Georgia Department of Public Health

Peachtree Street NW, 15th Floor
Atlanta, Georgia 30303-3142
www.health.state.ga.us

LYME DISEASE FACT SHEET
(updated May 2019)

Agent: *Borrelia burgdorferi*, a spirochete

Brief Description: Lyme disease is a tick-borne, spirochetal, zoonotic disease characterized by a distinctive skin lesion (Erythema migrans or EM), systemic symptoms, and neurologic, rheumatologic and cardiac involvement occurring in varying combinations over a period of years. The illness typically begins in the summer. The first manifestation, which occurs in about 90% of patients, appears as a red macule or papule that expands slowly in an annular manner, sometimes with multiple similar lesions. The lesion may be accompanied by malaise, fatigue, fever, headache, stiff neck, myalgia, arthralgia, or lymphadenopathy.

Reservoir: Certain ixodid ticks (*Ixodes scapularis* in Georgia). Deer, wild rodents, and other animals like dogs and opossums serve as important maintenance mammalian hosts for vector tick species. Adult ticks usually feed on deer, whereas larval and nymphal ticks feed on rodents.

Mode of Transmission: Tick-borne (i.e., the bite of an infected tick). Most human cases of Lyme disease occur after bites from the nymphal stage of the tick, and usually require more than 24 hours of attachment for transmission.

Incubation Period: Erythema migrans usually appears 3 to 32 days after tick exposure. However, early stages may be asymptomatic, and a patient may present with later manifestations of the illness.

Diagnostic Testing: Serology

1. Specimen: Blood: 7cc whole blood in red-topped tube.
2. Outfits: Other serology outfit, order #0504.
3. Form: CDC Form 50.34.
4. Lab Test Performed: Indirect immunofluorescence assay (IFA) for IgG and IgM antibodies followed by Western immunoblot.
5. Lab: CDC, with prior arrangement through the Georgia Public Health Laboratory (GPHL). *Important: Do not submit specimens directly to CDC. All specimens must be submitted to GPHL.*

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Period of Communicability: No evidence exists of natural transmission from person to person.

Investigation: Studies to determine the sources of infection are indicated when cases occur outside a recognized endemic focus.

Case Classification Chart:

Lyme disease (*Borrelia burgdorferi*)
Erythema migrans (EM): For surveillance purposes, EM is defined as a skin lesion that typically begins as a red macule or papule and expands over a period of days to weeks to form a large round lesion, often with partial central clearing. A single primary lesion must reach greater than or equal to 5 cm in size across its largest diameter. Secondary lesions also may occur. Annular erythematous lesions occurring within several hours of a tick bite represent hypersensitivity reactions and do not qualify as EM. For most patients, the expanding EM lesion is accompanied by other acute symptoms, particularly fatigue, fever, headache, mildly stiff neck, arthralgia, or myalgia. These symptoms are typically intermittent. The diagnosis of EM must be made by a physician.
Late manifestations: For surveillance purposes, late manifestations include any of the following when an alternate explanation is not found: Musculoskeletal system. Recurrent, brief attacks (weeks or months) of objective joint swelling in one or a few joints, sometimes followed by chronic arthritis in one or a few joints. Manifestations not considered as criteria for diagnosis include chronic progressive arthritis not preceded by brief attacks and chronic symmetrical polyarthritis. Additionally, arthralgia, myalgia, or fibromyalgia syndromes alone are not criteria for musculoskeletal involvement. Nervous system. Any of the following, alone or in combination: lymphocytic meningitis; cranial neuritis, particularly facial palsy (may be bilateral); radiculoneuropathy; or, rarely, encephalomyelitis. Encephalomyelitis must be confirmed by demonstration of antibody production against *Borrelia burgdorferi* in the cerebrospinal fluid (CSF), evidenced by a higher titer of antibody in CSF than in serum. Headache, fatigue, paresthesia, or mildly stiff neck alone are not criteria for neurologic involvement. 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. Palpitations, bradycardia, bundle branch block, or myocarditis alone are not criteria for cardiovascular involvement.
Laboratory evidence is defined as follows for surveillance purposes:

