



Infectious Disease Epidemiology Report



Lyme Disease Surveillance Report- Maine, 2006

Introduction

Lyme disease is a tickborne disease with variable dermatologic, rheumatologic, neurologic, and cardiac manifestations. The most reliable early clinical indication for the disease is an initial skin lesion commonly referred to as the "bull's-eye" rash or erythema migrans, which occurs in 70% to 80% of cases within a month after a tick bite. Untreated infections can lead to late manifestations in the joints, heart, and nervous system. Examples of these late manifestations 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. For surveillance purposes, Lyme disease is defined as:

- A person with erythema migrans; or
- A person with at least one of the late manifestations mentioned above and laboratory confirmation of infection. [Guidance on lab tests can be found at: www.MainePublicHealth.gov]

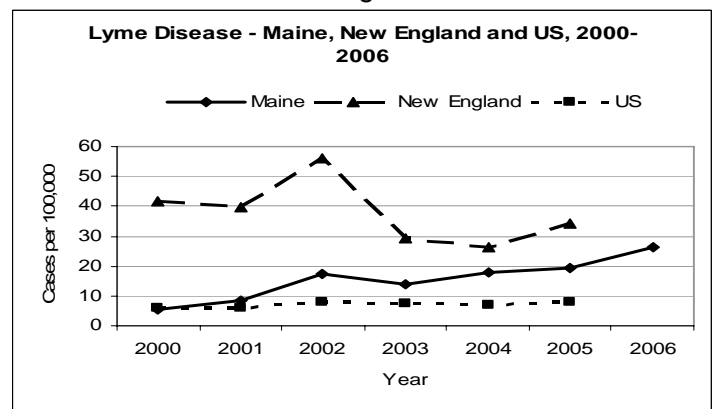
The Maine CDC investigates and collects surveillance data on reports of Lyme disease. Data presented in this report reflect only those reports that meet the case definition. Maine-specific data presented here were extracted from the National Electronic Disease Surveillance System (NEDSS), a disease-reporting database. National level data are obtained from Morbidity and Mortality Weekly Reports (MMWR). Population denominators are based on 2000 census data.

Results

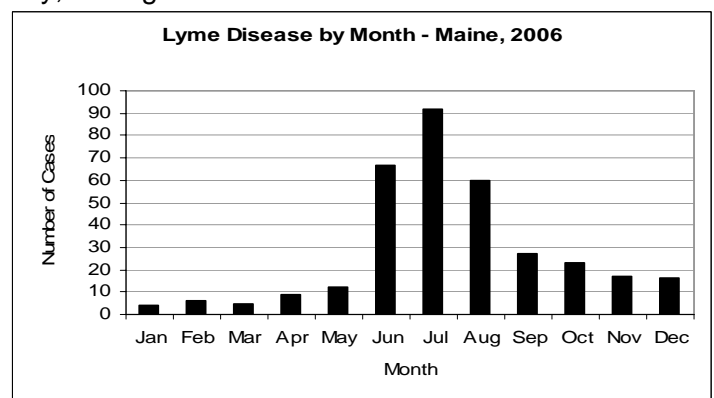
During 2006, a total of 338 confirmed cases of Lyme disease were reported to the Maine CDC. This represents an overall case rate of 26.5 per 100,000 population. Consistent with state and national data from previous years, physician-diagnosed erythema migrans was reported in about 73% of cases. Fifty-six percent of the cases were male. The median age was 45 years, with a range

of 1 to 91 years. Five percent of cases were reported to have been hospitalized.

Five-Year Trend: The number of Lyme disease cases reported in Maine during 2006 is the highest since Lyme disease surveillance began in 1989; reported incidence here has increased steadily since 2000. Over the same period, incidence rates for the U.S. population have been relatively stable while rates for the entire New England region have fluctuated but still remain higher than for Maine.



Distribution By Month of Onset: In 2006, as with previous years, peak incidence of Lyme disease occurred during the summer months. Sixty-five percent of all cases had reported onset in June, July, or August.



Distribution By County: In 2006, Lyme disease was reported for residents in 13 of 16 counties in Maine.

