

MAINE STATE LEGISLATURE

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Janet T. Mills
Governor

Jeanne M. Lambrew, Ph.D.
Commissioner



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June 21, 2021

Senator Ned Claxton, Chair
Representative Michele Meyer, Chair
Members, Joint Standing Committee on Health and Human Services
#100 State House Station
Augusta, ME 04333-0100

RE: Lyme and other Tickborne Illnesses Report

Dear Senator Claxton, Representative Meyer, and Members of the Joint Standing Committee on Health and Human Services:

As required by Title 22 of the M.R.S.A., Chapter 266-B, I respectfully submit the attached report, "Report to Maine Legislature: Lyme and other Tickborne Illnesses." This report provides information on Maine Center for Disease Control and Prevention's Lyme and other tickborne illnesses surveillance information, activities, and accomplishments from 2020.

I hope that you find this comprehensive report helpful in better understanding the issues surrounding tickborne illnesses in Maine.

Sincerely,

A handwritten signature in blue ink that reads "Jeanne M. Lambrew".

Jeanne M. Lambrew, Ph.D.
Commissioner

JML/klv

Attachment



Report to Maine Legislature

Lyme and Other Tickborne Illnesses

Spring 2021

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Submitted by

Maine Department of Health and Human Services
Maine Center for Disease Control and Prevention (Maine CDC)
Division of Disease Surveillance
Infectious Disease Epidemiology Program

Report to Maine Legislature – Lyme Disease

During the first special session of the 123rd Legislature in 2008, hearings and discussion over proposed legislation regarding the reporting of Lyme disease led to Chapter 561 of the Session Laws. This law, An Act to Implement the Recommendations of the Joint Standing Committee on Insurance and Financial Services Regarding Reporting on Lyme Disease and Other Tickborne Illnesses, directed Maine Center for Disease Control and Prevention to submit an annual report to the joint standing committee of the Legislature having jurisdiction over health and human services matters and the joint standing committee of the Legislature having jurisdiction over health insurance matters. This report was to include recommendations for legislation to address public health programs for the prevention and treatment of Lyme disease and other tickborne illnesses in the state, as well as to address a review and evaluation of Lyme disease and other tickborne illnesses in Maine.

A bill in the second session of the 124th Legislature in 2010 amended these laws to include information on diagnosis of Lyme disease.

Title 22, Chapter 266-B, Subsection 1645 in Maine statutes, directs Maine CDC to report on:

- I. [The incidence of Lyme disease and other tickborne illness in Maine](#)
- II. [The diagnosis and treatment guidelines for Lyme disease recommended by Maine Center for Disease Control and Prevention and the United States Department of Health and Human Services, Centers for Disease Control and Prevention](#)
- III. [A summary or bibliography of peer-reviewed medical literature and studies related to the diagnosis, medical management, and treatment of Lyme disease and other tickborne illnesses, including, but not limited to, the recognition of chronic Lyme disease and the use of long-term antibiotic treatment](#)
- IV. [The education, training, and guidance provided by Maine Center for Disease Control and Prevention to health care professionals on the current methods of diagnosing and treating Lyme disease and other tickborne illnesses](#)
- V. [The education and public awareness activities conducted by Maine Center for Disease Control and Prevention for the prevention of Lyme disease and other tickborne illnesses; and](#)
- VI. [A summary of the laws of other states enacted during the last year related to the diagnosis, treatment, and insurance coverage for Lyme disease and other tickborne illnesses based on resources made available by the federal Centers for Disease Control and Prevention or other organizations.](#)

This is the thirteenth annual report to the Legislature and includes an update on activities conducted during 2020.

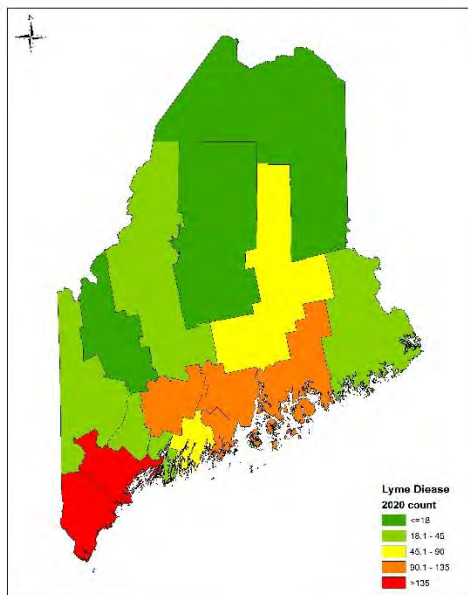
Executive Summary

Lyme disease is a notifiable condition in the State of Maine. The goal of Lyme disease surveillance is to help define demographic, geographic, and seasonal distribution; monitor disease trends; identify risk factors for transmission; and promote prevention and education efforts among the public and medical communities. An epidemiologist classifies reported cases as confirmed, probable, suspect, and not a case based on clinical symptoms and laboratory testing interpreted using criteria established by the Council of State and Territorial Epidemiologists. The surveillance case definition is not intended to be used in clinical diagnosis. Lyme disease surveillance is passive, dependent upon reporting, and therefore likely to be an under-representation of the true burden of Lyme disease in Maine. Federal CDC released an updated statement in 2021 that the true burden of Lyme disease may be more than ten times the number of reported cases.

Maine Lyme Disease Summary, 2020 (Preliminary data as of March 17, 2021)

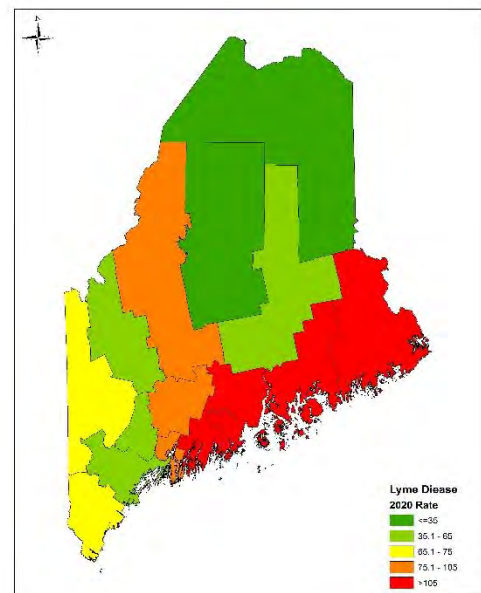
- 1,118 confirmed and probable cases
- Most common symptoms of reported cases¹ of Lyme disease in Maine included:
 - Arthritis (joint swelling): 436 cases (39%)
 - Erythema Migrans (characteristic expanding rash): 400 cases (36%)
 - Neurological (Bell's Palsy or other cranial neuritis): 143 cases (12.8%)¹Cases could report more than one symptom
- Hospitalization occurred in 37 cases (3%).
- Among case patients with a reported date of symptom onset, 48% began experiencing symptoms during June, July, or August. Date of symptom onset is missing for 17% of cases.

Confirmed and Probable Cases of Lyme Disease – Maine 2020*



* 2020 data are preliminary as of 03/17/2021

Lyme Disease Cases per 100,000 persons (Rate) – Maine 2020*



* 2020 data are preliminary as of 03/17/2021

I. The incidence of Lyme disease and other tickborne illness in Maine

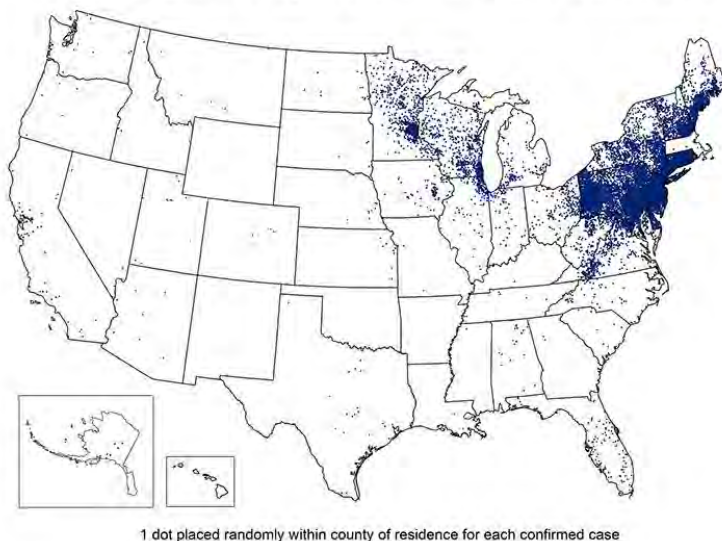
A. Lyme disease

Lyme disease is caused by the spiral-shaped bacteria *Borrelia burgdorferi*, which is transmitted to a person through the bite of an infected deer or blacklegged tick (*Ixodes scapularis*). Symptoms of Lyme disease include the formation of a characteristic expanding rash (*erythema migrans*) that usually appears 3 to 30 days after exposure and may appear on any area of the body. Fever, headache, joint and muscle pains, and fatigue are also common during the first several weeks. Later features of Lyme disease can include arthritis in one or more joints (often the knee), facial palsy, meningitis, and carditis (AV block). Lyme disease is rarely fatal. The great majority of Lyme disease cases can be treated very effectively with oral antibiotics for ten days to a few weeks. Some cases of Lyme disease which affect the nervous system, joints, or heart may need intravenous antibiotics for up to 28 days.

In the United States, the highest rates of Lyme disease occur across the eastern seaboard (Maryland to Maine) and in the upper Midwest (northern Wisconsin and southern Minnesota), with the onset of most cases occurring during the summer months. Where they are endemic, deer ticks are most abundant in wooded, leafy, and brushy areas (“tick habitat”), especially where deer populations are large.

Many endemic states no longer count cases of Lyme disease as the burden is too great on the health department. This affects the national and regional rates as the number of cases appears to drop, though this is really the result of these health departments using a system to estimate the number of cases rather than counting each individual case. As of 2021, Maine is still counting individual cases, but as the burden continues to increase and funding remains limited, Maine will likely transition to a different system in the future.

Reported Cases of Lyme Disease -- United States, 2018



Source: federal CDC (www.cdc.gov/lyme/datasurveillance/index.html)

The first documented case of Maine-acquired Lyme disease was diagnosed in 1986. In the 1990s, the great majority of Lyme disease cases occurred among residents of south coastal Maine,

principally in York County. Currently the Midcoast area has the highest incidence of Lyme disease in the state. Based on 2020 data, six counties have rates of Lyme disease higher than the State rate (Hancock, Kennebec, Knox, Lincoln, Waldo, and Washington).

In 2020, (preliminary data as of March 17, 2021) providers reported 1,118 confirmed and probable cases of Lyme disease among Maine residents, which is a rate of 83.2 cases of Lyme disease per 100,000 persons in Maine. This is a 48% decrease from the 2,174 cases in 2019. This decrease may be due, in part, to decreased healthcare-seeking activity by individuals during the COVID-19 pandemic, or by individuals spending increased time inside during the pandemic rather than outside in tick habitat. This decrease may also be partly due to the hot, dry weather in Maine during mid-summer, which kept many nymphs from seeking hosts and contacting humans. Twenty-eight percent (28%) of reported cases were from the southern counties (Cumberland and York), and twenty-seven percent (27%) of reported cases were from the Midcoast counties (Knox, Lincoln, Sagadahoc, and Waldo).

Forty-three percent (44%) of cases were female and fifty-six percent (56%) of cases were male. The median age of cases in 2020 was 54 years of age (average age of 48 years). The age at diagnosis ranged from 1 to 97 years. Forty-eight percent (48%) of the cases with a known onset date had onset during June, July, or August (date of onset is missing for 17% of cases). Providers reported 37 persons (3% of all cases) were hospitalized with Lyme disease. For further Lyme disease statistics in Maine please see [Appendix 1](#).

