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 Frederick G. Adams, D.D.S., M.P.H. Commissioner

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LYME DISEASE - CONNECTICUT 1988

In July 1987, Lyme disease became an officially reportable disease in Connecticut. Recognized initially in southeastern Connecticut, this disease has become not only a statewide problem but the most frequently diagnosed tick-borne ailment in the nation.

In 1988, 728 cases were reported to the State Department of Health Services. Onset dates were provided for 441 (61%) of reported cases. Three hundred thirty (75%) cases reported symptom onset during the summer months of June, July or August with lowest incidence occurring during the month of February (0%).

Cases for 1988 were equally distributed among males (51%) and females (49%). Age-specific incidence rates for all reported cases were calculated by 10-year age groups (Table 1). The incidence ranged from 13 per 100,000 for persons 20 to 29 years of age to 36 per 100,000 for those 0 to 9 years of age.

In 1988, the overall incidence rate for Connecticut was 22 per 100,000 population with the highest rates among residents of New London and Middlesex counties (Table 2). Town-specific incidence ranged from zero to 812 per 100,000 (Figure 1).

Table 1. Lyme disease incidence, by 10 year age group, Connecticut, 1988

Age	Total by Age	Rate/100,000 Pop.*
0-9	150	35.6
10-19	90	20.7
20-29	72	13.4
30-39	95	18.2
40-49	72	17.9
50-59	66	20.3
60-69	68	21.4
70+	44	13.9
Unknown	3	—
Total	728	22.2

*Est. 1987, CT Dept. of Health Services

Clinical information was provided for 362 (50%) of reported cases. Erythema migrans (EM) occurred in 281 (78%) cases and 81 (22%) cases presented with a systemic manifestation and a positive serologic test for antibody to *B. burgdorferi*. A total of 366 (50%) cases were reported by physicians without clinical information. Of the 81 cases without EM but with a systemic manifestation, arthritic symptoms occurred in 50 (62%), neurologic manifestations occurred in 38 (47%) and cardiac complications occurred in four (5%) of the cases. Some cases had more than one systemic manifestation.

Figure 1

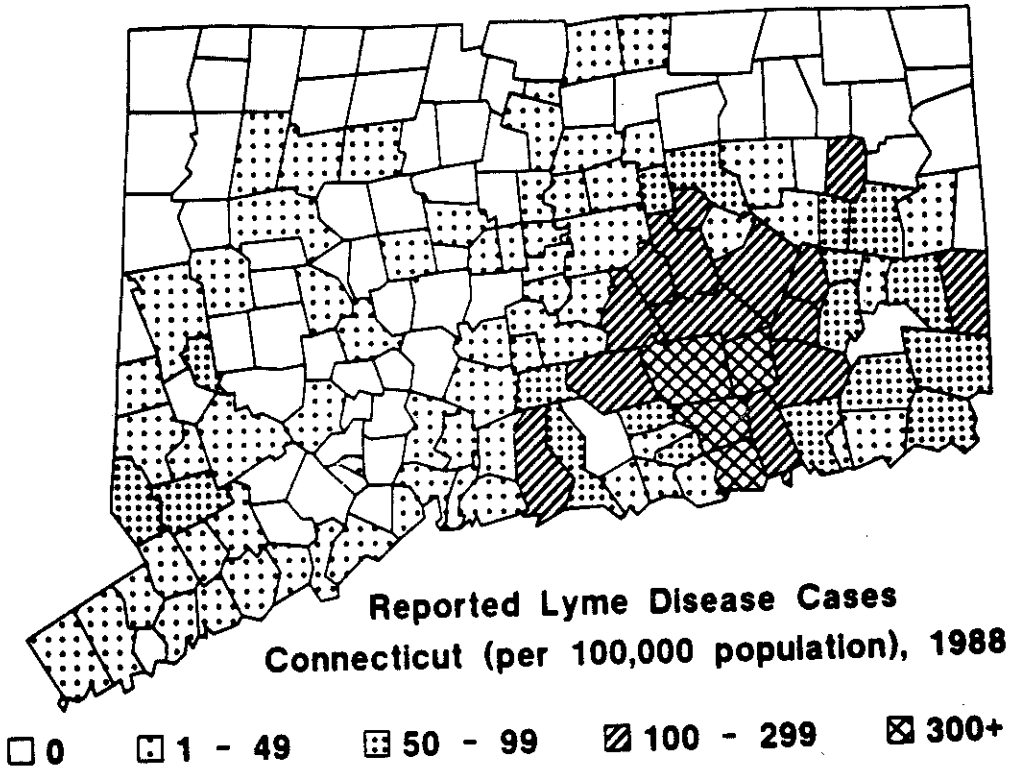


Table 2. Reported Lyme disease cases by county, Connecticut, 1988

County	Cases	Rate/ 100,000 Pop.*	% of Total
New London	277	107.9	38%
Middlesex	104	71.5	14%
Tolland	36	28.1	5%
Windham	19	19.0	3%
Fairfield	118	13.8	16%
New Haven	75	9.3	10%
Litchfield	14	8.1	2%
Hartford	59	6.9	8%
Unknown	26	----	4%
TOTAL	728	21.9	100%

