

LYME DISEASE INVESTIGATION OVERVIEW

Lyme disease (LD) is caused by the bacterium *Borrelia burgdorferi* and is transmitted to humans through the bite of infected blacklegged (deer) ticks. Typical symptoms include fever, headache, fatigue, and a characteristic skin rash called erythema migrans. If left untreated, infection can spread to joints, the heart, and the nervous system.

For more information see the CDC webpage for [Lyme Disease](#)

For additional support, consult the NC Communicable Disease Branch at (919) 733-3419.

BASIC STEPS OF A LYME DISEASE INVESTIGATION

1. Review Lab Information	<ul style="list-style-type: none"> • Make sure lab criteria meets the case definition. <ul style="list-style-type: none"> • A positive lab is required to meet case definition in NC. • Review the lab to ensure that it meets qualifying laboratory criteria. • A two-tier test is most frequently seen qualifying lab for Lyme disease. Either a Standard (STTT) and Modified (MTTT) two-tier test may meet criteria. • Laboratory testing for Lyme disease can be challenging. Resource tools are available on the NC CD Manual for lab interpretation. You may contact the Epi on Call for the Communicable Disease Branch if you need assistance with reviewing the labs. • If lab criteria are not met, do NOT enter in NCEDSS. • Clinical criteria are required for the Lyme disease case definition. Laboratory evidence alone is not sufficient to meet case definition.
2. Verify County of Residence	<ul style="list-style-type: none"> • If out of state, update person tab with correct address and return event to state. • If resident of another county, reassign event to that county.
3. Collect clinical information	<ul style="list-style-type: none"> • Obtain clinical information from the hospital and/or provider. • A case interview may be helpful, but qualifying clinical criteria must be observed by a medical provider. • <u>Clinical signs and symptoms that meet case definition:</u> <ul style="list-style-type: none"> • Physician diagnosed erythema migrans (EM) of greater than or equal to 5 cm and is often present early in the course of illness. • Late clinical manifestations not attributed to another cause include: <ul style="list-style-type: none"> • Musculoskeletal system. Recurrent, brief attacks (weeks or months) of objective joint swelling in one or a few joints. • Nervous system. Any of the following signs that cannot be explained by any other etiology, alone or in combination: lymphocytic meningitis; cranial neuritis, particularly facial palsy (may be bilateral); radiculoneuropathy; or, rarely, encephalomyelitis. • Cardiovascular system. Acute onset of high-grade (2nd-degree or 3rd-degree) atrioventricular conduction defects that resolve in days to weeks and are sometimes associated with myocarditis.
6. Identify Source of Exposure	<ul style="list-style-type: none"> • A risk history is important to track the advancement of tickborne disease into NC. • Obtain the risk history of tick bites, and outdoor activity. <ul style="list-style-type: none"> • Although dogs and cats can get Lyme disease, there is no evidence that they spread the disease directly to their owners. However, pets can bring infected ticks into the home or yard. • A reported tick bite is not necessary to meet case defining because ticks may be extremely small, and a person may not have been aware of the tick bite.

CRITICAL ELEMENTS FOR NCEDSS

- Clinical Package
 - “General Diagnostic Information- Date that best reflects the earliest date of illness identification.”
 - Best choice is always the date of illness onset (signs and symptoms), second best is date of lab.
 - For cases that are IgM positive, IgG negative, the date of illness onset is critical.
- Risk History Package

- Resources – [APHL Suggested Reporting Language, Interpretation and Guidance Regarding Lyme Disease Serologic Test Results](#)