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## Maine Health Alert Network (HAN) System

### PUBLIC HEALTH ADVISORY

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**To:** Health Care Providers  
**From:** Dr. Isaac Benowitz, State Epidemiologist  
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### 2022 Lyme and Other Tickborne Disease Information

Lyme disease is the most common vectorborne disease in Maine. **May is Lyme Disease Awareness Month in Maine** and we want to encourage Mainers to stay tick free by being “Tick Wise.” Ticks are already active, and the Maine CDC expects the number of Lyme disease and other tickborne disease cases to increase as the weather continues to get warmer.

#### Background

Lyme disease is a bacterial infection that is carried by the deer tick (*Ixodes scapularis*). Cases increased over the last decade in Maine and occur in all 16 counties. Healthcare providers reported over 1,500 cases of Lyme disease statewide in 2021. While this is lower than the record number of cases reported in 2019, tickborne diseases remain a serious threat in Maine. Lyme disease is most common among school age children and adults over the age of 65 years. Deer ticks can be active any time the temperature is above freezing. Most infections occur during the summer months, but as the weather continues to warm up, more ticks will be out seeking hosts, increasing the risk for tickborne disease transmission. Maine CDC already received several reports of Lyme disease in 2022, with more expected going into the summer months.

Deer ticks can also carry the bacteria that cause anaplasmosis and *Borrelia miyamotoi* disease, the parasites that cause babesiosis, and the virus that causes Powassan virus disease. Maine CDC reported record high numbers of anaplasmosis and babesiosis cases in 2021, surpassing the record number of cases for each disease in 2019. In 2021, providers reported 841 cases of anaplasmosis, 201 cases of babesiosis, 9 cases of *B. miyamotoi* disease, and three cases of Powassan encephalitis. Current case count data for anaplasmosis, babesiosis, and Lyme disease can be found on the Maine Tracking Network Near Real-Time dashboard. Individuals bitten by a deer ticks can acquire more than one infection simultaneously. Maine CDC continues to receive reports of tickborne diseases occurring throughout the fall and winter months, including Powassan virus disease cases already reported in 2022. Historically,

most Powassan virus disease cases occurred in the summer and fall months in Maine, so it is unusual to see cases with clinical presentations in mid and late winter.

## Symptoms

The most common early symptom of Lyme disease is an expanding red rash (*erythema migrans*) that occurs 3-30 days after being bitten. Fever, joint pain, or muscle pain may also occur. Some of these non-specific symptoms are similar to the symptoms of COVID-19. Consider tickborne diseases as differential diagnoses year-round, and especially during the summer and fall months when deer ticks are most active. Untreated infections can lead to clinical findings in skeletal, cardiac, and nervous systems. Disseminated manifestations of Lyme disease include: arthritis characterized by recurrent, brief attacks of joint swelling; lymphocytic meningitis; cranial neuritis (such as Bell's palsy); encephalitis; and second- or third-degree atrioventricular block. Lyme disease is treatable, and most patients recover after receiving appropriate therapy.

Other diseases that can be transmitted by deer ticks in Maine include anaplasmosis, babesiosis, *Borrelia miyamotoi* disease, and Powassan virus disease.

- Symptoms of anaplasmosis include: fever, headache, malaise and body aches.
- Symptoms of babesiosis include: extreme fatigue, aches, fever, chills, sweating, dark urine, and possibly anemia.
- Symptoms of *B. miyamotoi* disease include: fever, chills, headache, body and joint pain, and fatigue.
- Symptoms of Powassan virus disease include: fever, headache, vomiting, weakness, confusion, loss of coordination, speech difficulties, seizures, and encephalitis and meningitis.

## What to do after a tick bite

- Remove the tick properly, ideally using tweezers or a tick spoon.
- Clean the area around the bite.
- Instruct the patient to watch for signs and symptoms for 30 days.
- Identify the tick and the engorgement level (the amount of time the tick was attached) ([web.uri.edu/tickencounter/fieldguide/tick-growth-comparison-charts/](http://web.uri.edu/tickencounter/fieldguide/tick-growth-comparison-charts/)).
- Testing of the tick is not routinely recommended for clinical purposes because even if the tick tests positive for Lyme, that does not mean it was attached long enough to transmit the disease. Even if the tick tests negative that does not mean it was a patient's only exposure.

## Prophylaxis

- Prophylaxis after a tick bite for Lyme disease is **not** routinely recommended, but can be considered under specific circumstances including:
  - Tick is identified as an engorged deer tick that was attached for at least 24 hours.
  - Exposure occurred in an area where there is a high rate of infected ticks. Areas south of Bangor have the highest rate of infected ticks in the state. There are limited data from the more northern counties on the rate of infection among ticks.
  - Prophylaxis can be started within 72 hours of tick removal.
  - Maine CDC recommends monitoring for symptoms for 30 days, even if prophylaxis is used.
- There are no data showing if prophylaxis is effective in preventing anaplasmosis, and a single dose of doxycycline will not have an effect on babesiosis. Therefore, even if prophylaxis is used, Maine CDC recommends monitoring for symptoms of these diseases for 30 days.