B. Other Tickborne Diseases in Maine

Due to the COVID-19 pandemic and redeployment of Maine CDC epidemiologists to the state's COVID-19 response, Maine CDC had to reassess routine disease investigation. From November 9, 2020, to February 16, 2021, the following diseases, for which there is no public health intervention, had modified investigations: anaplasmosis, ehrlichiosis, spotted fever rickettsiosis, and *Borrelia miyamotoi* disease. These investigations were classified as suspect cases pending further investigation following the COVID-19 response.

Anaplasmosis:

Anaplasmosis is a disease caused by the bacteria *Anaplasma phagocytophilum*, which infects white blood cells (neutrophils). Anaplasmosis was previously known as human granulocytic ehrlichiosis (HGE) or human granulocytic anaplasmosis (HGA) but was renamed in 2008 to differentiate between two different organisms that cause similar diseases (anaplasmosis and ehrlichiosis). Signs and symptoms of anaplasmosis include fever, headache, malaise, and body aches. Nervous system involvement may occur but is rare. Later features of anaplasmosis can include respiratory failure, bleeding problems, organ failure, and death. Anaplasmosis is transmitted to a person through the bite of an infected deer tick. Due to the COVID-19 pandemic response, from November 2020 to February 16, 2021, Maine CDC modified anaplasmosis investigations. Maine CDC classified these 96 investigations as suspect cases pending further investigation, anticipated to occur later in 2021. As of March 17, 2021, preliminary data showed 385 confirmed and probable cases of anaplasmosis reported in 2020, a 44% decrease from the 685 cases in 2019. This decrease may be due, in part, to decreased healthcare-seeking activity by individuals during the COVID-19 pandemic, or by individuals spending increased time inside during the pandemic rather than outside in tick habitat. This decrease may also be partly due to the hot, dry weather in Maine during mid-summer, which kept many nymphs from seeking hosts and contacting humans. Cases occurred in every county in Maine except

Aroostook, Piscataquis, and Washington. For further anaplasmosis disease statistics in Maine, please see [Appendix 2](#).

Babesiosis:

Babesiosis is a potentially severe tickborne disease transmitted through the bite of an infected deer tick. Signs of babesiosis range from no symptoms (asymptomatic) to serious disease. Common symptoms include extreme fatigue, aches, fever, chills, sweating, body aches, dark urine, and anemia. People who are infected generally make a full recovery if they have a healthy spleen and do not have other diseases that prevent them from fighting infections. As of March 17, 2021, preliminary data showed 67 confirmed and probable cases of babesiosis reported in 2020, a 51% decrease from the 138 cases in 2019. This decrease may be due, in part, to decreased healthcare-seeking activity by individuals during the COVID-19 pandemic, or by individuals spending increased time inside during the pandemic rather than outside in tick habitat. This decrease may also be partly due to the hot, dry weather in Maine during mid-summer, which kept many nymphs from seeking hosts and contacting humans. Cases occurred in Androscoggin, Cumberland, Hancock, Kennebec, Knox, Lincoln, Oxford, Penobscot, Sagadahoc, Waldo, and York counties. For further babesiosis disease statistics in Maine, please see [Appendix 2](#).

***Borrelia miyamotoi* Disease:**

Borrelia miyamotoi is a species of spiral-shaped bacteria that is closely related to the bacteria that causes tickborne relapsing fever (TBRF). It is more distantly related to the bacteria that causes Lyme disease. First identified in 1995 in ticks from Japan, *B. miyamotoi* has now been detected in two species of North American ticks, the deer tick and the western blacklegged tick (*Ixodes pacificus*). Common symptoms include fever, chills, headache, joint pain, and fatigue. Although *Borrelia miyamotoi* disease is not nationally notifiable, federal CDC, in association with endemic states, developed a standardized case classification to standardize reporting and understand the prevalence in the United States. Effective February 17, 2021, *Borrelia miyamotoi* disease is a notifiable condition in Maine. The updated Notifiable Diseases and Conditions List is found at <http://www.maine.gov/dhhs/mecdc/infectious-disease/epi/disease-reporting/documents/notifiable-conditions-2-17-2021.pdf>. As of March 17, 2021, preliminary data showed ten probable or confirmed cases of *Borrelia miyamotoi* infections reported in 2020 in Maine. Cases occurred in Androscoggin, Cumberland, Kennebec, Knox, Lincoln, Oxford, Sagadahoc, and York counties. For further *Borrelia miyamotoi* disease statistics in Maine, please see [Appendix 2](#).

Ehrlichiosis:

Ehrlichiosis is a disease caused by the bacteria *Ehrlichia chaffeensis* and *Ehrlichia ewingii* which infect white blood cells (monocytes and granulocytes). In the United States, most cases are caused by *E. chaffeensis*. Ehrlichiosis was previously known as human monocytic ehrlichiosis (HME). Signs and symptoms of ehrlichiosis include fever, headache, nausea, and body aches. A rash may develop, especially in children. Severe illness, especially when treatment is delayed, may include encephalitis/meningitis, kidney failure, and liver failure. *Ehrlichia chaffeensis* and *E. ewingii* are transmitted to a person through the bite of an infected lone star tick (*Amblyomma americanum*). Ehrlichiosis is uncommon in Maine as the tick is not commonly found here. However, as lone star tick populations continue to creep northward, this disease may become more common in Maine in the future. At present, most cases detected in Maine are due to exposure to infected ticks during travel to an endemic state. Preliminary data as of March 17, 2021, showed two probable cases of ehrlichiosis reported in 2020 from Kennebec and Penobscot counties. Maine had two probable cases of

Ehrlichia/Anaplasma Undetermined in 2020, which occurs when serologic testing results in titers that are the same for both Ehrlichia and Anaplasma, making it impossible to determine which organism was present. For further ehrlichiosis disease statistics in Maine, please see [Appendix 2](#).

Powassan Virus Disease:

Powassan virus disease is caused by either the Powassan virus or deer tick virus which are transmitted to humans through the bite of an infected woodchuck tick (*Ixodes cookei*) or deer tick, respectively. Signs and symptoms of Powassan virus disease include fever, headache, vomiting, weakness, confusion, seizures, and memory loss. Long-term neurologic problems may occur. Maine had one confirmed case of Powassan encephalitis in Maine in 2020. This case occurred in York County.

Spotted Fever Rickettsiosis:

Spotted Fever Rickettsioses (SFR) are a group of bacterial illnesses, the most common of which is Rocky Mountain Spotted Fever (RMSF), caused by the bacterium *Rickettsia rickettsii*. Signs and symptoms of RMSF include fever, chills, headache, gastrointestinal symptoms, and a non-itchy spotted rash (called maculopapular) often on the palms and the soles of the feet. Rocky Mountain Spotted Fever is transmitted to a person through the bite of an infected American dog tick (*Dermacentor variabilis*) in most of the US. Rocky Mountain Spotted Fever is not known to be endemic in Maine but could emerge, as American dog ticks are commonly found across the state. As of March 17, 2021, preliminary data showed no cases of SFR reported in 2020. For further SFR disease statistics in Maine, please see [Appendix 2](#).

Other Emerging Tickborne Diseases:

Federal CDC and other researchers are continually on the watch for new or emerging tickborne disease. Pathogens identified in the last few years include Bourbon virus, Colorado Tick Fever, and Heartland virus. Researchers in the Upper Midwest recently discovered *Borrelia mayonii*, which also causes Lyme disease in North America and is transmitted by the deer tick. It is only found in the Upper Midwest at this time. Similarly, researchers in the Upper Midwest identified *Ehrlichia muris eauclairensis*, transmitted by the deer tick. This pathogen, too, has only been identified in the Upper Midwest. While Maine has no documented cases of any of these diseases, there is serological evidence (from either humans or wild animals) of Heartland virus in Maine. Several of these pathogens are transmitted by ticks that already live in Maine or may move into Maine in the future, so Maine CDC monitors these pathogens.

II. The diagnosis and treatment guidelines for Lyme disease recommended by Maine Center for Disease Control and Prevention and the United States Department of Health and Human Services, Centers for Disease Control and Prevention

Maine Center for Disease Control and Prevention continues to adhere to the strongest science-based source of information for the diagnosis and treatment of any infectious disease of public health significance. Nationally, the Infectious Disease Society of America (IDSA) is the leader in setting the standard for clinical practice guidelines on Lyme disease and other tickborne illnesses. In 2020, IDSA issued new guidelines for Lyme disease and babesiosis: www.idsociety.org/practice-guideline/lyme-disease/ and www.idsociety.org/practice-guideline/babesiosis/.

Lyme disease is diagnosed clinically with the aid of laboratory testing. An *erythema migrans* (bull's-eye rash) on a person from an endemic area is distinctive enough to allow a clinical diagnosis in the absence of laboratory confirmation. Patients should be treated based on clinical findings. A two-tier testing algorithm is recommended for laboratory testing. The first tier is most often an enzyme immunoassay (EIA) or enzyme-linked immunosorbent assay (ELISA) test. If this first tier is positive or equivocal, it should be followed by either a second EIA or an IgM and/or IgG Immunoblot. The IgM Immunoblot is only considered reliable if the person is tested within the first 30 days after symptom onset. Acute and convalescent testing, or testing run on samples collected during illness and after recovery, is useful to determine final diagnosis. Consider other potential diagnoses for untreated patients who remain seronegative despite having symptoms for 6-8 weeks, as they are unlikely to have Lyme disease. A diagnosis of Lyme disease made by a clinician may or may not meet the federal surveillance case definition, and therefore may not always be counted as a case. Maine CDC refers physicians with questions about diagnosis to the IDSA guidelines: www.idsociety.org/practice-guideline/lyme-disease/.

In 2015, IDSA convened a panel to assess and update guidelines for the treatment and prevention of Lyme disease and other tickborne diseases. The results from this panel were published in the 2020 Lyme disease guidelines found at www.idsociety.org/practice-guideline/lyme-disease/. This panel affirmed “the term ‘chronic Lyme disease’ as currently used lacks an accepted definition for either clinical use or scientific study.... [Studies] of persistent symptomatology after treatment of verified Lyme disease have found that prolonged antimicrobial therapy is not helpful and may cause harm. From this, one can infer that prolonged antibiotic treatment is unlikely to benefit individuals who lack a verifiable history of Lyme disease while exposing them to significant risk.”

III. A Summary or bibliography of peer reviewed medical literature and studies related to the diagnosis, medical management and the treatment of Lyme disease and other tickborne illnesses, including, but not limited to, the recognition of chronic Lyme disease and the use of long-term antibiotic treatment

A bibliography of peer reviewed journal articles published in 2020, as related to Lyme and other tickborne illnesses is included in [Appendix 3](#). Maine CDC reviews these journal articles to maintain an understanding of the current research and literature available on Lyme and other tickborne diseases.

IV. The education, training, and guidance provided by Maine Center for Disease Control and Prevention to health care professionals on the current methods of diagnosing and treating Lyme disease and other tickborne illnesses

Maine CDC continues to emphasize prevention and control of Lyme disease and other tickborne diseases. Surveillance for tickborne diseases, including Lyme disease, is performed by the Division of Disease Surveillance, Infectious Disease Epidemiology Program, as anaplasmosis, babesiosis, *Borrelia miyamotoi* disease, ehrlichiosis, Lyme disease, Powassan virus disease, and spotted fever rickettsiosis are notifiable diseases by both medical practitioners and clinical laboratories. Reporting clinicians must submit subsequent clinical and laboratory information following the initial report. Maine CDC also monitors tickborne diseases through syndromic surveillance. By querying participating hospital emergency department (ED) patient visit data, patients that complain of a tick bite are identified. An increase in ED visits for tick bites is usually a precursor for the typical seasonal increase

in incidences of Lyme and other tickborne diseases. A comparison of 2018, 2019, and 2020 syndromic data is included as [Appendix 4](#). Maine CDC performed a spatial analysis of 2020 Lyme disease surveillance data at the county level, showing the continual disease progression ([Appendix 5](#)).

