



NC DEPARTMENT OF HEALTH AND HUMAN SERVICES

JOSH STEIN • Governor

DEVDUTTA SANGVAI • Secretary

DEBRA FARRINGTON • Deputy Secretary for Health

KELLY KIMPLE • Director, Division of Public Health

Date: 22 July 2026
To: North Carolina Clinicians
From: Emily Herring, DVM, PhD, Public Health Veterinarian
Subject: Annual Update on Diagnosis and Surveillance of Tickborne Diseases

Introduction

In North Carolina, clinicians and laboratories are [required to report confirmed or suspected cases of tickborne illness](#), including Lyme disease, spotted fever rickettsiosis, ehrlichiosis, anaplasmosis, and babesiosis, to their state or local health department. While local transmission of all these diseases has been documented in NC, the three most common are Lyme disease, spotted fever rickettsiosis, and ehrlichiosis. In 2025, over 1,000 cases of these three conditions were reported in NC.

Surveillance for Tickborne Illnesses

North Carolina adheres to [CDC surveillance case definitions](#) for each of the tickborne infections, which establish uniform criteria for disease reporting to accurately monitor trends, take action to reduce disease, and protect public health. Surveillance case definitions are not intended to be used by healthcare providers for making a clinical diagnosis or determining how to meet an individual patient's health needs.

Actions for North Carolina Clinicians

- Report cases of tickborne infections to your state or local health department within 7 days of when the condition is reasonably suspected to exist.
- Remind patients to take preventive measures including:
 - recognizing and avoiding tick habitats;
 - using [CDC-recommended](#) and [EPA-registered](#) insect repellents when outdoors;
 - showering immediately after returning indoors;
 - [removing attached ticks promptly](#);
 - using permethrin-treated clothing;
 - and creating tick-safe zones in their yard.

Lyme disease (LD)

Reported cases of LD continue to increase from year to year in NC, especially in the northwestern region of the state. Notably, county-level incidence of LD more than doubled from 2024 to 2025 in Watauga, Yancey, Ashe, and Alleghany counties. As of 2025, a total of 33 NC counties have established populations of *Ixodes scapularis*, the tick vector of *Borrelia burgdorferi*. *B. burgdorferi*-infected ticks have been detected in 12 of these counties since 2004, with the highest densities of infected ticks observed in the northwestern region of NC. The NC DPH recommends [post-exposure prophylaxis](#) for LD in accordance with CDC recommendations for persons residing or traveling in counties that have a [high incidence of LD](#) (≥ 16 cases per 100,000 residents) or are geographically positioned between two high-incidence counties. These counties include: Buncombe, Madison, Yancey, Mitchell, Avery, Watauga, Ashe, Alleghany, Surry and Stokes

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES • DIVISION OF PUBLIC HEALTH

LOCATION: 65 Moore Drive, Durham, NC 27713

MAILING ADDRESS: 1902 Mail Service Center, Raleigh, NC 27699-1902

www.ncdhhs.gov • TEL: 919-707-5000 • FAX: 919-870-4829

AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER

(**Figure 1**). Most cases of LD reported in NC are confirmed due to the widespread adoption of [modified Two Tier Testing](#) (mTTT). The NC DPH recommends the use of mTTT when there is a clinical and epidemiologic suspicion of infection. Diagnostic testing is commercially available. Comprehensive information on the clinical care, testing and diagnosis of LD is available from the CDC [here](#).

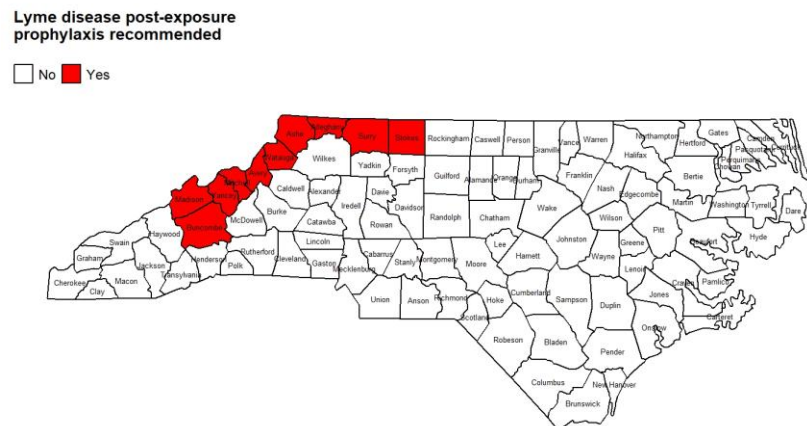


Figure 1. Map of NC counties where Lyme disease post-exposure prophylaxis is recommended

Spotted Fever Rickettsiosis (SFR) and Ehrlichiosis

Spotted fever rickettsiosis, which comprises illnesses caused by several related pathogens in the genus *Rickettsia*, and ehrlichiosis are transmitted statewide by their respective tick vectors. These diseases are most commonly diagnosed through serologic testing, although most cases are reported as probable because they are supported by only a single antibody titer. Confirmatory evidence of infection can be obtained by demonstrating a fourfold increase in antibody titer between paired serum specimens, or through detection of *Ehrlichia* or *Rickettsia* DNA via PCR. However, the sensitivity of PCR may be limited by the timing of specimen collection. For ehrlichiosis, PCR is recommended within the first week of illness. For Rocky Mountain spotted fever (RMSF), PCR is recommended during the severe phase of disease. RMSF and other SFRs can also be diagnosed through PCR testing of skin biopsies of rash lesions or eschars. Diagnostic testing is commercially available. **SFR and ehrlichiosis can be severe or fatal illnesses, so treatment should be given based on suspicion of illness and not be delayed until laboratory results are complete.** Prompt treatment (in the first five days of illness) with an appropriate antibiotic (doxycycline) will minimize the chances of severe illness development and usually results in a rapidly effective cure.

Anaplasmosis

Anaplasmosis is caused by the bacterium *Anaplasma phagocytophilum* and is transmitted in NC by infected blacklegged ticks (*I. scapularis*). Confirmed and probable cases of anaplasmosis in NC increased from 13 in 2024 to 31 in 2025. Historically, most cases of anaplasmosis in NC have been travel-associated, but in 2025, approximately 50% of the identified cases reported no travel outside of NC. Cases were reported across all regions of NC, with the highest incidence noted in the Mountains region. Diagnostic testing, including serologic testing and PCR, is commercially available. PCR is recommended within the first week of illness. Similar to ehrlichiosis and SFR, early recognition and prompt treatment with an appropriate antibiotic (doxycycline) will minimize the chances of developing severe illness and usually results in a rapidly effective cure. [Short courses of doxycycline \(such as those used to treat rickettsial diseases\) do not cause dental staining when given to children under 8 years old and should be used.](#)

For more information

Please contact the NC Communicable Disease Branch epidemiologist on call at 919-733-3419 for any additional questions.