

TICKBORNE DISEASES



LYME DISEASE

Lyme disease (LD) is the most commonly reported vector-borne disease in the United States; over 33,000 confirmed cases were reported nationally in 2019. In the U.S., cases tend to be geographically focused in the northeastern and north-central United States, but LD is also endemic and expanding in Michigan. Of the 404 total cases in 2019, 360 were locally acquired, 36 were travel related, and 8 were not able to be classified. Most exposures occurred in the Upper Peninsula and western Lower Peninsula.

404

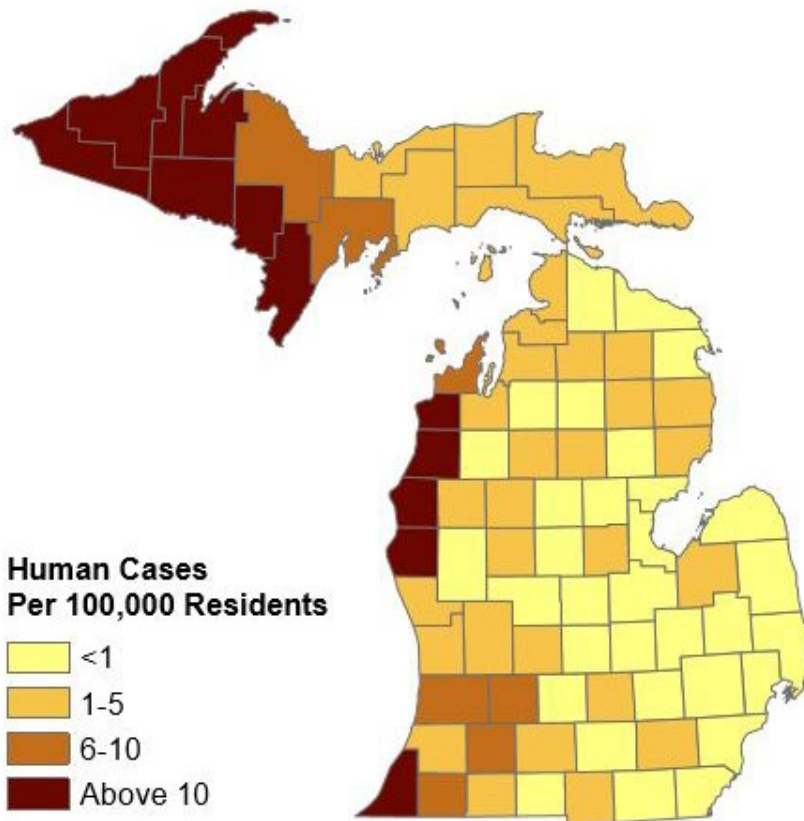


In 2019, 404 confirmed and probable human cases were reported with most Michigan exposures occurring in the Upper Peninsula and western Lower Peninsula.

The tick vector, *Ixodes scapularis* (blacklegged tick), is endemic in portions of the Upper Peninsula and the western Lower Peninsula. In addition, the distribution of the blacklegged tick is expanding into new areas across the state.

In 2019, MDHHS conducted human case surveillance and field ecologic surveillance for blacklegged ticks throughout the state with the help of its partners, including Michigan State University and sister state agencies. Educational materials will continue to be updated and made available to the public via the MDHHS Emerging Diseases website (www.michigan.gov/emergingdiseases).