Outreach and education to clinicians and other healthcare providers to increase provider response to required supplemental clinical and laboratory information is ongoing. Maine CDC epidemiologists provide consultation to the medical community on tickborne diseases, offering educational and preventive information as needed. While Maine CDC epidemiologists present educational outreach activities and seminars on tickborne disease prevention targeting the medical community at statewide meetings of school nurses and others during most years, these efforts were hampered by the COVID-19 response in 2020. Ongoing educational initiatives are featured on the Maine CDC website: www.maine.gov/lyme.

During 2020, Maine CDC Infectious Disease Epidemiology Program mailed a **clinical management guide**, “Tickborne Diseases of the United States: A Reference Manual for Healthcare Providers,” to hospitals, urgent care providers, and geriatric healthcare providers. This guide includes information on ticks found in the US and signs/symptoms, laboratory services, diagnosis, and treatment of twelve tickborne diseases, including Lyme disease.

- Maine CDC distributed 236 copies of this guide in 2020

Maine CDC continues to contribute to **national surveillance and prevention activities**. During 2020, Maine CDC epidemiologists represented the State at both local and national meetings including:

- Northeast Regional Center for Excellence in Vector-Borne Diseases (NEVBD) Annual Meeting in New Haven, CT in January 2020
- US CDC Vector Week in Fort Collins, CO in February 2020

Maine Epidemiologists are active contributors to a Lyme surveillance definition group and participate in federal working groups on:

- Alpha-gal allergy
- Anaplasmosis
- *Borrelia miyamotoi*
- *Haemaphysalis longicornis*
- USDA Tick and Forest Project Advisory Board
- Vectorborne diseases

V. The education and public awareness activities conducted by Maine Center for Disease Control and Prevention for the prevention of Lyme disease and other tickborne illnesses

Maine CDC promotes ongoing **educational outreach activities** targeting the public and Maine municipalities. During 2020, Maine CDC epidemiologists provided consultation to the public on tickborne diseases, offering educational and preventive information as needed. Due to the COVID-19 response, many educational and public awareness activities were postponed due to the cancellation of in-person events and redeployment of Maine CDC staff to the COVID-19 response. Maine CDC

epidemiologists presented educational outreach activities and seminars on tickborne disease prevention to the general public including:

- 6 presentations or displays held for: students in 3rd-8th grade, school nurses, college and university students, and community members.
- Multiple media interviews given by Maine CDC employees (Infectious Disease Epidemiology Program Director and Communications Director).

Maine CDC's Infectious Disease Epidemiology Program Director chairs the State **Vectorborne Disease Work Group**; a group comprising both state agencies and private entities, which meets on a bimonthly basis to proactively address surveillance, prevention and control strategies. Members of this group include: Maine Department of Health and Human Services; Maine Department of Agriculture, Conservation, and Forestry; Maine Department of Inland Fisheries and Wildlife; Maine Department of Education; Maine Department of Environmental Protection; Maine Forest Service; University of Maine Cooperative Extension Services; and the United States Department of Agriculture. A full list of members can be found in [Appendix 6. Educational efforts](#) by the Vectorborne Work Group in 2020 included:

- Presentations given on ticks and tickborne diseases
- Presence in radio interviews
- Distribution of educational materials including Lyme brochures, tick spoons, fact sheets, etc.

In 2020, Maine CDC continued an educational program started in 2014 aimed at **teaching students in 3rd to 8th grade about tick biology and ecology, tickborne diseases, and tick prevention**. The program consists of a twenty-minute PowerPoint presentation on tick biology and ecology, and tickborne disease information; four ten-minute interactive activities; and a take-home packet with games, activities, and information for parents. In 2019, Maine CDC changed the format of this program from presenting in-person to a train-the-trainer style where school nurses or other school representatives attend a half day training and then present the materials in their respective schools. This change in format expands access to the curriculum to include schools that Maine CDC would otherwise not be able to go to in-person and increases the number of schools that the curriculum is implemented in each year. Schools or districts receive compensation for attending the half-day training as well as additional compensation after showing proof of curriculum implementation in their respective school(s). This endeavor is being undertaken in close partnership with Maine's Department of Education. In 2020, due to the statewide COVID-19 response, Maine CDC held trainings via Zoom in both a half day and two-day, two-hour format. Maine CDC also reviewed and adjusted the program materials to include activities for distance learning, including the addition of Kahoot! trivia activities. Maine CDC trained ten educators in 2020.

Prior to 2018, this program included pre and post curriculum evaluations distributed to all participating students, administered shortly before and two weeks after presentation of the material. Since Maine CDC demonstrated knowledge retention after two weeks with this method, in 2018 and 2019 Maine CDC administered the test to students across 3rd, 4th, and 5th grade at a single school where Maine CDC conducted the educational program in-person. Though Maine CDC presented the curriculum only to the 4th grade classes, students in the grades above and below the participating students also took the test. The goal of implementing this annual competency is to better gauge long-term knowledge retention among students who participated in the tickborne disease curriculum. In previous years, 5th graders generally scored higher than 3rd graders, but lower than 4th graders. Due to the COVID-19 response and closure of Maine schools in mid-March for the remainder of the 2019-

2020 school year, Maine CDC was unable to enter the participating school for program presentation or evaluations in 2020.

Educational materials for the 3rd-8th graders are available online, including our educator's guide, group activities, and activity book for both ticks and mosquitoes. Maine CDC updated the existing in-classroom activities to include formats that are useful for distance learning, as many Maine schools adopted distance-learning approaches during the COVID-19 response. Maine CDC continues to review and update the educational materials. Educational materials are available at the following link: www.maine.gov/dhhs/schoolcurricula.

- The school curriculum webpage (www.maine.gov/dhhs/schoolcurricula) recorded 2,152 unique pageviews in 2020.

In July 2020, Maine CDC ran a **Social Media Campaign** aimed at adults age 45 and older. The campaign consisted of short, targeted advertisements on YouTube and Facebook with relevant tickborne disease prevention information. This included five Facebook boosted posts (one static advertisement and four video advertisements) and four YouTube paid instream ads. Advertisements and subsequent views during the campaign include:

- Facebook Boosted Posts
 - Do You Know Who's Most at Risk for Lyme Disease – viewed 60,103 times
 - Know How to Prevent Tick Bites – viewed 47,505 times
 - Know How to do Tick Checks - viewed 47,510 times
 - Know How to Remove Ticks - viewed 46,275 times
- YouTube Paid Instream Ads
 - Do You Know Who's Most at Risk for Lyme Disease – viewed 53,100 times
 - Know How to Prevent Tick Bites – viewed 52,860 times
 - Know How to do Tick Checks – viewed 26,200 times
 - Know How to Remove Ticks - viewed 28,600 times

Maine CDC maintains a series of **short instructional videos** to educate the Maine community in tick prevention and tickborne diseases. All of the instructional videos are available at www.youtube.com/MainePublicHealth. These videos include:

- Choosing and Applying Personal Repellents – viewed 19 times in 2020
- Do You Know Who's Most at Risk for Lyme Disease – viewed 48,641 times in 2020
- How to Choose a Residential Pesticide Applicator – viewed 19 times in 2020
- How to Perform a Tick Check – viewed 479 times in 2020
- Know How to do Tick Checks – viewed 27,299 times in 2020
- Know How to Prevent Tick Bites – viewed 53,806 times in 2020
- Know How to Remove Ticks – viewed 29,236 times in 2020
- Reducing Tick Habitat Around Your Home- viewed 322 times in 2020
- Tick Identification – viewed 4,412 times in 2020
- Tickborne Diseases in Maine: Anaplasmosis – viewed 540 times in 2020
- Tickborne Diseases in Maine: Babesiosis – viewed 243 times in 2020
- Tickborne Diseases in Maine: Lyme Disease-viewed 55 times in 2020
- Tickborne Diseases: Powassan Encephalitis– viewed 238 times in 2020

Maine CDC's Lyme disease website is continually updated to provide information to the public and to health professionals about Lyme disease in Maine. In 2020:

- The Lyme disease homepage (www.maine.gov/lyme) received 4,453 unique pageviews.
- The tick frequently asked questions homepage (www.maine.gov/dhhs/tickfaq) received 3,023 unique pageviews.

Ongoing educational initiatives featured on Maine CDC's website include:

- Lyme disease, anaplasmosis, babesiosis, *Borrelia miyamotoi* disease, ehrlichiosis, and Powassan virus disease fact sheets
- Tickborne frequently asked questions with peer-reviewed citations
- Tick identification
- Prevention of tickborne diseases
- Lyme disease, anaplasmosis, ehrlichiosis, babesiosis, and Powassan virus disease Surveillance Reports from 2008-2020
- Vectorborne Disease School curricula
- Maine Tracking Network: Tickborne Diseases

During 2020, Maine CDC distributed **Lyme disease educational materials** to partners and members of the public. Approximate numbers of materials distributed include:

- 4,636 Wallet-sized laminated tick identification cards
- 5,654 Tick remover spoons
- 404 Lyme disease brochures
- 800 Tick ID posters
- 726 What to do After a Tick Bite brochures
- 316 Lyme Disease Awareness Month 2019 posters
- 301 Lyme Disease Awareness Month 2020 posters
- 236 Tickborne Diseases in the United States: A Reference Manual for Healthcare Providers
- 783 Prevent Tickborne Diseases bookmark
- 188 Prevent Tickborne Diseases in People and Pets bookmark
- 56 Prevent Tick Bites trail sign

Members of the Vectorborne Disease Working Group assist Maine CDC in distributing educational materials as widely as possible throughout the State.

Maine CDC releases **Health Alerts** (www.maine.gov/dhhs/mecdc/all-health-advisories.shtml), **press releases**, and other information on disease concerns of public health significance, including tickborne diseases. Maine CDC also responds to numerous press inquiries and releases press statements as appropriate. Official releases in 2020 included:

- Lyme cases reported to Maine CDC in 2019 reach record high (Press Release) – January 16th
- 2020 Lyme and other tickborne disease information (Health Alert) – May 13th
- Maine CDC urges precautions against tickborne diseases (Press Release) – May 13th
- Maine CDC announces winners of 2020 Lyme Disease Awareness Month poster contest (Press Release) – June 18th
- Human arbovirus update for healthcare providers in Maine (Health Alert) – July 20th

Pursuant to legislation enacted in the second regular session of the 126th Legislature, May 2020 was declared to be **Lyme Disease Awareness Month** (PL 494). Educational activities took place the entire month including:

- Governor’s Proclamation of Lyme Disease Awareness Month ([Appendix 7](#))
- Information distributed through social media (Facebook, Instagram, and Twitter)
- Information distributed through multiple newsletters throughout the state

Due to the COVID-19 pandemic in Maine, the in-person events that Maine CDC usually attends for Lyme Disease Awareness Month educational activities did not occur.

Another major Lyme Disease Awareness Month activity was the **statewide poster contest** for students in grades K-8. Maine CDC asked students to create a poster with the theme “**Tick Tock**” demonstrating at least one of the four Lyme disease prevention methods (wear protective clothing, use repellent, use caution in tick infested areas, and perform daily tick checks). The three winning posters and one honorable mention poster are available for viewing at the Lyme disease website: www.maine.gov/lyme. Maine CDC used one of the winning posters for our 2020 statewide educational campaign ([Appendix 8](#)). Maine CDC distributed this poster to schools, state parks, the board of tourism, and historical sites. An online poster gallery of all artwork submitted over the past eleven years is available for viewing on Maine CDC’s Lyme Disease Awareness Month website: www.maine.gov/dhhs/mecdc/infectious-disease/epi/vector-borne/lyme/month/index.shtml.

