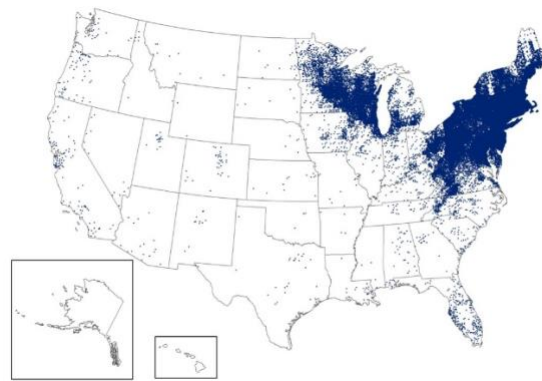




## Limit Lyme

Lyme disease is caused by the spirochete *Borrelia burgdorferi* and is spread through tick bites from *Ixodes* ticks (e.g. blacklegged deer ticks).<sup>1</sup> Tick bites can occur year-around but most activity occurs during the warmer months between April and September.<sup>2</sup> The majority of Lyme diseases cases reported to the Centers for Disease Control and Prevention in 2023 were in the Northeastern United States and Upper Midwest, but cases have been reported in Kentucky.<sup>3</sup> What is the immediate management of someone with a tick bite?

Reported cases of Lyme disease, 2023<sup>3</sup>



### What initial steps should be performed following discovery of a tick?<sup>1,2</sup>

1. Promptly remove the tick by grasping and pulling the mouthparts at the closest point of attachment to the skin using clean fine-tipped tweezers. Chemicals, petroleum products, or heat (e.g. lighter) are not recommended and may increase risk of pathogen transmission by causing the tick to regurgitate.
2. Submit the tick for species identification
3. Determine if high-risk criteria are met. High-risk criteria are:
  - a. Tick identified as *Ixodes* spp. vector
  - b. Bite occurred in a highly endemic area for Lyme disease
  - c. Tick was attached for  $\geq 36$  hours. Likelihood of transmission increases with attachment time with majority of transmissions occurring 36-48 hours after attachment.

### If high-risk criteria met, what should be done?<sup>1</sup>

If high-risk criteria are met, a single dose of oral doxycycline 200 mg is recommended within 72 hours of tick removal. Alternative regimens that have been investigated include oral beta-lactams for longer durations, however efficacy has not been demonstrated and no recommended alternatives are available. Prophylaxis is not 100% effective, so regardless of whether a patient is prescribed prophylaxis, they should be counseled to seek treatment if they develop a rash (e.g. erythema migrans), fever, or other unexplained illness. Notably, other tick-borne illnesses such as anaplasmosis, babesiosis, and ehrlichiosis may be transmitted by *Ixodes scapularis* and it is unknown whether prophylaxis is efficacious.

**Key Takeaway:** Lyme disease is spread through deer tick bites. Prophylaxis with a single dose of oral doxycycline may help prevent diseases in high-risk patients.

### References:

1. Lantos PM, Rumbaugh J, Bockenstedt LK, et al. Clinical Practice Guidelines by the Infectious Diseases Society of America (IDSA), American Academy of Neurology (AAN), and American College of Rheumatology (ACR): 2020 Guidelines for the Prevention, Diagnosis and Treatment of Lyme Disease. *Clin Infect Dis*. 2021;72(1):e1-e48. doi:10.1093/cid/ciaa1215.
2. Centers for Disease Control and Prevention. Preventing tick bites. CDC website. Updated August 28, 2024. Accessed April 3, 2026. <https://www.cdc.gov/ticks/prevention/index.html>.
3. Centers for Disease Control and Prevention. Lyme disease case map. Centers for Disease Control and Prevention website. Updated June 4, 2025. Accessed April 3, 2026. <https://www.cdc.gov/lyme/data-research/facts-stats/lyme-disease-case-map.html>.