



## ADVISORY

### Changes to Lyme Disease Testing

Monday, April 3, 2023

#### What is New

Beginning on April 1, 2023 the Public Health Ontario Lab (PHOL) will be changing Lyme disease testing for clinical samples from the standard two-tier testing (STTT) algorithm to the modified two-tier testing (MTTT) algorithm. This change will facilitate earlier clinical diagnosis and intervention of Lyme disease.

#### Background

The STTT algorithm has been used for many years across Canada. The STTT algorithm consists of testing IgM/IgG antibodies using the enzyme-linked immunosorbent assay (ELISA) method and followed up with a Western Blot for any samples that were reactive or indeterminate. With a sensitivity of only 29-40%, a negative test during the early-localized stage does not rule out Lyme disease. Due to the high rates of false negatives, these cases are primarily diagnosed through clinical presentation and a history of tick exposure or identification of living in Lyme disease risk-areas.

The MTTT algorithm is a highly endorsed method of diagnosing Lyme disease specifically during early-localized disease detection. This algorithm begins with initial testing of IgM/IgG antibodies using ELISA. For any samples that are reactive or indeterminate a subsequent ELISA will be completed. This method has proven to produce 15-25% higher sensitivity in the early-localized stage than the STTT algorithm, resulting in fewer false negative tests. Additionally, the MTTT algorithm has comparable sensitivity to the STTT during early-disseminated and late-disseminated disease stages.

#### Testing Implementation

The change to the testing algorithm *does not* replace clinical decision making. The MTTT algorithm is in place to support clinical decision making through improved sensitivity and turnaround time for test results. Please continue to report all probable and confirmed cases of Lyme Disease to Peterborough Public Health as required by Ontario Regulation 569 under the Health Protection and Promotion Act. Probable and confirmed cases can be reported by calling 705-743-1000, Ext. 131 during service hours or by calling 705-760-8127 after hours to speak to an on-call staff.

#### Resources

- [Infectious Disease Protocol for Lyme disease \(Ontario Ministry of Health, 2022\)](#)
- [Ontario Lyme Disease Risk Areas Map 2021 \(Public Health Ontario\)](#)
- [Lyme Disease – Serology \(Public Health Ontario\)](#)
- [Lyme disease \(Public Health Ontario\)](#)

Please note: PHOL has recently posted updated versions of their 'Test Information Sheet' and 'Lyme Disease Investigation Tool Kit' on their [website](#). The Ministry of Health is also planning educational opportunities to support health care providers with the changes to Lyme disease testing.

This advisory can be found on our website by searching [www.peterboroughpublichealth.ca/health-professionals/](http://www.peterboroughpublichealth.ca/health-professionals/).

For technical questions, please contact PHOL at [customerservicecentre@oahpp.ca](mailto:customerservicecentre@oahpp.ca) or by calling 416-235-6556.