In 2012, Maine CDC launched Lyme disease data on the **Maine Tracking Network (MTN) Portal**, a web-based portal that allows users to access environmental and health data. In 2018, the Maine Tracking Network added anaplasmosis and babesiosis data to the Lyme disease portion of the portal. This data portal allows users to customize their data inquiries from 2001-2018 at the town, county, and state level. The Tickborne Disease portion of the portal was accessed 9,257 times during 2020. MTN Tickborne Disease Data is available on Maine CDC’s website at www.maine.gov/idepi. Please see [Appendix 9](#) for a sample table and [Appendix 10](#) for sample maps. Data can be broken down by:

- Town
- County
- Gender
- Age Group

In 2018, Maine CDC also launched a **Near Real-Time (NRT)** data dashboard for tickborne diseases on the MTN. This NRT data dashboard is updated daily with the rates (per 100,000) and number of cases of Lyme disease, anaplasmosis, and babesiosis at both the state and county level. This is available as tables, charts, and maps. Case counts include confirmed and probable cases and data updates occur daily as Maine CDC classifies new cases. The NRT data dashboard also includes a trend chart of suspected tick-related emergency department visits by week and compares the counts to the previous year. Maine CDC obtains suspected tick-related emergency department visits from hospitals in Maine. The NRT section of the portal received 1,847 visits in 2020. Please see [Appendix 11](#) for a sample trend chart.

Maine CDC’s main **prevention message** is encouraging Maine residents and visitors to use personal protective measures to prevent tick exposures. Personal protective measures include avoiding tick habitat, using EPA-approved repellents, wearing long sleeves and pants, and daily tick checks and tick removal after being in tick habitats (ticks must be attached >24 hours to transmit Lyme disease).

Persons who spent time in tick habitats should consult a medical provider if they have unexplained rashes, fever, or other unusual illnesses during the first several months after exposure. Possible community approaches to prevent Lyme disease include landscape management and control of deer herd populations.

Maine CDC partners with the University of Maine Cooperative Extension Office to monitor the identification of deer ticks (*Ixodes scapularis*) in Maine through a passive submission system. Beginning in April 2019, the University of Maine Cooperative Extension Office offers the testing of deer ticks for the pathogens that cause Lyme disease, anaplasmosis, and babesiosis. In 2020, the Cooperative Extension Office added a panel to test non-*Ixodes* tick species, including the American Dog tick and Lone Star tick for the pathogens that cause Rocky Mountain Spotted Fever, ehrlichiosis, and tularemia. While the testing of ticks should be used for clinical diagnosis or medical treatment decisions, this service provides surveillance information on ticks and tickborne diseases in Maine. For more information on this service, please visit www.ticks.umaine.edu. Data on the tick submission and tick testing results for 2020 can be found in [Appendix 12](#).

VI. A summary of laws of other states enacted during the past year related to the diagnosis, treatment, and insurance coverage for Lyme disease and other tickborne illnesses based on resources made available by federal Centers for Disease Control and Prevention or other organizations

Maine CDC performed a search of state and federal legislation. A state-by-state listing of legislation relating to Lyme and other tickborne diseases can be found in [Appendix 13](#).

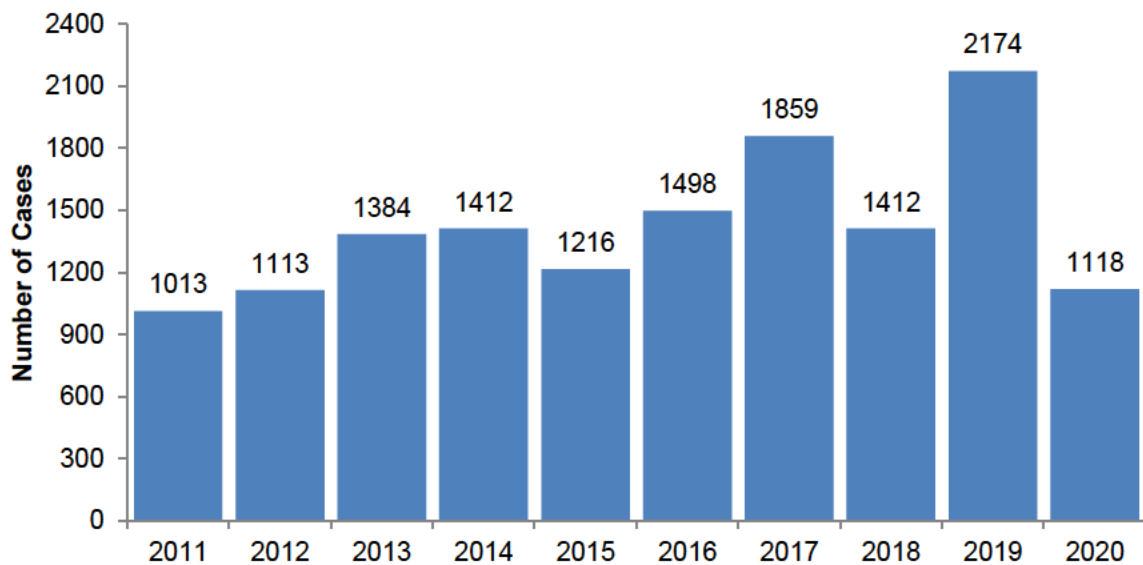
Appendix 1 Maine Lyme disease statistics

Number and Rate per 100,000 persons of Lyme Disease Cases by County of Residence – Maine, 2016-2020*

County	2016 Count	2016 Rate	2017 Count	2017 Rate	2018 Count	2018 Rate	2019 Count	2019 Rate	2020* Count	2020* Rate
Androscoggin	93	86.7	97	90.4	68	63.2	98	90.5	40	36.9
Aroostook	1	1.5	8	11.8	4	6.0	2	3.0	4	6.0
Cumberland	311	107.2	321	109.9	288	98.1	354	120.0	178	60.3
Franklin	3	10.0	24	80.0	13	43.5	39	129.1	18	59.6
Hancock	152	278.1	206	378.5	174	317.5	193	351.0	115	209.1
Kennebec	206	171.7	267	221.4	182	149.1	278	227.3	123	100.6
Knox	107	268.5	146	367.4	105	264.0	238	598.4	120	301.7
Lincoln	99	291.4	74	216.3	63	183.4	132	381.1	64	184.8
Oxford	43	75.2	58	101.4	48	83.3	88	151.8	42	72.4
Penobscot	90	58.9	129	85.0	78	51.6	111	73.0	85	55.9
Piscataquis	3	17.7	8	47.5	3	17.9	4	23.8	4	23.8
Sagadahoc	91	258.9	61	172.9	47	131.9	83	231.5	27	75.3
Somerset	21	41.1	90	176.8	45	88.9	68	134.7	38	75.3
Waldo	70	178.8	143	363.3	78	196.5	143	360.1	91	229.1
Washington	20	63.2	32	101.7	15	47.6	31	98.8	33	105.2
York	188	93.5	195	96.4	201	97.5	312	150.3	136	65.5
State	1498	112.6	1859	139.2	1412	105.0	2174	161.7	1118	83.2

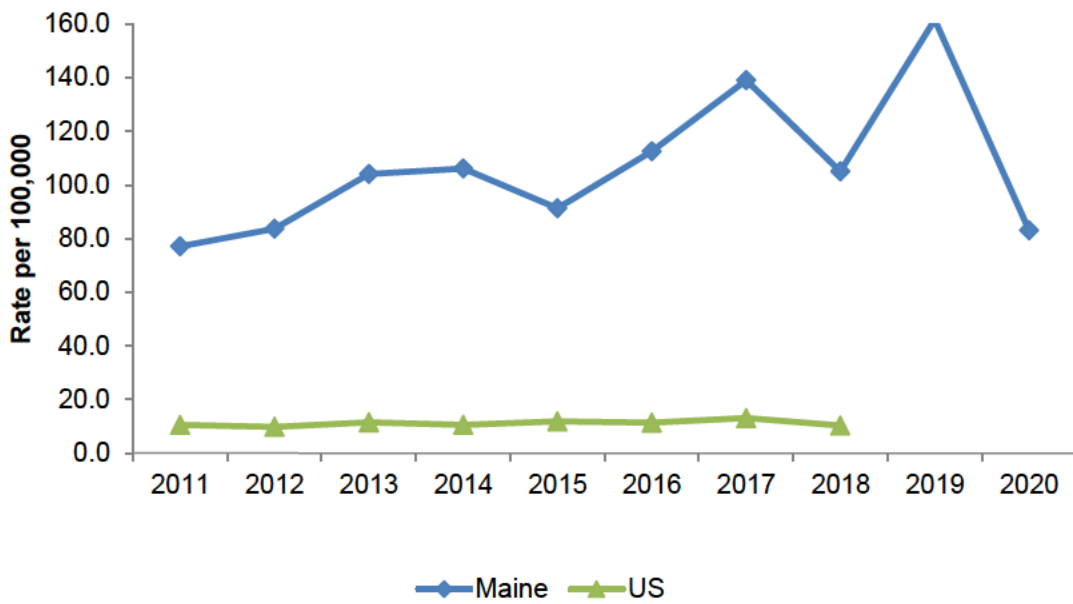
All data include both confirmed and probable cases
*2020 data are preliminary as of 03/17/2021

Lyme Disease Cases - Maine, 2011-2020*



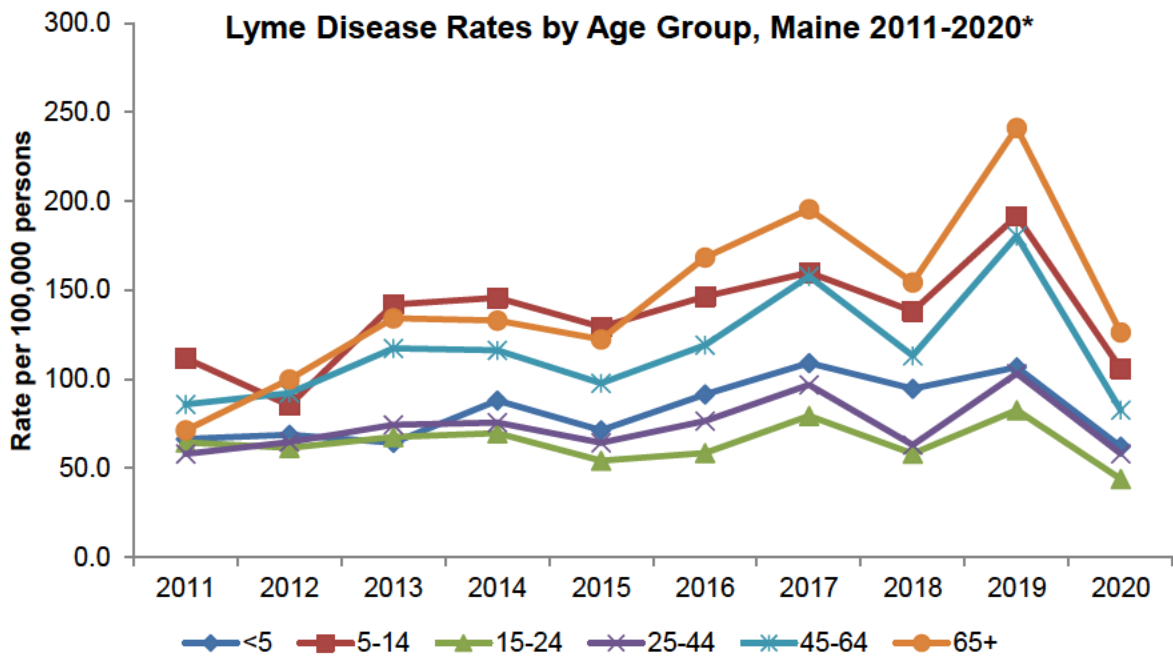
*2020 data are preliminary as of 03/17/2021