5-Year Lyme Disease Incidence by County of Residence, 2014-2019

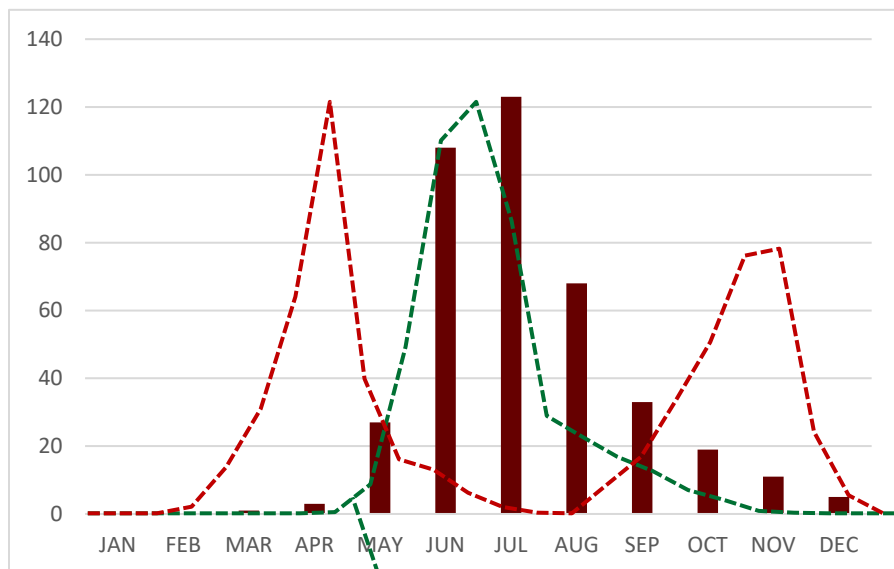


Highest Rates of Lyme Disease Incidence (per 100,000 residents)

Dickinson	117
Menominee	56
Keweenaw	38
Ontonagon	36
Manistee	20

Map of the average number of human Lyme disease cases per 100,000 persons in each county from 2014 to 2019

Reported Lyme Disease Cases in Michigan: 2019

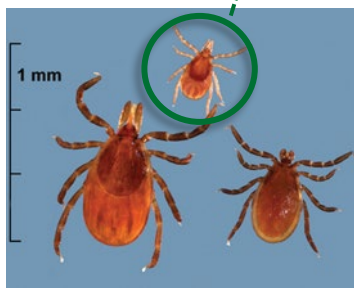


Generalized blacklegged tick activity periods in Michigan:

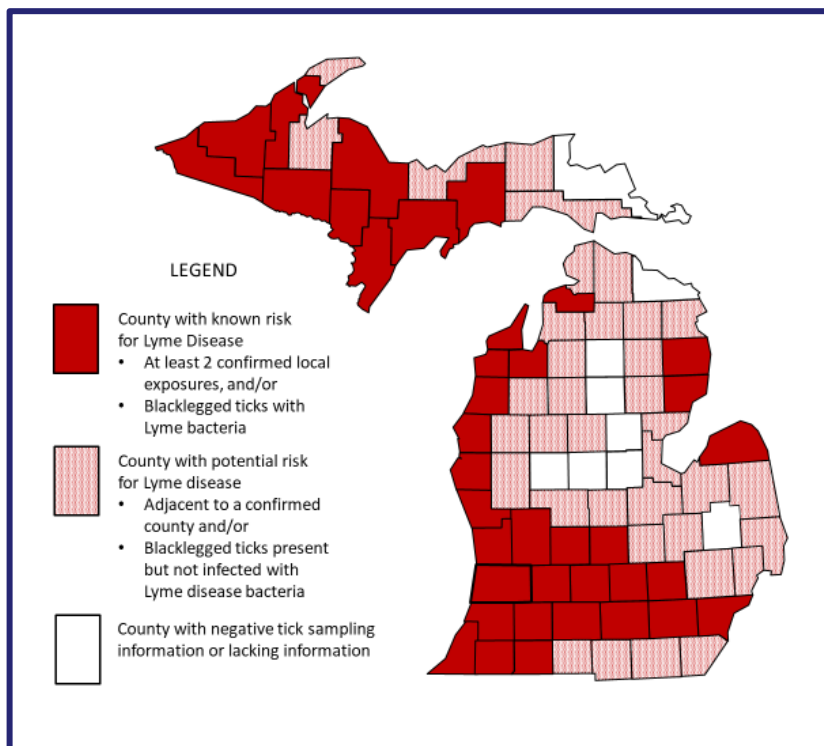
- Nymphs
- Adults

Nymphs:

Peak transmission season for Lyme disease in Michigan (May through August) is associated with nymphal blacklegged ticks. Although the Lyme pathogen is more prevalent in adult ticks, bites from nymphs contribute more to Lyme disease transmission because nymphal ticks are smaller (about the size of a poppy seed). Nymphal ticks often escape notice long enough to attach to their human host and transmit the pathogen. Frequent tick checks are important during this time of year as prompt removal of ticks can prevent Lyme disease.