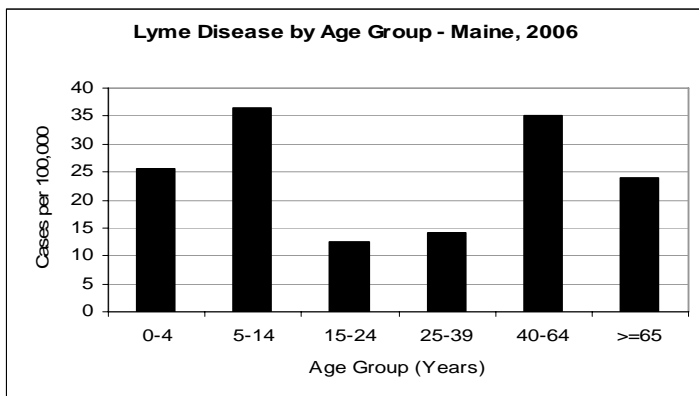
No cases were reported for residents of Aroostook County, Piscataquis County, and Washington County. York County and Cumberland County residents together accounted for nearly 68% of cases, at 133 and 96 cases, respectively. Case rates were highest for York County, Lincoln County, and Knox County (with 71.2 per 100,000, 56.5 per 100,000, and 42.9 per 100,000, respectively).

Lyme Disease by County - Maine, 2006

| County | Cases | Rate ^s | Percentage |
|--------------|-------|-------------------|------------|
| Androscoggin | 10 | 9.6 | 3.0 |
| Aroostook | 0 | 0.0 | 0.0 |
| Cumberland | 96 | 36.1 | 28.4 |
| Franklin | 5 | 17.0 | 1.5 |
| Hancock | 6 | 11.6 | 1.8 |
| Kennebec | 22 | 18.8 | 6.5 |
| Knox | 17 | 42.9 | 5.0 |
| Lincoln | 19 | 56.5 | 5.6 |
| Oxford | 1 | 1.8 | 0.3 |
| Penobscot | 5 | 3.5 | 1.5 |
| Piscataquis | 0 | 0.0 | 0.0 |
| Sagadahoc | 13 | 36.9 | 3.8 |
| Somerset | 3 | 5.9 | 0.9 |
| Waldo | 8 | 22.1 | 2.4 |
| Washington | 0 | 0.0 | 0.0 |
| York | 133 | 71.2 | 39.3 |

^sCases per 100,000 population

Case Rates By Age Group: Patient age is highly correlated with reported Lyme disease incidence in Maine. The highest case rates were observed among children between the ages of 5 to 14 years and adults between the ages of 40 to 64. Other high-risk groups were children under the age of five years and seniors 65 years and older. This is consistent with the pattern seen nationally, as well as historically in Maine.



Discussion and Recommendations

The incidence of Lyme disease in Maine continues to increase, and the rate of increase in incidence this year is significant compared to previous years. While this might be partially explained by growing awareness of the signs and symptoms of early Lyme disease among healthcare providers, and in the public, it is also likely that the number of new infections is truly increasing. Most of the increases in reported incidence have occurred in southern Maine and in the midcoast. Some inland areas, including Kennebec County, have also experienced an upsurge in reported cases, a phenomenon that is consistent with ecological studies tracking changes in deer tick populations.

Lyme disease case surveillance is less useful for ascertaining the absolute numbers of cases that occur than it is for identifying disease differences and trends across time, space, and demography. In this regard, the data this year can be interpreted to suggest two things. First, a slow but persistent diffusion of disease risk is continuing to occur, both eastward and into south central Maine. Second, real cases do occur as a result of exposures outside of the hyperendemic south coast, and that tick bite prevention messages need to reach persons who live and work in or engage in recreation in any potential tick habitat across the state.

The risk of Lyme disease can be reduced by avoiding tick-infested areas, using insect repellents containing 20% -50%DEET (for skin and clothing), and permethrin (for clothing only), and by checking for ticks – and promptly removing them - after returning from tick-infested areas. Deer herd management, landscaping interventions, and improved recognition of erythema migrans and other early symptoms of Lyme disease, will also help to reduce the burden that results from this infection.

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