Lyme Disease Incidence - Maine and US, 2011-2020*



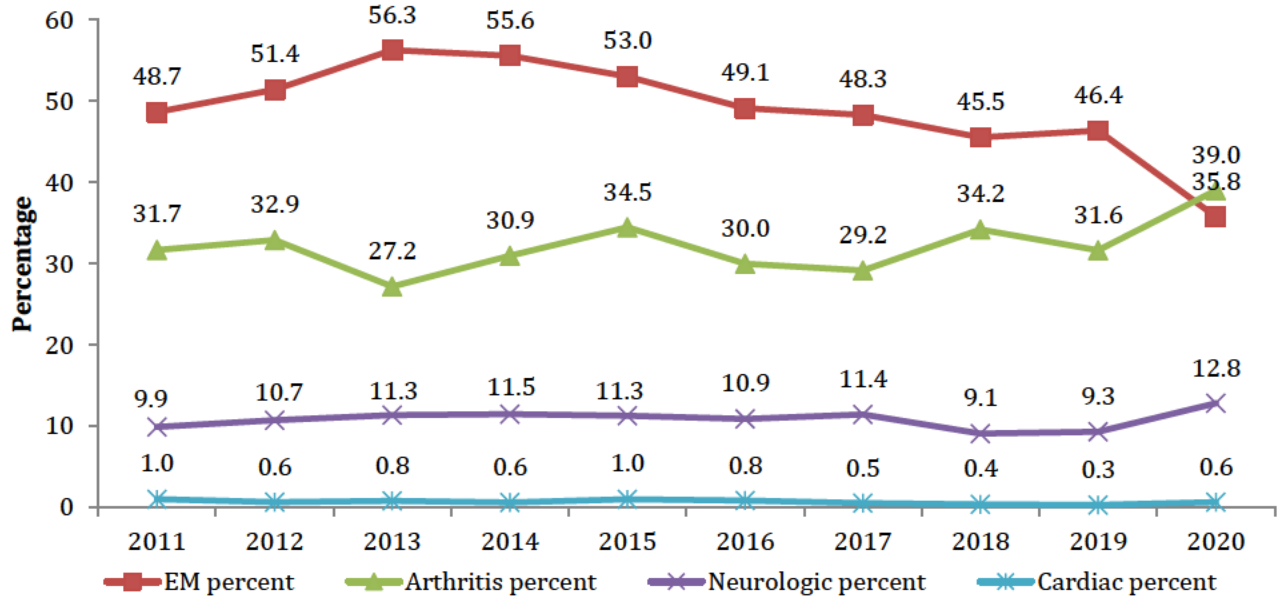
* 2020 data are preliminary as of 03/17/2021

Lyme Disease Rates by Age Group, Maine 2011-2020*



* 2020 data are preliminary as of 03/17/2021

Percentage of Symptoms Reported Among Lyme Disease Cases - Maine, 2011-2020*



* 2020 data are preliminary as of 03/17/2021

Appendix 2
Maine tickborne disease statistics (excluding Lyme disease)

Number of Selected Tickborne Disease Cases by County of Residence – Maine, 2020*

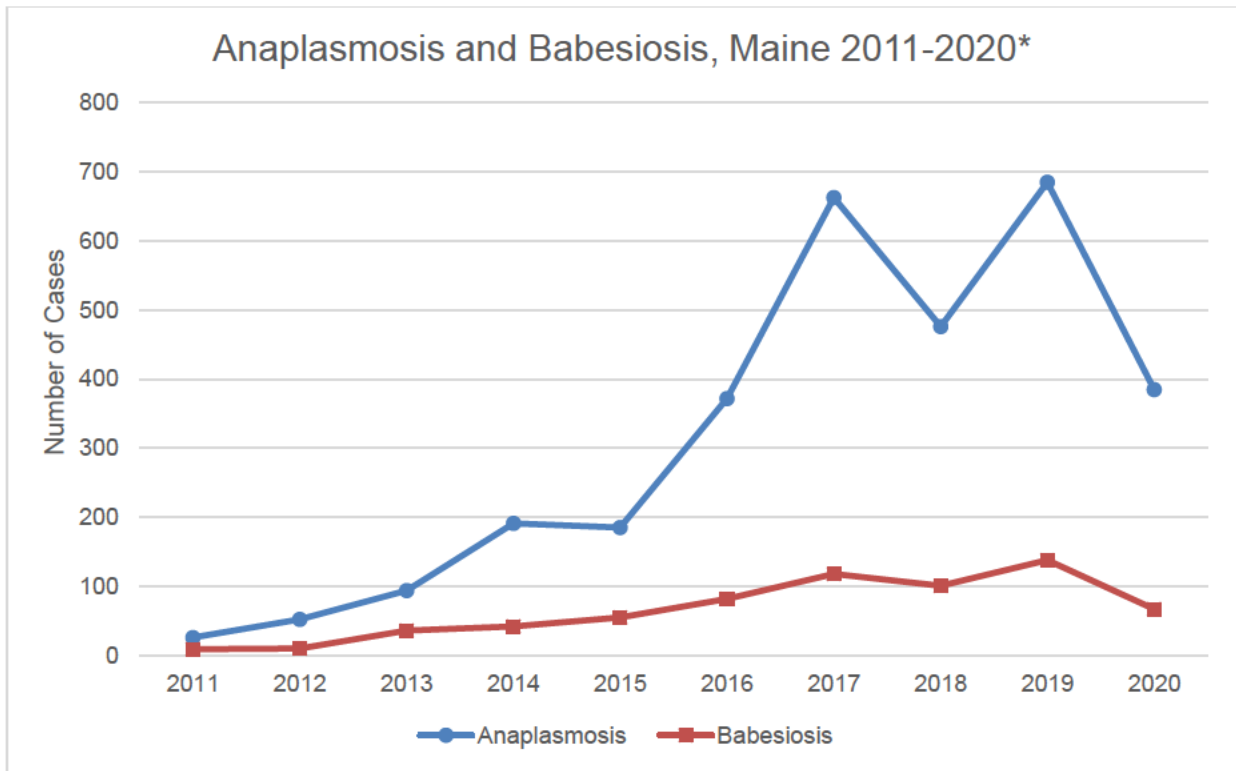
County	Anaplasmosis	Babesiosis	<i>Borrelia miyamotoi</i>	Ehrlichiosis	Ehrlichiosis/ Anaplasmosis Undetermined	Powassan	Spotted Fever Rickettsiosis
Androscoggin	31	3	1	0	0	0	0
Aroostook	0	0	0	0	0	0	0
Cumberland	46	5	1	0	0	0	0
Franklin	4	0	0	0	0	0	0
Hancock	31	4	0	0	0	0	0
Kennebec	32	7	1	1	1	0	0
Knox	50	19	2	0	0	0	0
Lincoln	38	10	2	0	0	0	0
Oxford	22	1	1	0	0	0	0
Penobscot	13	1	0	1	0	0	0
Piscataquis	0	0	0	0	0	0	0
Sagadahoc	19	7	1	0	0	0	0
Somerset	9	0	0	0	1	0	0
Waldo	48	3	0	0	0	0	0
Washington	0	0	0	0	0	0	0
York	42	7	1	0	0	1	0
Total	385	67	10	2	2	1	0

* 2020 data are preliminary as of 03/17/2021

Number of Selected Tickborne Disease Cases– Maine, 2011 - 2020*

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020*
Anaplasmosis	26	52	94	191	185	372	663	476	685	385
Babesiosis	9	10	36	42	55	82	118	101	138	67
<i>Borrelia miyamotoi</i>	0	0	0	0	0	0	6	8	13	10
<i>Ehrlichia chaffeensis</i>	1	3	3	8	5	7	10	19	13	2
Ehr/Ana undetermined	0	0	2	6	1	4	10	9	2	2
Powassan	0	0	1	0	1	1	3	0	2	1
SFR	1	3	2	3	1	4	3	10	5	0

* 2020 data are preliminary as of 03/17/2021



* 2020 data are preliminary as of 03/17/2021

Appendix 3

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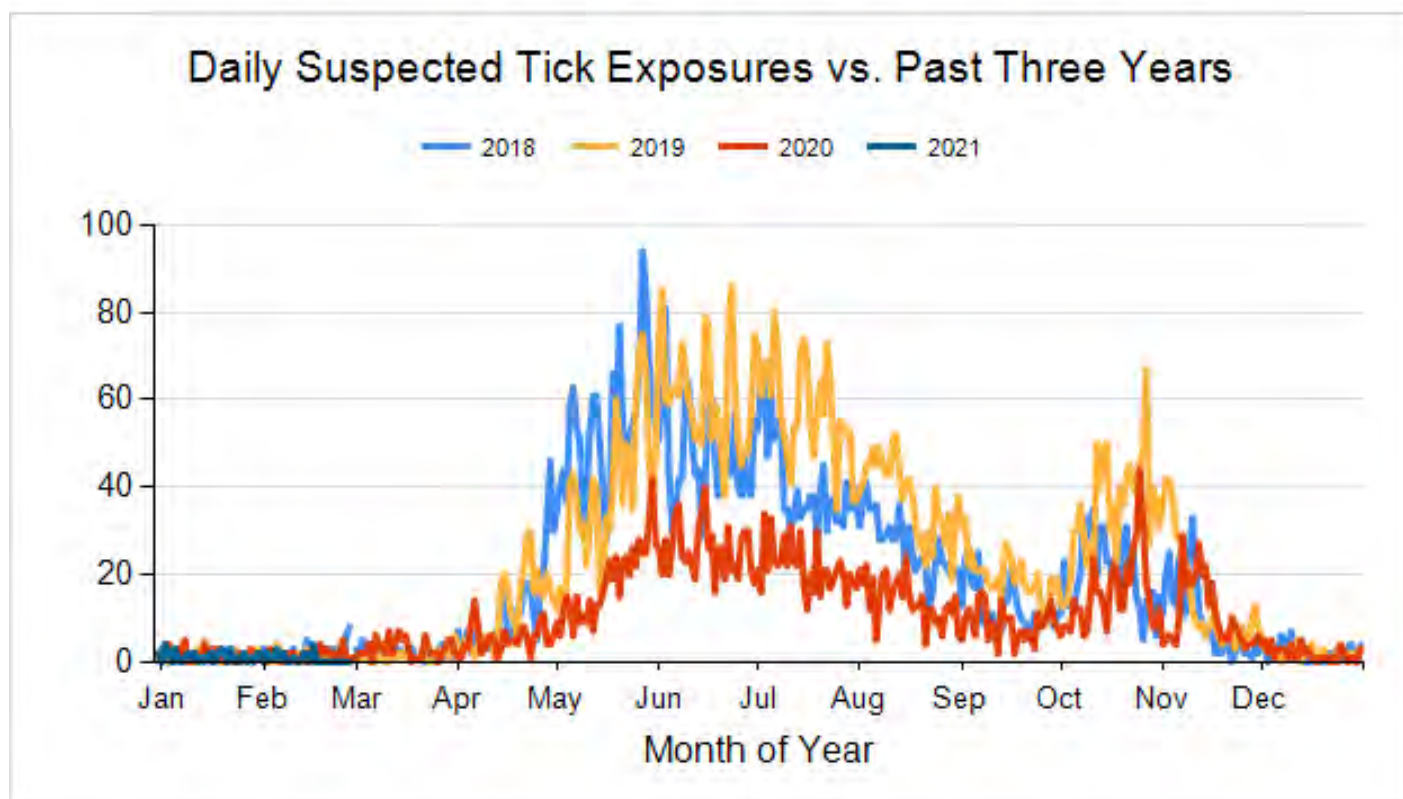
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Appendix 4

