

**Ministry of Health**

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March 7, 2023

## MEMORANDUM

**TO: Physicians and Nurse Practitioners**

**FROM: Dr. S. Wajid Ahmed**  
**Associate Chief Medical Officer of Health, Public Health**

**RE: Testing protocol changes for *Borrelia burgdorferi* (agent of Lyme Disease) IgM/IgG antibodies – Modified Two-Tier Testing**

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Dear Colleagues,

This memo is to inform you that as of April 1<sup>st</sup> 2023 the Public Health Ontario Lab (PHOL) will be moving to a different testing algorithm for Lyme disease.

### **Move from STTT to MTTT algorithm**

Currently the STTT algorithm is used where IgM/IgG antibodies are initially tested for using the enzyme-linked immunosorbent assay (ELISA) method followed by a Western Blot (for any samples that are reactive or indeterminate on the ELISA test). During early-localized Lyme disease, sensitivity of the STTT ranges from 29-40% and therefore a negative test result during this stage does not rule out Lyme disease and as a result, early-localized Lyme disease cases are diagnosed primarily based on clinical presentation along with a history of tick exposure or living in a Lyme disease risk areas.

A new method, known as the Modified Two-Tier Testing (MTTT) approach will now be used.

In this method, initial screening will continue to be performed by IgG/IgM ELISA and samples that are reactive or indeterminate will be further tested using a 2<sup>nd</sup> ELISA. This method provides 15-25% higher sensitivity during early-localized disease, and comparable sensitivity during early-disseminated and late-disseminated disease compared to STTT. The MTTT algorithm has also shown comparable specificity to STTT

**Implication for practise:**

The changes in testing algorithm will help support a clinical Lyme Disease diagnosis, particularly in the early localized stage of the disease (by reducing the chances of a false negative result) and help to improve the turnaround time for Lyme Disease testing, which can lead to earlier intervention.

Please visit Public Health Ontario website for additional resources including Lyme disease risk areas at <https://www.publichealthontario.ca/en/diseases-and-conditions/infectious-diseases/vector-borne-zoonotic-diseases/lyme-disease>.

**Dissemination of Information**

PHOL will revise and finalize the Test information sheet, Lyme disease investigation tool kit and will post the information prior to April 1, 2023 on their website at <https://www.publichealthontario.ca/en/diseases-and-conditions/infectious-diseases/vector-borne-zoonotic-diseases/lyme-disease>. We are also working with our partners to organize educational opportunities for clinicians on these changes.

Please contact PHOL if you have further technical questions about these changes at [customerservicecentre@oahpp.ca](mailto:customerservicecentre@oahpp.ca) or at 416-235-6556.

Sincerely,



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Associate Chief Medical Officer of Health, Public Health

- c: Dr. Kieran Moore, Chief Medical Officer of Health
- Dr. Fareen Karachiwalla, Associate Chief Medical Officer of Health
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