



# Infectious Disease Epidemiology Report

## Lyme Disease Surveillance Report – Maine, 2012



### Background

Lyme disease is a tickborne illness with variable dermatologic, rheumatologic, neurologic, and cardiac manifestations. It is caused by a type of bacteria, *Borrelia burgdorferi*, which is carried by infected deer ticks (*Ixodes scapularis*). Transmission occurs when individuals have an infected deer tick attached to their bodies for at least 24 hours. The first clinical sign of the disease is a skin lesion referred to as the “bull’s-eye” rash or erythema migrans (EM), which occurs in 70-80% of cases nationally 3-30 days after a tick bite. Untreated infections can lead to late clinical findings in skeletal, cardiac, and nervous systems. Late manifestations of disease include: arthritis characterized by recurrent, brief attacks of joint swelling; lymphocytic meningitis; cranial neuritis (such as Bell’s palsy); encephalitis; and second or third degree atrioventricular block.

### Methods

Lyme disease is a reportable condition in Maine. The surveillance case definition of Lyme disease is used for national reporting and is not intended to be used in clinical diagnosis. For surveillance purposes, reported cases are classified as confirmed, probable or suspect based on clinical symptoms and laboratory testing interpreted using criteria established by the federal CDC. Confirmed cases must meet the following criteria:

- 1) A person with erythema migrans; or
- 2) A person with at least one late manifestation and laboratory confirmation of one of the following:
  - Positive culture for *B. burgdorferi*;
  - IgG positive Western blot;
  - Positive ELISA test and an IgM positive Western blot within 30 days of onset. This should be confirmed by IgG Western blot;
  - CSF antibody positive by EIA or IFA, where the titer is higher than it was in serum.

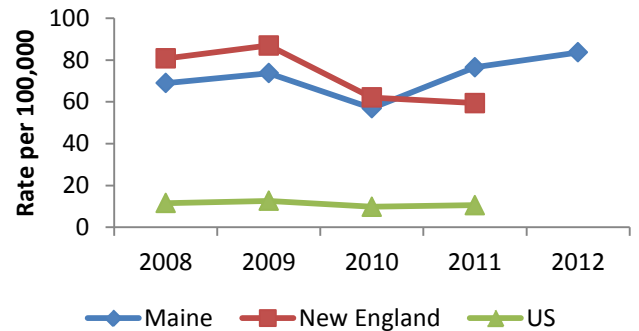
Probable cases must meet one of the laboratory criteria mentioned above and be physician diagnosed.

Maine CDC investigates all reports of positive laboratory tests or clinical diagnoses of EM by requesting standard information on a case report form completed and submitted by physicians. Cases are classified based on the information completed on the case report form. Data presented in this report reflect only those cases meeting the probable or confirmed case definition.

### Results

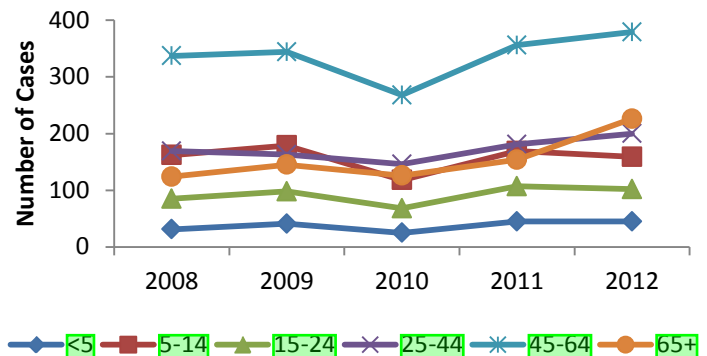
In 2012, a total of 1,111 probable and confirmed cases were reported to Maine CDC. This represents a state case rate of 83.7 cases per 100,000 persons (Figure 1).

Figure 1: Lyme Disease Incidence - Maine and US, 2008 - 2012\*



Fifty-six percent of the cases were male. The median age was 48 years, with a range from 1 to 92 years. The 45-64 year old age group had the highest number of cases in 2012 (Figure 2).