Maine CDC *Syndromic Surveillance Report*

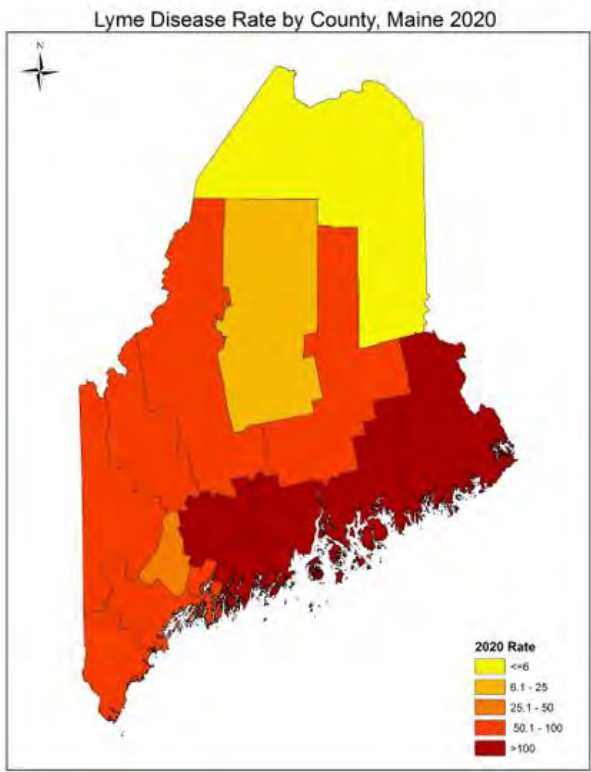
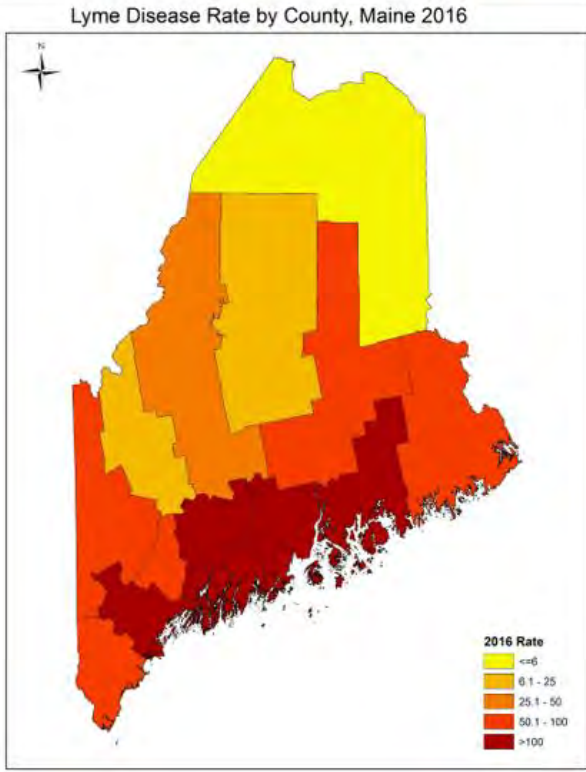
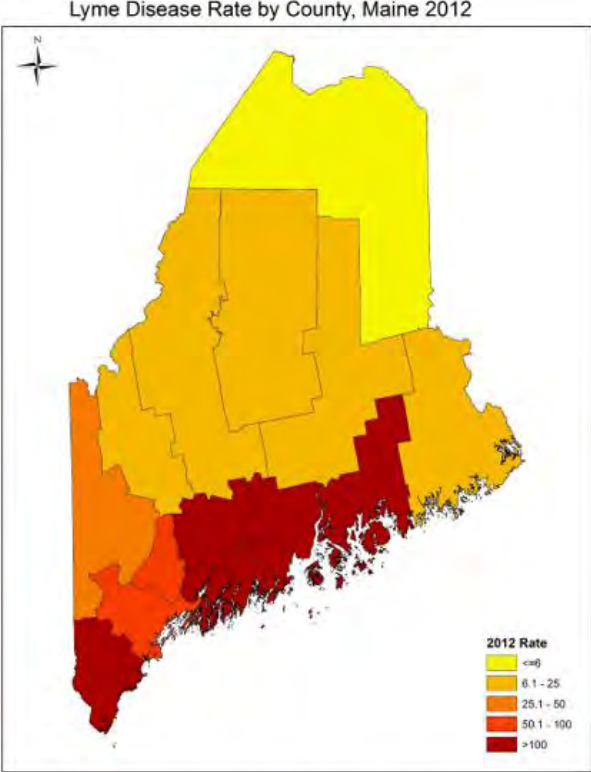
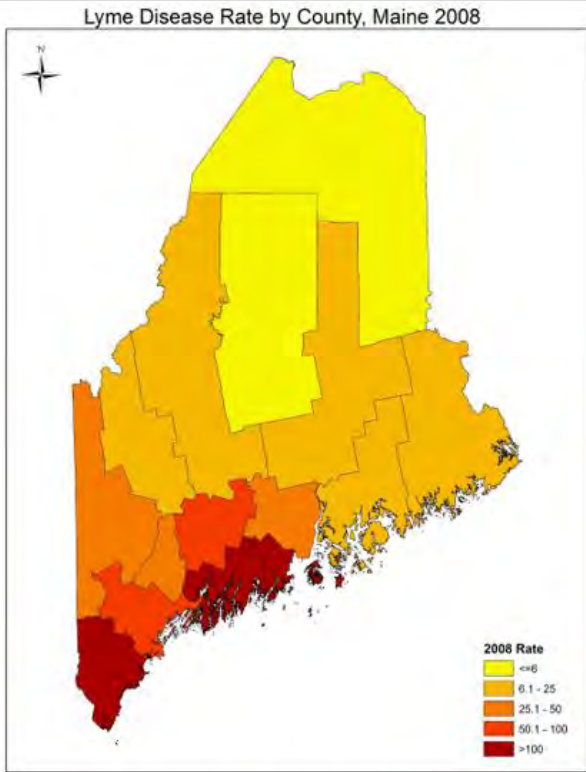
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Data Notes:

The number of suspected tick exposures is based on automated processing of chief complaint text and diagnosis codes from patient encounters at Maine emergency departments and affiliated urgent care facilities. For more information about Maine's syndromic surveillance data and methods, please contact syndromic@maine.gov.

Appendix 5 Lyme Disease Cases per 100,000 people (Rate) – Maine, Selected years 2008-2020*



* 2020 data are preliminary as of 03/17/2021

Appendix 6

Maine Vectorborne Work Group

Chair: Sara Robinson, Maine Center for Disease Control and Prevention (Maine CDC)

Adams, Justin	Municipal Pest Management
Bennett, Siiri	Maine CDC
Bonthius, Jessica	Maine CDC
Bryer, Pam	Maine Board of Pesticide Control
Camuso, Judy	Maine Department of Inland Fisheries and Wildlife
Colby, Kate	Maine CDC
Dill, Griffin	Maine Cooperative Extension
Elias, Susan	Maine Medical Center Research Institute, University of Maine Orono
Fish, Gary	Maine Department of Agriculture, Conservation, and Forestry
Fiske, Rachael	Maine Department of Agriculture, Conservation, and Forestry
Gardner, Allison	University of Maine, School of Biology and Ecology
Groden, Ellie	University of Maine
Henderson, Elizabeth	Maine Medical Center Research Institute
Hicks, Lebel	Private citizen, toxicologist
Hurwitz, Carolyn	Maine Department of Agriculture, Conservation, and Forestry
Jackson-Jones, Paula	Midcoast Lyme Disease Support Group
Kanoti, Allison	Maine Forest Service
Kantar, Lee	Maine Department of Inland Fisheries and Wildlife
Lacombe, Eleanor	Maine Medical Center Research Institute
Latti, Mark	Maine Department of Inland Fisheries and Wildlife
Lichtenwalner, Anne	University of Maine, Animal Health Laboratory
Lubelczyk, Charles	Maine Medical Center Research Institute
Matluk, Nick	Maine CDC
McLaughlin, Craig	Maine Department of Inland Fisheries and Wildlife
Morris, Jesse	US Department of Agriculture
Murray, Kathy	Maine Department of Agriculture, Conservation, and Forestry
Patterson, Megan	Maine Board of Pesticides Control
Peranzi, Catie	Maine CDC
Poland, Emily	Maine Department of Education
Porter, Megan	Maine CDC
Rand, Peter	Maine Medical Center Research Institute
Robiceau, Ryan	Maine Department of Inland Fisheries and Wildlife
Robich, Rebecca	Maine Medical Center Research Institute
Schmeelk, Thomas	Maine Forest Service
Shelley, Steven	Maine CDC
Smith, Rob	Maine Medical Center Research Institute
Sohail, Haris	Maine CDC
Staples, Joe	University of Maine, Department of Environmental Science and Policy
Sullivan, Kelsey	Maine Department of Inland Fisheries and Wildlife
Szantyr, Beatrice	Physician, Lincoln Maine
Walsh, Michele	Maine Department of Agriculture, Conservation, and Forestry
Webb, Nathan	Maine Department of Inland Fisheries and Wildlife
Webber, Lori	Maine CDC

To reach a member of the VBWG or to express interest in joining this workgroup, contact disease.reporting@maine.gov.

Appendix 7 2020 Governor's Proclamation



WHEREAS, the Maine Center for Disease Control and Prevention reported over 2,050 confirmed and probable cases of Lyme disease in 2019; and

WHEREAS, the actual incidence of Lyme disease is likely much higher than reported and disproportionately affects children between five and fifteen years and adults over sixty-five years; and

WHEREAS, tick bites can be prevented by staying in the center of wooded paths, wearing light-colored, long-sleeved clothing, using an EPA approved insect repellent, performing daily tick checks, and properly removing ticks; and

WHEREAS, public awareness and education are necessary to help reduce tickborne illnesses in Maine, including promoting awareness of Lyme disease, other tickborne illnesses, and the timely use of prevention measures, as illustrated by the theme "Tick Tock"; and

WHEREAS, the 124th Maine Legislature enacted Public Law Chapter 494, L.D. 1709, Item 1, *An Act to Enhance Public Awareness of Lyme Disease*;

NOW, THEREFORE, be it resolved that I, Janet T. Mills, Governor of the State of Maine, do hereby proclaim the month of May as

Lyme Disease Awareness Month

in Maine, and I urge all the citizens of Maine to become aware of the steps that can be taken to reduce the risk of tickborne illnesses.




Matthew Durlap
Secretary of State

In testimony whereof, I have caused the Great Seal of the State to be hereto affixed GIVEN under my hand at Augusta this twenty-second day of April Two Thousand Twenty



Janet T. Mills
Governor

Appendix 8
Maine CDC Lyme Disease Awareness Month Poster 2020



Artwork submitted by Mikenna Phillips from Spruce Mountain Elementary School

Appendix 9 Maine Tracking Network

Number of Tickborne Disease Cases by Town, Maine 2014-2018 Showing: First 20 Towns

Location	Number			Population
	Anaplasmosis	Babesiosis	Lyme	
Windham	30	6	151	89,854
Portland	26	8	150	339,884
Augusta	19	5	120	92,166
Gorham	20	5	117	86,446
Brunswick	36	9	106	103,782
Freeport	25	3	93	40,300
Islesboro	<6	0	92	2,735
Bar Harbor	11	4	83	25,765
Gray	15	7	80	40,480
York	19	13	78	62,917
Deer Isle	<6	0	76	9,655
Falmouth	11	1	75	57,165
Auburn	25	6	73	113,574
Sanford	48	4	72	105,664
Winthrop	10	2	71	29,575
Kittery	17	21	70	47,641
Ellsworth	1	0	69	39,333
Warren	65	15	69	23,895
Cumberland	11	5	68	38,328
Lewiston	11	2	66	181,821

About this table

This table shows the number of confirmed and probable cases of tickborne disease in the population. Combined year population data are the sum of individual years (e.g. 2010-14 is the sum of populations in 2010, 2011, 2012, 2013, and 2014). Combined year rates are annualized across all included years. Maine CDC's Infectious Disease Program obtained these data through notifiable conditions surveillance based upon reports from healthcare providers, laboratories, and other healthcare partners.