## Tick identification and tick testing

- Tick identification and testing is available through the Tick Lab at the University of Maine Cooperative Extension. Find more information at [www.ticks.umaine.edu](http://www.ticks.umaine.edu).
- Tick identification is available for free.
- Tick testing is available for \$15 with a three-day turnaround time. This service is only available to Maine residents.
  - Deer ticks are tested for Lyme disease, anaplasmosis, babesiosis, and *Borrelia miyamotoi* disease.
  - American dog ticks, lone star ticks, and other related tick species are tested for Rocky Mountain spotted fever, ehrlichiosis, and tularemia.
- While testing ticks for clinical purposes is not recommended, data from tick testing is very helpful for surveillance and determining tick infection rates in the state.
- Clinical decisions should not be made based off the results of this service.

## If providers suspect Lyme disease

- The preferred laboratory testing is a two-tier method, with an EIA or IFA test followed by either a Western Blot for both IgG and IgM or EIA (<http://dx.doi.org/10.15585/mmwr.mm6832a4>).
- IgM is only considered reliable in the first month after exposure.
- Updated IDSA guidelines for assessment, treatment, and prevention of Lyme disease are available at [www.idsociety.org/practice-guideline/lyme-disease/](http://www.idsociety.org/practice-guideline/lyme-disease/).
- Consider testing for other tickborne diseases as well if warranted.

## Testing for other tickborne diseases

Since deer ticks can be active at temperatures above freezing during the winter months, **consider tickborne disease testing year-round.**

Preferred testing for anaplasmosis, babesiosis, *B. miyamotoi*, and Powassan is by PCR. Many reference and commercial laboratories offer testing for anaplasmosis, babesiosis, ehrlichiosis, spotted fever rickettsiosis, and *B. miyamotoi*. Testing for Powassan and Deer Tick Virus can be performed at Maine's Health and Environmental Testing Laboratory (HETL). If providers suspect Powassan infection based on clinical evidence, they should submit serum samples and CSF for arboviral testing. A HETL requisition and Arboviral submission form are required for arboviral testing.

## What to report

Lyme disease is a reportable condition in the state of Maine. Anaplasmosis, babesiosis, *Borrelia miyamotoi* disease, ehrlichiosis, Powassan encephalitis, spotted fever rickettsiosis (including Rocky Mountain spotted fever), and tularemia are all reportable in Maine; however, ehrlichiosis and spotted fever rickettsiosis are uncommon in the state. *Borrelia miyamotoi* disease became a notifiable condition in Maine effective February 17, 2021. Maine CDC reminds healthcare providers that they must report cases of the above diseases, including the following information: notifiable disease or condition, date of symptom onset, patient name and date of birth, demographic information, residence address and phone number, and name, address, and phone number of the healthcare facility ([State of Maine Control of Notifiable Diseases and Conditions Rule](#)).

Effective January 2, 2022, the Council of State and Territorial Epidemiologists (CSTE) modified the Lyme disease surveillance case definition. Under the new surveillance definition, **Maine CDC will no longer collect reports of erythema migrans rashes or clinical information on positive lab results from healthcare providers.** Under the previous surveillance definition, providers reported all diagnosed *erythema migrans* rashes and all positive lab diagnoses. Maine CDC also followed up with healthcare providers to collect corresponding clinical information for positive laboratory reports to

classify cases as confirmed, probable, suspect, or not a case. Maine CDC will now report Lyme disease cases that meet laboratory evidence alone, without needing healthcare providers to report clinical information. As a result, Maine CDC will no longer report confirmed cases of Lyme disease, only probable. This is a change in surveillance case definition only and **DOES NOT** reflect a change in Lyme disease diagnosis or treatment recommendations.

### **Additional information**

- Lyme disease: [www.maine.gov/lyme](http://www.maine.gov/lyme).
- Other tickborne diseases: [www.maine.gov/dhhs/vectorborne](http://www.maine.gov/dhhs/vectorborne).
- Frequently asked questions: [www.maine.gov/dhhs/tickfaq](http://www.maine.gov/dhhs/tickfaq).
- To order tickborne disease educational materials: [www.maine.gov/dhhs/order](http://www.maine.gov/dhhs/order).
- HETL requisition: [www.mainepublichealth.gov/lab](http://www.mainepublichealth.gov/lab).
- Find the Physician’s Reference Guide describing the most common tickborne diseases in Maine: [www.maine.gov/dhhs/vectorborne](http://www.maine.gov/dhhs/vectorborne) under Resources. Order copies at <https://wwwn.cdc.gov/pubs/CDCInfoOnDemand.aspx>.
- Maine Tracking Network tickborne disease data: [data.mainepublichealth.gov/tracking/home](http://data.mainepublichealth.gov/tracking/home).
  - Visit the “Data Portal” for data tables, maps, charts, and near real-time reports of Lyme disease, anaplasmosis, babesiosis, and tick exposures in Maine emergency departments.
- UMaine Cooperative Extension Tick Lab data: [www.ticks.umaine.edu](http://www.ticks.umaine.edu).
  - Includes data tables, maps, reports, and real-time updates.
- Maine CDC Disease Reporting and Consultation Line: **1-800-821-5821**.