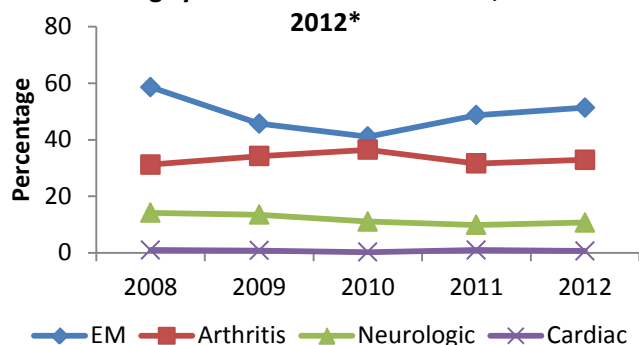
Figure 2: Number of Reported Lyme Disease Cases by Age Group - Maine, 2005-2012\*



EM was reported in 51.4% of cases. Arthritis characterized by brief attacks of joint swelling was reported in 32.9% of cases. Neurologic symptoms were reported in 10.7% of cases. Cardiac symptoms were reported in 0.6% of cases (Figure 3). Multiple symptoms could be reported by each case. Four percent of cases were reported to have been hospitalized at the time of the report.

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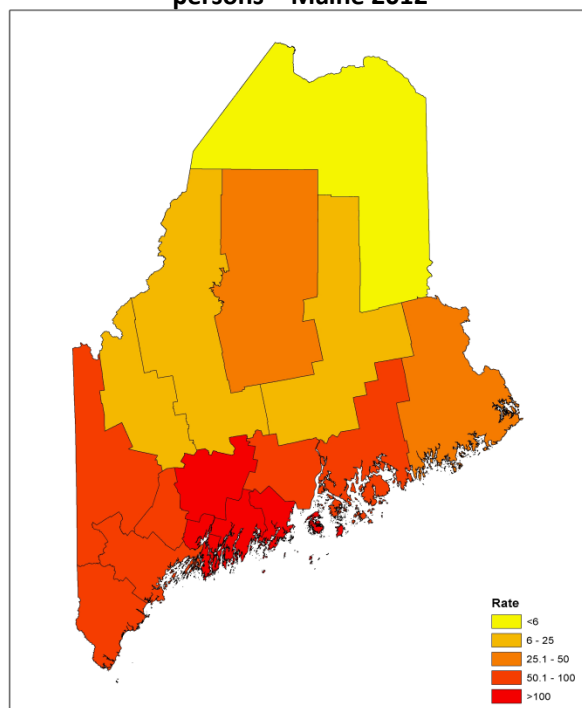
**Figure 3: Percentage of Symptoms Reported Among Lyme Disease Cases - Maine, 2005-2012\***



Forty-nine percent of cases reported a symptom onset date during the summer months of June, July and August. Onset date information was missing for 254 cases (22.9%).

In 2012, Lyme disease was reported for residents in all 16 of Maine's counties (Figure 4).

**Figure 4: Rates of Lyme Disease per 100,000 persons – Maine 2012**



### Discussion

The state case rate for Lyme disease in Maine reached a record high in 2012 at 83.7 cases per 100,000 persons. There were 7 counties with rates of Lyme higher than

the state rate (Cumberland, Hancock, Kennebec, Knox, Lincoln, Sagadahoc, Waldo, and York).

EM remained the most common symptom of Lyme disease reported to Maine CDC. There was a 2.7% increase in reported EM from 2011, however at 51.4%, Maine's reported incidence of EM remains lower than the nationally reported average of 70-80%. Maine CDC feels that EM is under-reported and that the actual incidence of EM in Maine is higher than the reported incidence.

May is Lyme Disease Awareness month in Maine. Lyme disease can be prevented by:

- Using caution in tick-infested areas
- Using EPA approved repellents containing DEET, picaridin, IR3535 or oil of lemon eucalyptus - always follow the instructions on the product's label
- Applying permethrin (an EPA approved repellent) to clothing
- Wearing long sleeve shirts and long pants
- Checking for ticks after being outside
- Removing ticks with tweezers or a tick spoon immediately to avoid them attaching and becoming engorged
- Using "tick-safe" landscaping, such as removing leaf litter, tall grass and brush, creating borders between woods and lawn, and discouraging deer with physical barriers

Provider information about testing and additional information about Lyme disease is available at the Maine CDC website: <http://www.maine.gov/dhhs/mecdc/infectious-disease/epi/vector-borne/lyme/index.shtml> and at the federal CDC website: <http://www.cdc.gov/ncidod/dvbid/lyme/index.htm>.

Clinical guidelines are available at the Infectious Disease Society of America website: <http://www.idsociety.org/Lyme/>.

Human Lyme disease data for Maine can be found at: [Data Portal - Lyme](#)

Ticks may be submitted for identification free of charge to the Maine Medical Center Research Institute. Information may be found at: <http://www.mmcri.org/lyme/submit.html>.

Lyme disease cases can be reported to Maine CDC by calling 1-800-821-5821 or faxing the Lyme disease report form available online (<http://www.maine.gov/dhhs/mecdc/infectious-disease/epi/vector-borne/lyme/documents/case-report-form.pdf>) to 1-800-293-7534.