lyme Disease.

Indications and Limitations

- When patients are treated very early in the course of illness, antibodies may not develop.
- If serological testing was done for early localized disease initial negative serological tests in patients with skin lesions suggestive of EM should have testing repeated after 2 to 4 weeks, however if patients are treated during this time, subsequent testing may be negative.
- The Western blot (particularly only IgM reactivity) may yield a false positive result.

TESTING INFORMATION & REQUISITION

Treatment & Case Management

Treatment is under the direction of the attending health care provider.

Lyme disease treatment guidelines are available from the *Anti-infective guidelines for Community-acquired Infections* (“Orange Book” by the Anti-infective Review Panel) or the [Canadian Communicable Disease Report, Lyme disease: clinical diagnosis and treatment, 2014](#), which includes 2006 clinical practice guidelines by the Infectious Diseases Society of America.

Public Health will follow up as needed.

Patient Information

PATIENT FACT SHEET

Additional Resources

1. [Public Health Ontario, “Lyme Disease.” \(includes technical report, resources, lab info, related links\)](#)
2. [PHAC, CCDR Report May 29, 2014, “Clinical aspects of Lyme disease.”](#)
3. [PHAC, “Lyme disease and other tick-borne diseases: Information for health professionals.”](#)
4. [SMDHU HealthSTATS: Lyme disease](#)