Lyme Disease Surveillance Case Definition

Centers for Disease Control & Prevention, revised September 1996

www.cdc.gov/ncidod/dvbid/lyme/casedef2.htm

Clinical description

A systemic, tick-borne disease with protean manifestations, including dermatologic, rheumatologic, neurologic, and cardiac abnormalities. The best clinical marker for the disease is the initial skin lesion, erythema migrans, that occurs among 60%-80% of patients.

Clinical case definition

- Erythema migrans, or
- At least one late manifestation, as defined below, and laboratory confirmation of infection

Laboratory criteria for diagnosis

- Isolation of *Borrelia burgdorferi* from clinical specimen, or
- Demonstration of diagnostic levels of IgM and IgG antibodies to the spirochete in serum or CSF, or
- A two-test approach using a sensitive enzyme immunoassay or immunofluorescence antibody followed by Western blot is recommended (1).

CASE CLASSIFICATION

CONFIRMED: a case that meets one of the clinical case definitions above

COMMENT: This surveillance case definition was developed for national reporting of Lyme disease; ***it is NOT appropriate for clinical diagnosis***. Definition of terms used in the clinical description and case definition:

A. Erythema migrans (EM)

For purposes of surveillance, 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 solitary lesion must reach at least 5 cm in size. Secondary lesions may also 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, mild stiff neck, arthralgia, or myalgia. These symptoms are typically intermittent. The diagnosis of EM must be made by a physician. Laboratory confirmation is recommended for persons with no known exposure.

B. Late manifestations

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 showing antibody production against *B. burgdorferi* in the cerebrospinal fluid (CSF), demonstrated by a higher titer of antibody in CSF than in serum. Headache, fatigue, paresthesia, or mild stiff neck alone are not criteria for neurologic involvement.

- ***Cardiovascular system***

Acute onset, high-grade (2nd 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.

C. Exposure

Exposure is defined as having been in wooded, brushy, or grassy areas (potential tick habitats) in a county in which Lyme disease is endemic no more than 30 days before onset of EM. A history of tick bite is NOT required.

D. Disease endemic to county

A county in which Lyme disease is endemic is one in which at least two definite cases have been previously acquired or in which a known tick vector has been shown to be infected with *B. burgdorferi*

E. Laboratory confirmation

As noted above, laboratory confirmation of infection with *B. burgdorferi* is established when a laboratory isolates the spirochete from tissue or body fluid, detects diagnostic levels of IgM or IgG antibodies to the spirochete in serum or CSF, or detects a significant change in antibody levels in paired acute- and convalescent-phase serum samples. States may determine the criteria for laboratory confirmation and diagnostic levels of antibody. Syphilis and other known causes of biologic false-positive serologic test results should be excluded when laboratory confirmation has been based on serologic testing alone.

REFERENCES:

Centers for Disease Control and Prevention. Case Definitions for Infectious Conditions Under Public Health Surveillance. MMWR May 2, 1997;46(RR-10):1-55. www.cdc.gov/mmwr/preview/mmwrhtml/00047449.htm

Centers for Disease Control and Prevention. Recommendations for Test Performance and Interpretation from the Second National Conference on Serologic Diagnosis of Lyme Disease. MMWR Aug 11, 1995;44:590-591. www.cdc.gov/mmwr/preview/mmwrhtml/00038469.htm

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The following wording appears on all *Borrelia* and other tickborne disease test results produced by the Sonoma County Public Health Laboratory:

> **Diagnosis should not be based on laboratory tests alone. Results should be interpreted in conjunction with clinical symptoms and patient history.**