To protect privacy as per Maine CDC's Privacy Policy, data may be suppressed. For locations where data are suppressed, a range ('<6') is provided for the number of events and an asterisk (*) for the rate. Data may also be secondarily suppressed to protect against indirect identification and are displayed as a number range (such as '6-10' or '11-15') when possible, or Not Releasable (NR). Geographical locations with populations less than 50 individuals are also displayed as Not Releasable (NR).

Source of these data

Maine CDC's Infectious Disease Program collected and analyzed the data. Maine CDC used population data from the U.S. Census Bureau to calculate state and county rates of tickborne disease. Maine CDC used population data from the Maine Office of Data, Research, and Vital Statistics (ODRVS) to calculate town-level rates of tickborne disease. The Maine Environmental Public Health Tracking Program prepared the data display. Data updated: 05/2019. Display updated: 05/2019.

Appendix 10 Maine Tracking Network

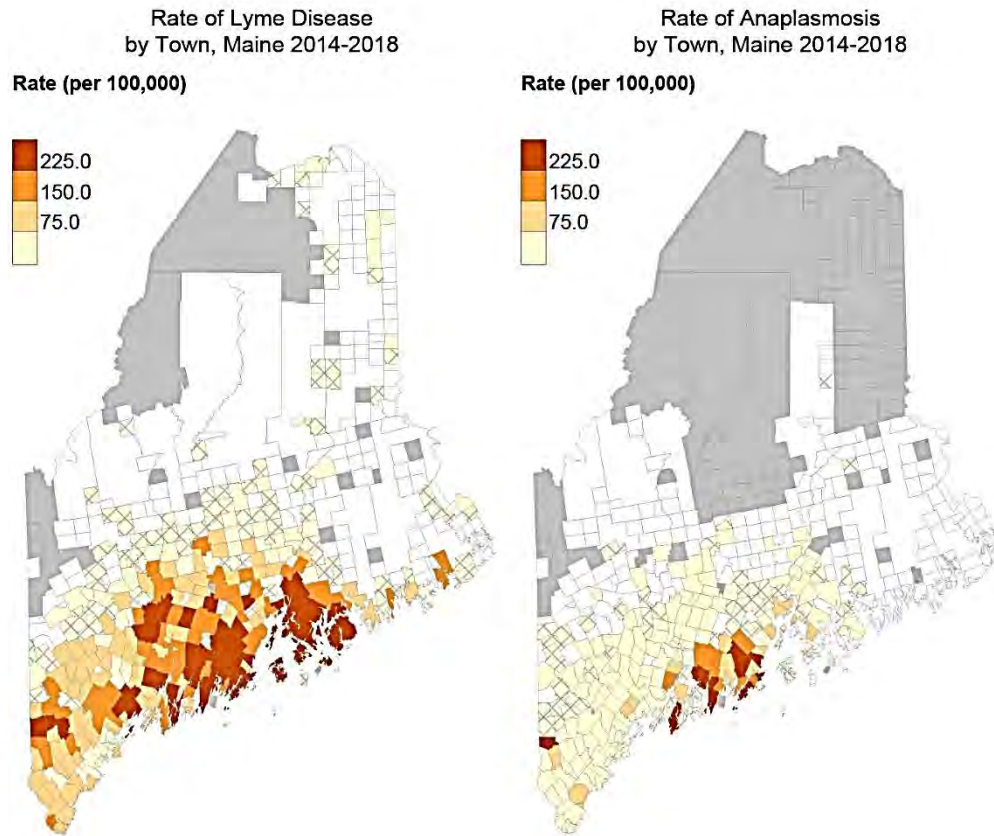


Figure A

Figure B

Cross-hatched areas show where data were suppressed.
White indicates a value of zero (0).
Gray indicates that data are not releasable.

About these figures

Figure A shows the incidence rate (per 100,000 people) of confirmed and probable cases of Lyme disease in the population. Beginning in 2008, the case definition was expanded to include the classification of probable cases. Maine CDC's Infectious Disease Program obtained these data through notifiable conditions surveillance based upon reports from healthcare providers, laboratories, and other healthcare partners.

Figure B shows the incidence rate (per 100,000 people) of confirmed and probable cases of anaplasmosis in the population. Maine CDC's Infectious Disease Program obtained these data through notifiable conditions surveillance based upon reports from healthcare providers, laboratories, and other healthcare partners.

Different map colors are not based on statistical tests of difference.

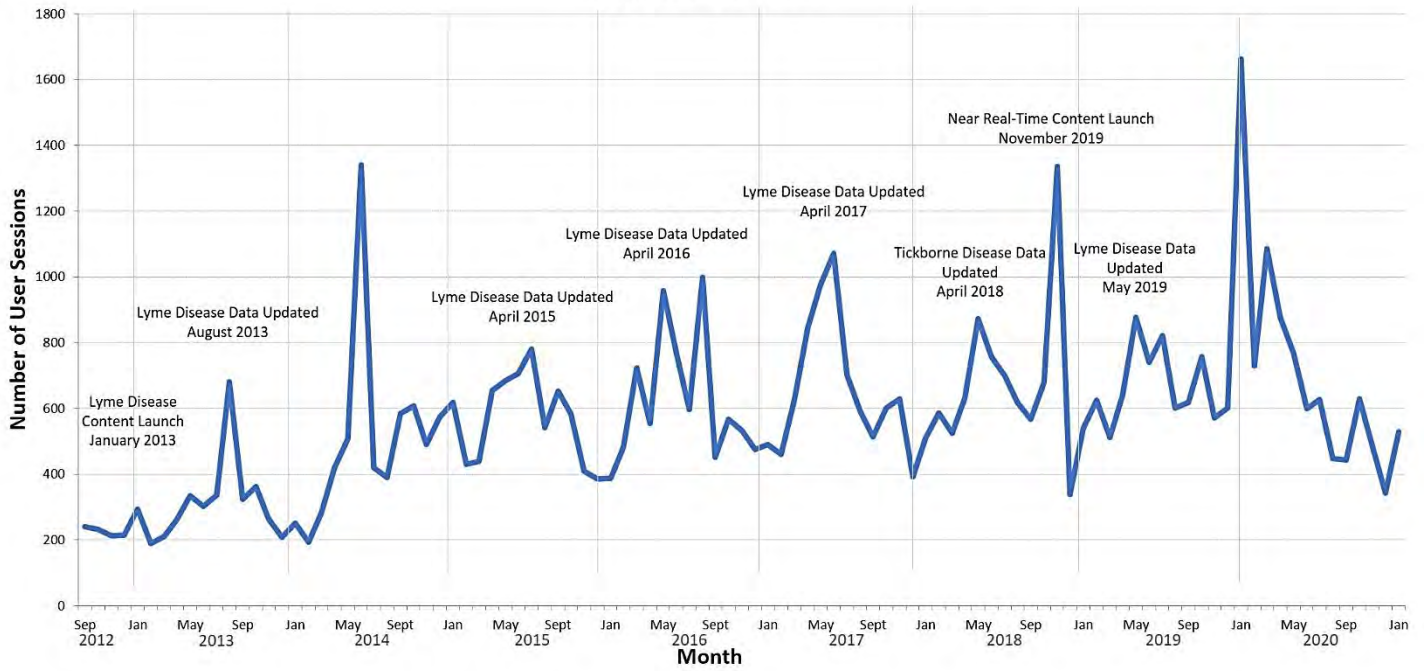
To protect privacy as per Maine CDC Privacy Policy, data may be suppressed. Locations where data must be suppressed are represented by cross-hatching. Locations where data are not releasable (NR) are shaded gray.

Sources of these data

Maine CDC's Infectious Disease Program collected and analyzed the data. Maine CDC used population data from the U.S. Census Bureau to calculate state and county rates of tickborne disease. Maine CDC used population data from the Maine Office of Data, Research, and Vital Statistics (ODRVS) to calculate town-level rates of tickborne disease. The Maine Environmental Public Health Tracking Program prepared the data display. Data updated: 05/2019. Display updated: 05/2019.

Appendix 11

Maine Tracking Network User Sessions by Month Aug 2012 - Jan 2021



Appendix 12
University of Maine Tick Submission and Tick Testing Data for 2020

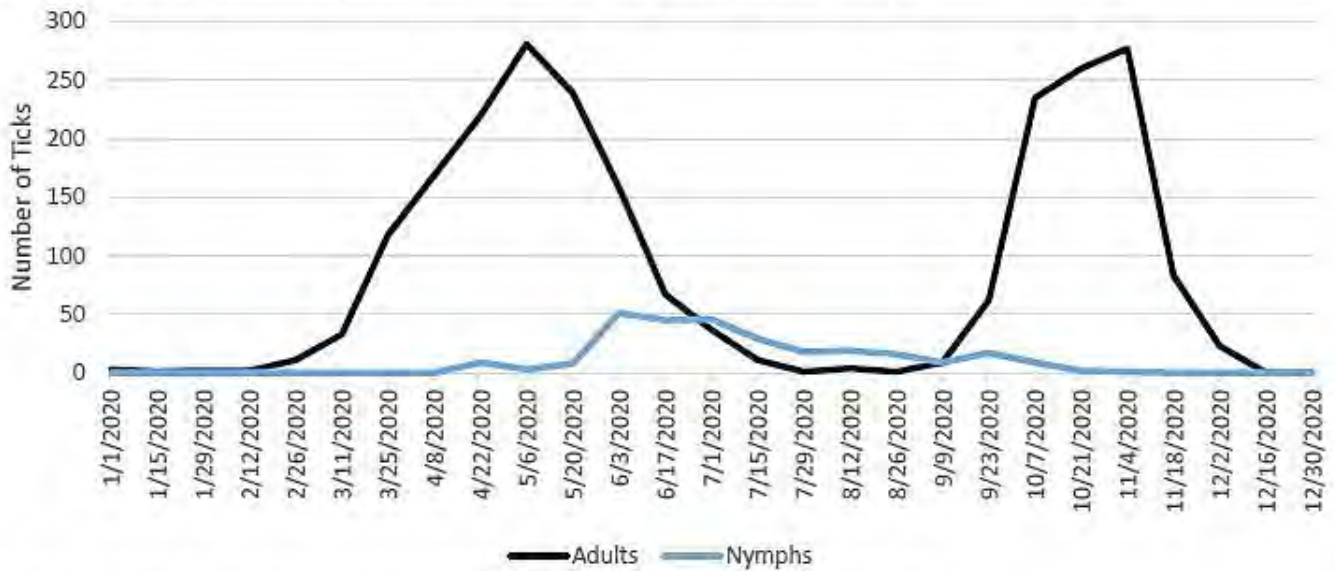
Tick Species	Common Name	Total
<i>Ixodes scapularis</i>	Blacklegged tick (formerly known as deer tick)	2615
<i>Dermacentor variabilis</i>	American dog tick	597
<i>Ixodes cookei</i>	Woodchuck tick	39
<i>Amblyomma americanum</i>	Lone star tick	11
<i>Ixodes marxi</i>	Squirrel tick	2
Unknown	Specimens damaged during removal/delivery	9