Michigan Lyme Disease Risk Map: 2020



Map detailing the risk of Lyme disease in each county based on previously recorded presence of blacklegged ticks, presence of the Lyme disease bacterium, and confirmed local exposures

STATEWIDE TICK SURVEILLANCE

Given that Michigan is an emerging Lyme disease state, increasing efforts to detect blacklegged tick populations and *B. burgdorferi* in the field is a priority. MDHHS and Michigan State University continued to conduct surveillance throughout the state in 2019.

In 2019...



>495 km² sampled

For the presence of blacklegged ticks (*Ixodes scapularis*) across 75 field sites



3,408 blacklegged ticks

collected from May through July



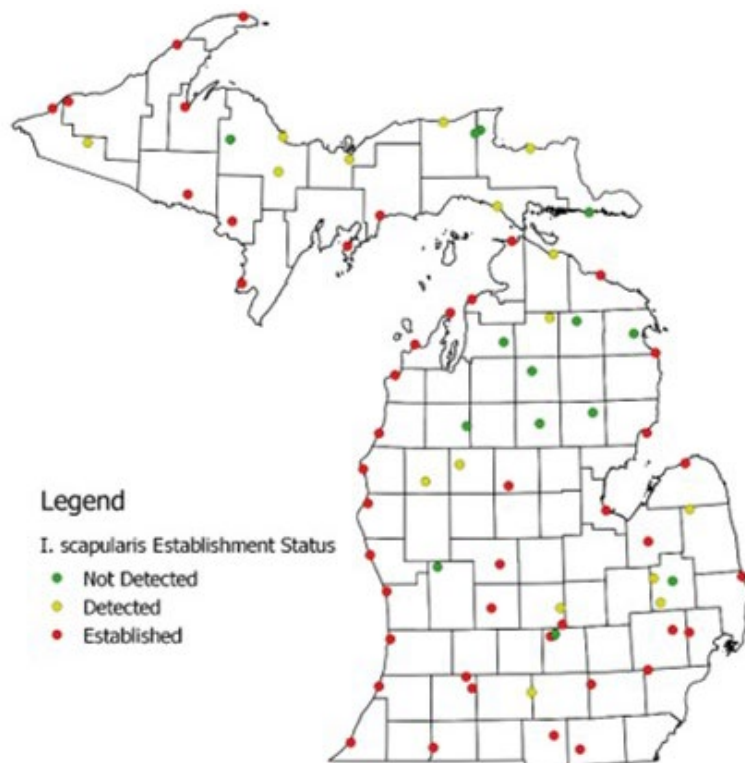
Pathogen testing delayed

for disease-causing organisms at the CDC Vector-Borne Disease Laboratory in Ft. Collins, CO due to priority of COVID-19 testing



In 2018
506 ticks were tested and 15% of those were positive for Lyme disease-causing bacteria (*Borrelia burgdorferi*). Approximately 6% of nymphs and 25% of adults collected were positive for *Borrelia burgdorferi*.

2019 Field Sites



Tick surveillance using a drag cloth

Blacklegged Tick collected on a drag cloth

Citizen-Submitted Tick Program

Since 2017, MDHHS has been receiving, identifying, and testing ticks sent in by Michigan citizens. MDHHS identifies the species of ticks submitted by the public and sends the results to the submitter. Some of the ticks are sent for additional testing* to determine if they carry the Lyme disease bacterium. The program was expanded in 2018 to allow citizens to email a picture of their tick to MDHHS-Bugs@michigan.gov. In 2018, 857 ticks were submitted via mail to MDHHS for identification and testing, and an additional 152 tick photos were submitted via email. These numbers increased in 2019 with 1,070 ticks and 384 tick photos submitted.



*Beginning April 1, 2020 ticks submitted for identification through this program will no longer be tested for the presence of pathogens.