*Est. 1987, CT Dept. of Health Services

Comment

The physician has the key role in effective surveillance of Lyme disease. Physicians and other health care professionals who diagnose and suspect a case of Lyme disease are required to submit a report to the local and state health departments. For reporting purposes, a case of Lyme disease is defined as 1) erythema migrans (EM) or 2) characteristic arthritic, neurologic, or cardiac manifestations of Lyme disease with a positive serologic test for antibody to *Borrelia burgdorferi*. When reporting, the physician should clearly indicate symptoms and serologic results (if available) in addition to patient's name, town of residence, age and date of onset. A standard form, known as the Communicable Disease Report (PD-23) is available for reporting Lyme disease. This form may be obtained from the State of Connecticut Department of Health Services, Epidemiology Program, 150 Washington Street, Hartford, CT 06106; telephone: 566-5058. Surveillance summaries will periodically be published in the *Connecticut Epidemiologist*.



REINFECTION WITH *BORRELIA BURGDORFERI*

As part of a retrospective study of reported Lyme disease cases conducted by the Connecticut Department of Health Services in early 1987, an attempt was made to obtain information on 100 of the 342 persons with erythema migrans who were reported to the health department in 1984. Clinical information was obtained from the reporting physicians on 68 persons with erythema migrans. Eight (12%) of the 68 had had a second episode of physician diagnosed erythema migrans in either 1985 or 1986; these episodes occurred in June through October. Thirty-eight persons (56%) did not have a second episode, and the physician did not know if the patient had had a second episode in 22 (32%) cases.

Of the eight persons with a second episode of erythema migrans, all had received antibiotic treatment for at least 10 days for the initial episode; seven had been treated with tetracycline

and one with erythromycin. Of the remaining 60 persons, 49 were treated with either tetracycline, penicillin, or erythromycin for at least 10 days; three persons were treated with other antibiotics; three received antibiotics for less than 10 days; two persons received no antibiotics; and treatment information was not available for three persons.

A second episode of erythema migrans may be due to reinfection with *Borrelia burgdorferi* or may be due to recurrence of the initial infection.^{1,4} Reinfection with *B. burgdorferi* is likely if appropriate antibiotic treatment was given for the initial episode and if the second episode occurs during peak Lyme disease season from May through October in the year or subsequent years following the initial episode. Reinfection with *B. burgdorferi* can happen in subsequent summers because no long-lasting immunity seems to occur following erythema migrans that has been adequately treated.¹⁻³ A second episode of erythema migrans can be due to recurrence of the initial infection in persons who have not been treated or who have received inadequate treatment.^{3,4}

The eight persons in our study with second episodes of erythema migrans probably had been reinfected with *B. burgdorferi*; they had received appropriate antibiotic treatment for the initial episode and had their second episodes during peak Lyme disease season. The rate of reinfection (12%) in our study is similar to the rate found in a recent study of permanent residents of a coastal community in Massachusetts.⁵ During the period 1984 through 1987, five (12%) of 42 residents with erythema migrans were reinfected with *B. burgdorferi*; all five had received antibiotic therapy for their initial illness.

Antibiotic therapy early in the course of Lyme disease is effective in preventing the later complications of the disease.⁶ Our results combined with the results of Lastavica et al⁵ suggest that reinfection with *B. burgdorferi* can occur frequently among persons who receive such treatment. We recommend that when treating early Lyme disease, physicians should also routinely counsel their patients with erythemamigrans about the danger of reacquiring Lyme disease, especially in endemic areas.

References

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4. Steere AC, Bartengagen NH, Craft JE, et al. The early clinical manifestations of Lyme disease. *Ann Intern Med* 1983; 99:76-82.
5. Lastavica CC, Wilson ML, Berardi VP, et al. Rapid emergence of a focal epidemic of Lyme disease in coastal Massachusetts. *N Engl J Med* 1989; 320:133-7.
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REPORTS OF SELECTED COMMUNICABLE DISEASES,
CONNECTICUT, 1988 - 1989

DISEASE	1988*	1987	% CHANGE FROM 1987
AIDS	401	274	+46.4%
GONORRHEA	11,004	10,560	+4.2%
SYPHILIS P&S	724	334	+116.8%
MEASLES	15	22	-31.8%
RUBELLA	0	0	0.0%
TUBERCULOSIS	141	164	-14.0%
HEPATITIS A	343	190	+80.5%
HEPATITIS B	251	335	-25.1%
SALMONELLOSIS	1,213	1,440	-15.8%
SHIGELLOSIS	186	235	-20.9%

* Figures Subject To Change

James L. Hadler, M.D., M.P.H., Chief
Matthew L. Carter, M.D., Editor Thomas Farley, M.D.
Sally Carr, Center for Health Communication
Anita Steeves, Center for Health Communication

EPIDEMIOLOGY SECTION
PREVENTABLE DISEASES DIVISION
State of Connecticut Department of Health Services
150 Washington Street
Hartford, CT 06106

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