Infectious Disease Epidemiology Report

Lyme Disease Surveillance Report – Maine, 2010

Introduction

Lyme disease is a tickborne illness with variable dermatologic, rheumatologic, neurologic, and cardiac manifestations. It is caused by a type of bacteria, *Borrelia burgdorferi*,that is carried by infected deer ticks (*Ixodes scapularis*). Transmission occurs when individuals have an infected deer tick attached to their bodies for 24 - 48 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 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 reportable 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. This should be confirmed by IgG Western blot.

Probable cases must meet:

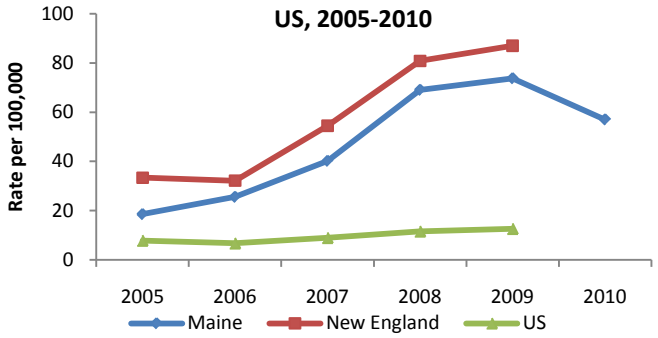
1) One of the laboratory criteria mentioned above and be physician diagnosed.

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

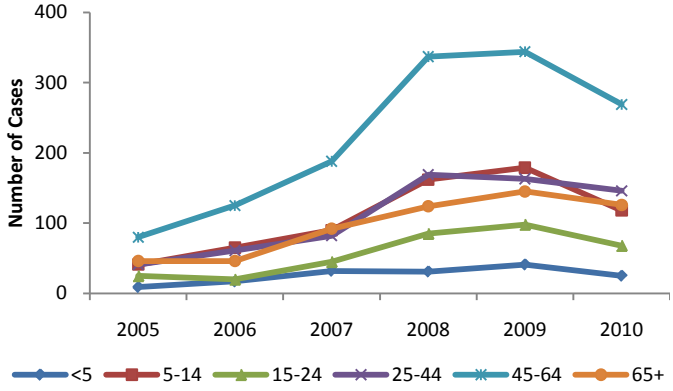
During 2010, a total of 752 probable and confirmed cases were reported to Maine CDC. This represents a state case rate of 57.0 cases per 100,000 persons (Figure 1).

Figure 1: Lyme Disease Incidence - Maine and US, 2005-2010



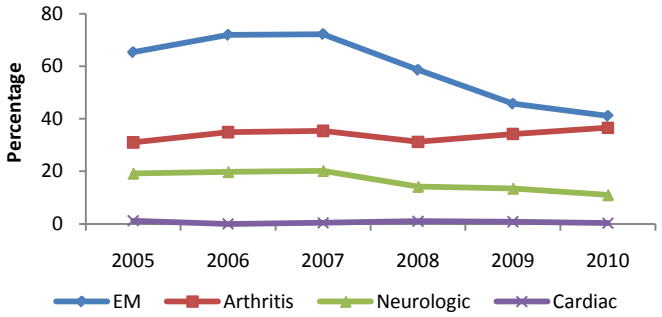
Fifty-three percent of the cases were male. The median age was 46 years, with a range from 0 to 91 years. The 45-64 year old age group had the highest number of cases in 2010 (Figure 2).

Figure 2: Number of Reported Lyme Disease Cases by Age Group - Maine, 2005-2010



Physician diagnosed EM was reported in 41.1% of cases. Arthritis characterized by brief attacks of joint swelling was reported in 36.6% of cases. Neurologic symptoms were reported in 11.0% of cases. Cardiac symptoms were reported in 0.3% of cases (Figure 3). Multiple symptoms could be reported by each case. Three percent of cases were reported to have been hospitalized at the time of the report.

Figure 3: Percentage of Symptoms Reported Among Lyme Disease Cases - Maine, 2005-2010



The majority (56%) of cases reported a symptom onset date during the summer months of June, July, and August. Onset date information was missing for 31% (222) of cases.

In 2010, Lyme disease was reported for residents in all counties of Maine. Almost half of the cases in the state (47.6%) occurred among York and Cumberland residents (Table 1).

Table 1: Lyme Disease by County, Maine 2010

County	Cases	Rate	Percentage
Androscoggin	38	35.7	5.1
Aroostook	4	5.6	0.5
Cumberland	182	65.3	24.2
Franklin	19	63.9	2.5
Hancock	28	52.4	3.7
Kennebec	88	72.7	11.7
Knox	65	159.3	8.6
Lincoln	38	109.9	5.1
Oxford	16	28.4	2.1
Penobscot	12	8.0	1.6
Piscataquis	1	6.0	0.1
Sagadahoc	45	123.7	6.0
Somerset	7	13.7	0.9
Waldo	25	65.3	3.3
Washington	8	24.9	1.1
York	176	87.2	23.4
Maine	**752**	**57.0**	**100.0**

Discussion

The incidence of Lyme disease in Maine decreased in 2010; however, Lyme disease is still a major concern. Rates in Franklin, Oxford, Penobscot, Somerset, Waldo and Washington counties all increased in 2010.

Maine Medical Center Research Institute (MMCRI) Vectorborne Laboratory provides a service where ticks can be submitted to MMCRI for identification. In 2010 the identification service showed a slow but persistent expansion of deer tick distribution continuing to occur, both eastward and northward throughout the entire state. Potential deer tick habitat includes deciduous forest, overgrown fields, shrub layer, leaf litter, brushy and grassy places, and the edge areas between lawns and woods.

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

- Avoiding tick-infested areas
- Using insect repellents containing 20%-30% DEET on uncovered skin and clothing for older children and adults and use of 10% DEET for children greater than 2 months of age
- Applying permethrin (an insect repellent) to clothing
- Wearing long sleeve shirts and long pants
- Checking for ticks after being outside
- Removing ticks with tweezers 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/boh/ddc/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/content.aspx?id=4432#ld .

Ticks may be submitted for identification free of charge to the Maine Medical 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 to 1-800-293-7534. http://www.maine.gov/dhhs/boh/ddc/epi/vector-borne/lyme/index.shtml#resourcephysicians

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