2019 Submitted Ticks by Number & Species

Tick Species	Number of Tick Photos Submitted	Number of Ticks Submitted	Identified in 2019
American Dog Tick (<i>Dermacentor variabilis</i>)	258	544	802
Blacklegged Tick (<i>Ixodes scapularis</i>)	120	504	624
Lonestar Tick (<i>Amblyomma americanum</i>)	6	22	28
Total	384	1,070	1,454

OTHER TICK-BORNE DISEASES

Other tick-borne diseases have been identified in Michigan residents, which include:

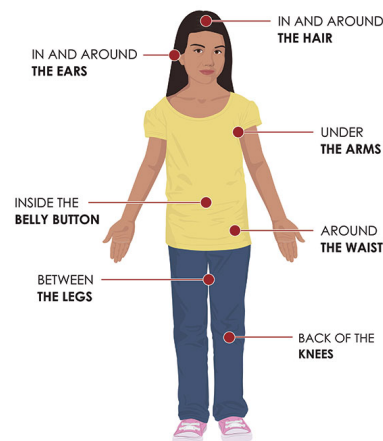
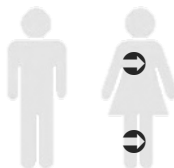
Tick-borne Disease	2019 Cases in Reported Michigan	Transmitted by (Species):
Anaplasmosis	15	Blacklegged Tick
Babesiosis	1	Blacklegged Tick
<i>Ehrlichia chaffeensis</i> *	5	Lone Star Tick
Tularemia	1	American Dog Tick and Lone Star Tick
Rocky Mountain spotted fever*	12	American Dog Tick

*In most cases, *Ehrlichia* and Rocky Mountain spotted fever were acquired while traveling out of state.

WHAT CAN BE DONE?

Everyone can....

- ➔ Inform yourself about where ticks can be encountered in Michigan
- ➔ Prevent tick bites by using EPA registered repellents on skin and clothing
- ➔ Check yourself and others for ticks regularly after spending time outdoors
- ➔ Remove ticks promptly and safely if you have been bitten
- ➔ Submit ticks you find on yourself or your pets for identification
- ➔ Recognize the symptoms of Lyme disease
- ➔ Seek prompt medical care if illness occurs after exposure to ticks



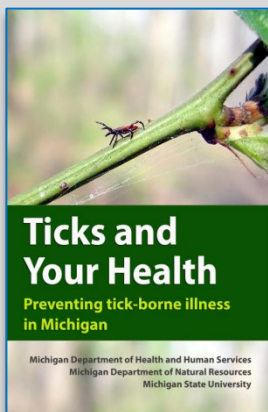
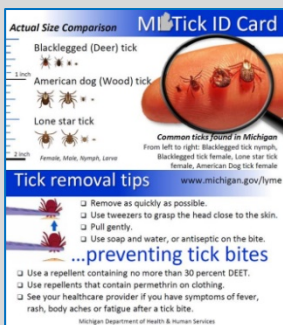
Health Providers can....

- ➔ Review public health data regarding the risk of Lyme disease in Michigan
- ➔ View the Michigan Lyme disease webinar: <https://www.michigan.gov/lymeinfo>
- ➔ Diagnose and treat infections using best practices
- ✦ Submit samples for Lyme disease testing to MDHHS Bureau of Laboratories
- ➔ Report cases promptly to your local health department
- ➔ Remind patients about the risk of Lyme disease in your area, and ways to prevent infections

Public Health Agencies can....

- ➔ Monitor Michigan's tick populations
- ➔ Maintain Lyme disease surveillance system
- ➔ Offer tick identification and testing services to the public
- ➔ Make Michigan data publicly available
- ➔ Promote tick-borne disease prevention guidance

UPDATED GUIDES AND PRINTED RESOURCES



Tick ID Cards are now available for order. This pocket-sized resource provides information on how to identify common Michigan ticks, proper tick removal, and preventing tick bites.

The **Ticks and Your Health** brochure has been updated to include the most up-to-date information about Michigan ticks and tickborne diseases and is now available online and to order.

Posters, pamphlets, tick submission kits, and guides are available to download, print and order via the Communicable Disease Division's publication order form at: www.michigan.gov/cdinfo