Lyme Disease

Merlin disease code=06959
Case report form (CRF): Lyme Disease CRF
MERLIN EXTENDED DATA REQUIRED

Background
This surveillance case definition was developed for national reporting of Lyme disease; it is not intended to be used in clinical diagnosis.

Lyme disease is a systemic, tick-borne disease with protean manifestations, including dermatologic, rheumatologic, neurologic, and cardiac abnormalities. The most common clinical marker for the disease is erythema migrans (EM), the initial skin lesion that occurs in 60%-80% of patients.

If either of the following are true, see acute Lyme disease:
- Symptom onset was within 30 days of laboratory testing
- Or a physician-diagnosed EM was observed.

If either of the following are true, see late-manifestation Lyme disease:
- Symptom onset was more than 30 days prior to laboratory testing and no physician-diagnosed EM was observed
- Or any of the following are reported: recurrent joint swelling, lymphocytic meningitis, cranial neuritis including Bell’s palsy, radiculoneuropathy (radiating pain along a nerve, e.g., sciatica, symmetric or asymmetric numbness or tingling), encephalomyelitis, or second or third degree atrioventricular conduction defects.

Acute Lyme disease
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 single primary lesion must reach ≥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. Laboratory confirmation is recommended for persons with no known exposure.

Late-manifestation Lyme disease
For purposes of surveillance, 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 (second degree or third 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.

### Clinical criteria for case classification

**Acute Lyme disease**

**Confirmatory:**
Physician-diagnosed EM.

**Presumptive:**
All of the following:
- Physician-diagnosed Lyme disease in the absence of EM,
- **And** symptom onset within 30 days of laboratory testing,
- **And** no late clinical manifestations.

**Late-manifestation Lyme disease**

**Confirmatory:**
At least one musculoskeletal, nervous, or cardiovascular system late manifestation.

**Presumptive:**
Both of the following:
- Physician-diagnosed Lyme disease more than 30 days after symptom onset without EM
- **And** laboratory testing more than 30 days after symptom onset.

### Laboratory criteria for case classification

**Acute Lyme disease**

One or more of the following:
- IgG western blot is positive for 5 or more of the following bands: 18 kDa, 21-25 kDa (OspC), 28 kDa, 30 kDa, 39 kDa (BmpA), 41 kDa (Fla), 45 kDa, 58 kDa (not GroEL), 66kDa, or 93 kDa;
- **Or** culture positive for *B. burgdorferi*,
- **Or** all of the following:
  - Antibody positive or indeterminate for *B. burgdorferi* by enzyme immunoassay (EIA) or immunofluorescent (IF) assay,
  - **And** IgM western blot is positive for 2 or more of the 3 following bands: 21-25 kDa (OspC), 39 kDa (BmpA), or 41 kDa (Fla),
  - **And** symptom onset within 30 days of laboratory testing.
Late-manifestation Lyme disease
One or more of the following:
- IgG western blot is positive for 5 or more of the following bands: 18 kDa, 21-25 kDa (OspC), 28 kDa, 30 kDa, 39 kDa (BmpA), 41 kDa (Fla), 45 kDa, 58 kDa (not GroEL), 66kDa, or 93 kDa;
- Or antibody positive for *B. burgdorferi* by EIA or IF where the CSF titer is higher than the serum titer;
- Or culture positive for *B. burgdorferi*.

Epidemiological criteria for case classification
Exposure is defined as having been in wooded, brushy or grassy areas (i.e., potential tick habitats) in a county in which Lyme disease is endemic in the 30 days prior to symptom onset. A history of tick bite is not required. For surveillance purposes, Lyme disease is considered to be endemic in Florida.

Epidemiological criteria for classification for acute Lyme disease vary by whether exposure occurred in a state with high or low Lyme incidence. **Florida is considered a low incidence state.** Three-year average Lyme disease incidence by state can be obtained at [www.cdc.gov/lyme/stats/tables.html](http://www.cdc.gov/lyme/stats/tables.html).

Low incidence state:
States with a 3-year average incidence of <10 cases per 100,000 persons.

High incidence state:
States with a 3-year average incidence of ≥10 cases per 100,000 persons.

Case classification

**Acute Lyme disease**
**Confirmed:**
Either of the following:
- A person with confirmatory acute clinical criteria and exposure in a high incidence state
- Or a person with confirmatory acute clinical criteria, acute laboratory evidence, and exposure in a low incidence state (such as Florida).

**Probable:**
A person with presumptive acute clinical criteria and acute laboratory evidence of infection.

**Suspect:**
Either of the following:
- A person with confirmatory acute clinical criteria without known exposure
- Or a person with acute laboratory evidence and no clinical information available (no medical record or patient interview).

**Late-manifestation Lyme disease**
**Confirmed:**
A person with confirmatory late-manifestation clinical criteria and late-manifestation laboratory evidence.

**Probable:**
A person with presumptive late-manifestation clinical criteria and late-manifestation laboratory evidence of infection.
**Suspect:**
A person with late-manifestation laboratory evidence and no clinical information available (no medical record or patient interview).

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<thead>
<tr>
<th>Criteria to distinguish a new case from previous reports</th>
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<tr>
<td>Not applicable.</td>
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**Comments**
Lyme disease reports will not be considered cases if the medical provider specifically states this is not a case of Lyme disease, or the only symptom listed is "tick bite" or "insect bite."

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