



TO: West Virginia Healthcare Providers, Hospitals and Other Healthcare Facilities

FROM: Matthew Christiansen, MD, MPH, Commissioner and State Health Officer
West Virginia Department of Health and Human Resources, Bureau for Public Health

DATE: May 3, 2023

LOCAL HEALTH DEPARTMENTS: Please distribute to community health providers, hospital-based physicians, infection control preventionists, laboratory directors, and other applicable partners.

OTHER RECIPIENTS: Please distribute to association members, staff, etc.

Tick exposures in West Virginia generally increase during spring and summer months and serves as an important reminder that tickborne diseases occur seasonally in West Virginia. Healthcare providers should have heightened clinical suspicion for Lyme disease and other tickborne illnesses.

Lyme Disease

In 2017, West Virginia became a high Lyme disease incidence state. With a rate of 100.14 new cases per 100,000 residents in 2021, West Virginia has one of the highest Lyme disease incidence rates in the nation. Lyme disease is transmitted by the tick *Ixodes scapularis* (blacklegged tick or deer tick). Ticks collected from West Virginia were tested and found positive for *Borrelia burgdorferi*, the bacteria that causes Lyme disease. *Ixodes scapularis* ticks in West Virginia have a *Borrelia burgdorferi* infection rate greater than 20%. *Ixodes scapularis* populations are established throughout West Virginia. If left untreated, Lyme disease infection can spread to the joints, heart, and the nervous system. The quicker the medical intervention by healthcare providers, the less likely negative outcomes are to occur. Prophylactic treatment following a tick bite is an effective early intervention method. *Ixodes scapularis* tick nymphs begin emergence in the middle of May and most people become infected with Lyme disease in June.

The West Virginia Department of Health and Human Resources, Bureau for Public Health is encouraging healthcare providers to consider following the Centers for Disease Control and Prevention (CDC) recommendations for Lyme disease prophylaxis after a tick bite (<https://www.cdc.gov/ticks/tickbornediseases/tick-bite-prophylaxis.html>).

In areas that are highly endemic for Lyme disease, such as West Virginia, a single prophylactic dose of doxycycline (200 mg for adults or 4.4 mg/kg for children of any age weighing less than 45 kg) may be used to reduce the risk of acquiring Lyme disease after a high-risk tick bite. Benefits of prophylaxis may outweigh risks when all the following circumstances are present:

1. The tick was likely infected with *Borrelia burgdorferi* (will likely be yes if the bite occurred in West Virginia).
2. The tick was removed within the last 72 hours.
3. The tick was engorged with blood and not flat.
4. The tick was a blacklegged tick (*Ixodes scapularis*).
5. Doxycycline is safe for the patient.

This message was directly distributed by the West Virginia Bureau for Public Health to local health departments and professional associations. Receiving entities are responsible for further disseminating the information as appropriate to the target audience.

Categories of Health Alert messages:

Health Alert: Conveys the highest level of importance. Warrants immediate action or attention.

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Although prophylaxis can be used to prevent Lyme disease, it is not 100% effective. If the patient develops signs or symptoms of Lyme disease, treat them accordingly. Note that Lyme prophylaxis has only been shown to be beneficial for the prevention of Lyme disease. It has not been shown to be beneficial for the prevention of Anaplasmosis, Rocky Mountain Spotted Fever, or Ehrlichiosis.

Lyme disease reporting in West Virginia is entirely based on laboratory reports that public health receives directly from lab-based reporting, not clinical reports. All other tickborne diseases should be reported to the West Virginia Electronic Disease Surveillance System (<https://oeps.wv.gov/wvedss/pages/default.aspx>).

Other Tickborne Diseases

Several other non-Lyme tickborne diseases are also reported annually in West Virginia. Spotted fever group rickettsia (SFGR) (including Rocky Mountain spotted fever) causes several diseases in humans, which can range from mild to highly lethal. West Virginia has seen a marked increase in SFGR cases. Other rickettsial diseases are on the rise such as Anaplasmosis and Ehrlichiosis. Tick surveillance has demonstrated increased emergence of the blacklegged tick (*Ixodes scapularis*), tick vector for Anaplasmosis, and the lone star tick (*Amblyomma americanum*), tick vector for Ehrlichiosis.

Since the clinical presentation and symptoms associated with SFGR and other rickettsial diseases can be flu-like in nature, characterized by fever, chills, and headaches, it can be common for misdiagnoses or delayed diagnoses to occur. However, early consideration and treatment is crucial to prevent severe illness and death. If rickettsial infection is suspected in any person at any age, begin treatment with doxycycline. **Do not wait for laboratory test results.** Doxycycline is the treatment of choice for all rickettsial diseases in patients of all ages. Early recognition and treatment with doxycycline is critical to survival.

Ordering the most accurate laboratory work is the only way to confirm rickettsial infection. Both immunofluorescence assay (IFA) IgG with acute and convalescent samples and polymerase chain reaction (PCR) are ideal, and both have individual benefits. More information about these tests can be found at <https://www.cdc.gov/rmsf/healthcare-providers/ClinLab-Diagnosis.html>.

CDC has produced a reference manual for healthcare providers that provides comprehensive information on tick identification, disease distribution, clinical signs and symptoms, laboratory testing, and treatment for tickborne diseases that are endemic to North America. This manual is available for free at <https://www.cdc.gov/ticks/tickbornediseases/index.html>.

For more information, please contact the Office of Epidemiology and Prevention Services, Division of Infectious Disease Epidemiology at (304) 558-5358, extension 2.

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