Source: University of Maine Cooperative Extension Tick Laboratory

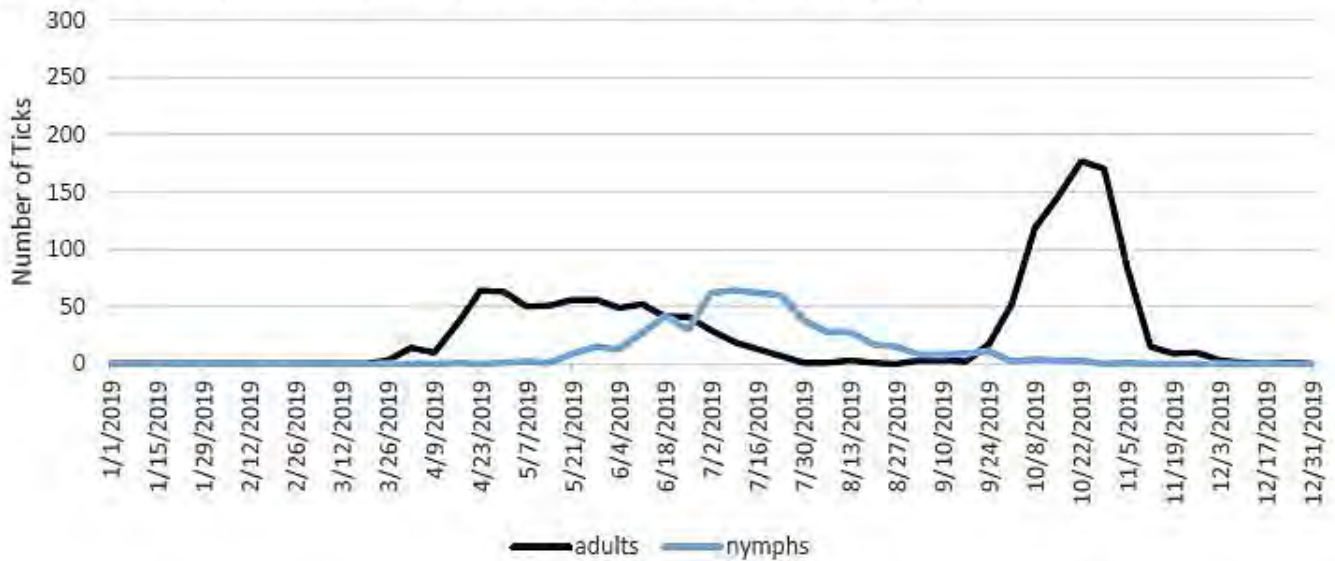
Pathogen	% of nymphs infected	% of adults infected	% of ticks infected
Positive for at least 1 pathogen	28.1%	45.2%	42.9%
<i>Borrelia burgdorferi</i>	23.7%	38.8%	36.8%
<i>Anaplasma phagocytophilum</i>	5.0%	7.8%	7.5%
<i>Babesia microti</i>	3.6%	7.8%	7.3%
<i>Borrelia + Anaplasma</i>	1.8%	3.1%	3.0%
<i>Borrelia + Babesia</i>	2.5%	4.5%	4.3%
<i>Anaplasma + Babesia</i>	0.0%	0.2%	0.2%
<i>Borrelia + Anaplasma + Babesia</i>	0.0%	0.6%	0.6%

Source: University of Maine Cooperative Extension Tick Laboratory

Blacklegged Ticks (*Ixodes scapularis*) Collected by Week - 2020 (Fig. 1)



Blacklegged Ticks (*Ixodes scapularis*) Collected by Week - 2019 (Fig. 2)



Source: University of Maine Cooperative Extension Tick Laboratory 2020 Annual Report

Adult deer ticks (blacklegged ticks, *Ixodes scapularis*) are most active from spring to late fall. This activity is split into two peaks, a small one in April and May and a second larger peak in late October to early November (Fig.2). The University of Maine Cooperative Extension Tick Laboratory received many more adult deer tick submissions during spring and early summer of 2020 (Fig.1) compared to 2019 (Fig. 2). This may be due to increased outdoor activity associated with COVID-19 and warm spring temperatures. Nymphal deer tick activity typically peaks in June and early July. Submission of deer tick nymphs to the Cooperative Extension Tick Laboratory was down in 2020 compared to 2019. This may be due to the hot, dry weather in Maine during mid-summer, which kept many nymphs from seeking hosts and contacting humans.

Appendix 13
2020 Tickborne Disease Legislation
Tickborne legislation and status recorded from LegiScan

Arizona

Title: Lyme; Vector-Borne Diseases, Treatment (HB2254, SB1057)

Status: Failed

California

Title: Recreational and Organizational Camps (SB217; SB955)

Status: Failed

Federal

Title: National Defense Authorization Act for Fiscal Year 2020

Status: Failed

Illinois

Title: First 2020 General Revisory (HB5764)

Status: Failed

Title: Lyme Disease Awareness Month (HR0841)

Status: Failed

Indiana

Title: Treatment of Lyme Disease (SB0422)

Status: Failed

Maryland

Title: Health Occupations - Diagnostic Evaluation and Treatment of Patients - Disciplinary Actions (The Patient's Access to Integrative Healthcare Act of 2020) (HB259; SB103)

Status: Passed

Massachusetts

Title: Establishing a Special Commission to Find the Best Practices to Promote Education, Awareness, and Prevention of Lyme Disease (S1324)

Status: Failed

Title: Relative to the Control of Tick-Borne Illness (H766)

Status: Failed

Michigan

Title: A Concurrent Resolution to Urge the Centers for Disease Control and Prevention and the Michigan Department of Health and Human Services to Protect the People of Michigan from Lyme Disease by Improving Efforts to Prevent, Monitor, Diagnose, and Treat the Disease (HCR0007)

Status: Passed

New Hampshire

Title: Establishing a Commission to Develop a Statewide Strategy on Tick Management (HB1433)
Status: Failed

Title: Establishing a Commission to Study the Role of Clinical Diagnosis and the Limitations of Serological Diagnostic Tests in Determining the Presence or Absence of Lyme and Other Tick-Borne Diseases and Available Treatment Protocols, and Appropriate Methods for Educating Physicians and the Public about the Inconclusive Nature of Prevailing Test Methods and Available Treatment Alternatives (HB490)
Status: Passed

Title: Relative to Health Care (HB1639)
Status: Passed

Title: Relative to Insurance Coverage for Tick-Borne Illness (HB1633)
Status: Failed

Title: Relative to the Duration of Antibiotic Therapy for Tick-Borne Illness (HB1287)
Status: Failed

New York

Title: Authorizes the Commissioner of Health to Award Grants for Graduate Medical Education in Lyme and Tick-Borne Disease and to Designate Organizations as Centers for Lyme and Tick-Borne Disease Excellence (S01247)
Status: Failed

Title: Directs Promulgation of Rules and Regulations Concerning Removal of Ticks from Pupils and Notification to Parents (S01297)
Status: Failed

Title: Directs the Commissioner of Agriculture and Markets to Develop and Conduct a Public Awareness Campaign Regarding Lyme Disease and Other Tick-Borne Diseases (S05873)
Status: Failed

Title: Directs the Commissioner of Health to Establish a Standard Protocol for the Diagnosis and Treatment of Lyme Disease and Other Tick Borne Diseases Identified by Such Commissioner; Such Protocol Shall Require the Provision of Written Notification to Each Patient Being Treated for Lyme Disease or Other Tick Borne Diseases Relating to Symptoms, Risk Factors, Diagnosis and Other Information Relating to Such Diseases; Enacts the "Demos Ford Act" (A08640; S06657)
Status: Failed

Title: Directs the Department of Health to Contract with Community-Based Organizations and Not-for-Profit Corporations for the Provision of Outreach, Information and Educational Services to Immigrants on the Availability of Health Care Services, Medical Assistance, Emergency Medical Assistance, the Family Health Plus Program and the Child Health Insurance Plan (S05088)
Status: Failed

Title: Directs the Superintendent of Financial Services, in Consultation with the Commissioner of Health, to Study the Relationship Between Patient Access to Care and Treatment of Lyme Disease and Health Insurance Coverage (S01295)
Status: Failed

Title: Establishes a Pilot Program for Lyme and Tick-Borne Disease Testing in Children (S01306)
Status: Failed

Title: Establishes That the Council on Human Blood and Transfusion Services Shall Review All Current Medical Research and Guidance Regarding the Donation of Blood by Patients with a History of Lyme or Tick-Borne Illnesses (A03513; S01303)
Status: Failed

Title: Expands the Definition of Invasive Species to Include Such Species or Pest Organisms that are Considered an Infestation (A02469)
Status: Failed

Title: Includes the Asian Longhorned Tick on the Invasive Species List and Requires the Preparation of Recommendations for Best Practices in Treating Livestock and Farm Properties for Asian Longhorned Tick Treatment, Prevention, and Management (A04773)
Status: Failed

Title: Memorializing Governor Andrew M. Cuomo to Proclaim May 2020, as Lyme Disease Awareness Month in the State of New York (J02487; J02727)
Status: Passed

Title: Provides for Recommendations on the Effective Use of Pesticides to Protect Livestock and Farm Property Against Asian Longhorned Ticks (A09742; S06966)
Status: Passed

Title: Provides for Taxpayer Gifts for Lyme and Tick-Borne Diseases Education, Research and Prevention and Establishes the Lyme and Tick-Borne Diseases Education, Research and Prevention Fund (S08681)
Status: Failed

Title: Provides That the existence of an Infestation of Pests in a Premises Occupied for Dwelling Purposes is a Breach of the Warranty of Habitability, and Requires a Landlord to Keep Premises Occupied for Dwelling Purposes Free from an Infestation of Pests, Prevent the Reasonably Foreseeable Occurrence of Such a Condition and Expeditiously Remediate such Condition and Any Underlying Defect (A07909; S05975)
Status: Failed

Title: Relates to Guidelines for Best Practices in Treating Residential Properties for Integrated Pest Management to Assist in the Prevention of Ticks (S01248)
Status: Failed

Title: Relates to Lyme Disease and Tick-Borne Infection Awareness and Prevention for Children's Overnight, Summer Day and Traveling Summer Day Camps; Provides Guidelines for Treatment and Notification; Provides for the Development of Materials (S06702)
Status: Failed

Title: Relates to Reporting Lyme and Tick-Borne Disease Infection after Death to the Department of Health According to the Manner Prescribed by the Commissioner (S01307)
Status: Failed

Title: Relates to the Reporting of Lyme and Tick-Borne Disease Infection after Death (S06415)
Status: Failed

Title: Requires Health Insurers to Provide Coverage for Long Term Medical Care for Lyme Disease and Other Tick Borne Related Pathogens (A02767; S04186)
Status: Failed

Title: Requires Health Insurers to Provide Coverage for Long Term Medical Care for Lyme Disease and Other Tick Borne Related Pathogens; Provides for Taxpayer Gifts for Tick Borne Illness Research, Detection and Education; Establishes the Tick Borne Illness Research, Detection and Education Fund (A00178; S00426)
Status: Failed

Title: Requires the Department of Environmental Conservation to Prepare Recommendations for Best Practices in Treating Residential Properties for Tick Prevention and Management (S01348)
Status: Failed

Title: Requires the New York State Health Care Quality and Cost Containment Commission to Issue a Report Considering the Impact on Health Insurance Costs and Quality of Legislation Requiring Coverage of Long Term and Chronic Lyme Disease and Other Tick-Borne Diseases (S01345)
Status: Failed

Pennsylvania

Title: Designating the Month of May 2020 as "Lyme and Tick-Borne Disease Awareness Month" in Pennsylvania (SR324)
Status: Failed

Title: Recognizing the Month of May 2020 as "Lyme and Tick-Borne Disease Awareness Month" in Pennsylvania (HR760)
Status: Passed

Rhode Island

Title: Control of Mosquitos and Ticks (H7870)
Status: Failed

Vermont

Title: An Act Relating to a Study on Tickborne Illness (H0644)
Status: Failed

Wisconsin

Title: Department of Natural Resources' Efforts to Raise Awareness about Lyme Disease (AB317; SB298)

Status: Passed (SB298; AB317 failed)

Title: Establishing a Tick-Borne Disease Study Committee (AB313; SB300)

Status: Failed

Title: Proclaiming May 2020 as Tick-Borne Illness Awareness Month (AJR122; SJR84)

Status: Failed

Title: Signs Informing about Lyme Disease in State Parks, State Trails, State Recreational Areas, and State Forests and Making an Appropriation (AB315; SB296)

Status: Passed (SB296; AB315 failed)