



Tick born illness is now becoming endemic to Michigan! This shift has changed the differential diagnosis landscape in emergency medicine. Patients with: fever, headache, myalgias, meningismus, cranial neuropathies, unexplained AV block, or summer “viral syndromes” **now increasingly warrant consideration of tick-borne illness.**

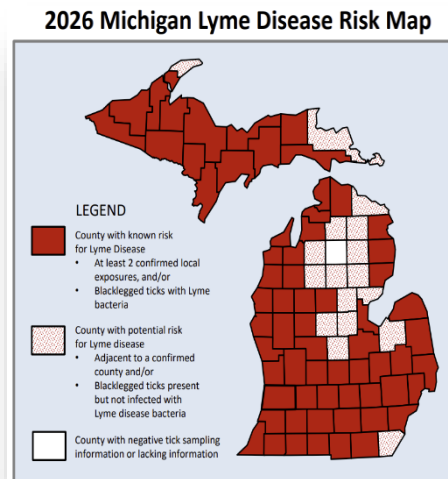
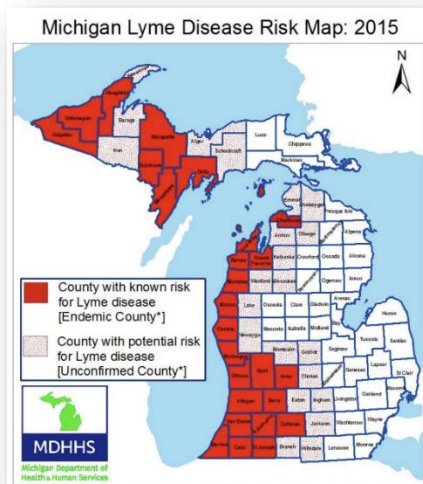


Per Michigan NPR, “Lyme disease cases in Michigan continue to rise, **quadrupling** from 553 in 2022 to 2,167 in 2025.

For the first time, the state is considered a “high-incidence jurisdiction” by the Centers for Disease Control and Prevention. “[Ticks] have been increasing in population across the Midwest for a few reasons. Ticks are very acclimated to Midwest climate. They reproduce in large numbers, and they survive our winters very well, and they like our hot, humid summers”. As the weather gets warmer, epidemiologists say the best way to protect against Lyme disease is to avoid tick bites.

“Our tick populations will continue to spread, and the best thing to try to prevent this increase in cases is preventing tick bites, and that comes down to the behavior and the prevention methods that our citizens here in Michigan are utilizing.”

Michiganders are encouraged to use an EPA-approved bug repellent, do tick checks on themselves and their pets after being outside, and stay on well-groomed trails when hiking.”



- <https://www.michigan.gov/emergingdiseases/home/lyme-disease>
- <https://www.michiganpublic.org/health/2026-04-20/michigan-lyme-disease-cases-nearly-quadrupled-between-2022-and-2025>

References to consider en route to this station

1. CDC, *Clinical Care and Treatment of Neurologic Lyme Disease*. Accessed online 2026, CDC.gov <https://www.cdc.gov/lyme/hcp/clinical-care/neurologic-lyme-disease.html>
2. Fazier, N and Douce, R. *First reported case of Lyme carditis in Southwest Michigan*. SMRJ, 2017. <https://smrj.scholasticahq.com/article/5933-first-reported-case-of-lyme-carditis-in-southwest-michigan>
3. Johns Hopkins Medicine Lyme Disease Research Center, *Lyme Disease Signs and Symptoms*. Accessed online 2026. <https://www.hopkinslyme.org/wp-content/uploads/2020/04/Maryland-DMHMH-Lyme-MD-poster-final.pdf>

This chart is not really a part of this station, but still is a really good reference. Look it up! <sup>3</sup>



4. Crespo, M and Jones, R. *Techniques for Performing Paramedian Approach to Lumbar Puncture*. ACEPNow, 2017. <https://www.acepnow.com/article/techniques-performing-paramedian-approach-lumbar-puncture/>
5. Wagner, J et al. *Increased lumbar puncture success using a paramedian approach: A retrospective cohort study*. J Hosp Med, 2025. <https://pubmed.ncbi.nlm.nih.gov/40686417/>
6. Doat-Sarfati, V et al. *Fatal arachnoiditis following accidental intradural injection of chlorhexidine: a case report and literature review*. Reg Anesth Pain Med, 2026. <https://pubmed.ncbi.nlm.nih.gov/41781151/>

## Station 3: Inoculation Station



You have several patients each presenting with **fever, myalgias, and headache**. They all probably just have a viral URI and should get some Toradol and discharge ... right?

For this station, your team must work together to identify a fourth sign or symptom that can differentiate some of the many conditions that could present with these vague symptoms of fever, myalgias, and headache. Make your diagnosis and then associate the proper treatment and inoculation vector!

0-6 Points      Get one point for each entirely correct column. Must fully match Vector, Treatment, and board-style Diagnostic Clue to get a point!

	Condition 1	Condition 2	Condition 3	Condition 4	Condition 5	Condition 6
Vector:						
Dx:						
Tx:						

1 Point      Now you must perform an ultrasound guided lumbar puncture to clinch a life-saving diagnosis. Which is the best antiseptic to use to prep the area and why?

1 Point



1 Point      Demonstrate on your teammate what proper positioning for a landmark-based LP looks like, and for one point measure the change in size of the gap between spinous processes when your patient flexes their back “cat style” versus flat positioning

1 Point      Demonstrate on the mannequin a successful ultrasound guided paramedian approach lumbar puncture