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Positive two-tier testing using a sensitive EIA or IFA followed by a Western immunoblot, or A positive IgG Western immunoblot, or A positive culture for *B. burgdorferi*.		
Confirmed	**Probable**	**Suspect**
A confirmed case of Lyme disease with exposure in Georgia or another non-endemic area is defined as: A case of EM with laboratory evidence of infection, or A case with at least one late manifestation that has laboratory evidence of infection.	A probable case is any other case of physician-diagnosed Lyme disease that has laboratory evidence of infection.	A suspect case with exposure in Georgia or another non-endemic area is defined as: A case of EM with no laboratory evidence of infection, or A case with laboratory evidence of infection but no clinical information available (e.g. a laboratory report).
Comments: Cases with exposure to tick habitats in an endemic area (i.e. the Northeast, upper Midwest, or California) can be confirmed by clinical diagnosis of EM only (no laboratory evidence is needed). Please report exposure county and state.		

Treatment: For adults, early localized and early disseminated disease can be treated effectively with doxycycline (100 mg twice daily), amoxicillin (500 mg 3 times daily), or cefuroxime axetil (500 mg twice daily) for 14 days (range 10–21 days for doxycycline and 14–21 days for amoxicillin or cefuroxime axetil). Children less than eight years of age should be treated with amoxicillin (50 mg/kg per day in 3 divided doses [maximum of 500 mg per dose]), or cefuroxime axetil (30 mg/kg per day in 2 divided doses [maximum of 500 mg per dose]). For children ⩾8 years of age, the dosage of doxycycline is 4 mg/kg per day in 2 divided doses (maximum of 100 mg per dose). Children are treated for the same duration as adults. For additional treatment information, including treatment for pregnant women and others for which tetracyclines are contraindicated, as well as treatment for late disseminated disease involving cardiac, neurologic, and other manifestations, please see treatment guidelines from the Infectious Diseases Society of America at: http://www.idsociety.org//Organism/#NervousSystemLymeDisease.

Reporting: Report cases WITHIN 7 DAYS to the local health department, District Health Office, or the Epidemiology Section electronically through the State Electronic Notifiable Disease Surveillance System (SENDSS) at http://sendss.state.ga.us, or complete and mail CDC Form 52.60 Rev 1-91, *Lyme Disease Case Report Form*

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https://dph.georgia.gov/sites/dph.georgia.gov/files/related_files/document/ADES_lyme.crf_.02.pdf for each reported case.

Reported Cases of Lyme Disease in Georgia, 1997-2018

Year	Number of Confirmed Cases
1997	9
1998	7
2001	1
2002	5
2003	10
2004	12
2005	6
2006	8
2007	11
2008	35
2009	44
2010	12
2011	58
2012	72
2013	94
2014	7
2015	8
2016	4
2017	9
2018	6

References:

1. Centers for Disease Control and Prevention. Lyme Disease Case Definition. http://wwwn.cdc.gov/nndss/ (search for Lyme Disease under "Search Conditions")
2. Wormser GP, Dattwyler RJ, Shapiro ED, et al. The Clinical Assessment, Treatment, and Prevention of Lyme Disease, Human Granulocytic Anaplasmosis, and Babesiosis: Clinical Practice Guidelines by the Infectious Diseases Society of America. Clinical Infectious Diseases 2006; 43:1089–1134.
3. Centers for Disease Control and Prevention. Surveillance for Lyme Disease — United States, 1992-1998. MMWR 2000; 49(No. SS-03):1-11.
4. Chin J, ed. Lyme Disease. In: Control of Communicable Diseases Manual. 17th ed.

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5. Evans J. Lyme Disease. Curr Opin Rheumatol 2000; 12(4):311-7.