

# CONNECTICUT EPIDEMIOLOGIST

State of Connecticut Department of Health Services Epidemiology Section  
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## LYME DISEASE UPDATE

Lyme disease has become the most commonly reported tickborne illness in the United States.<sup>1</sup> National surveillance for Lyme disease was established by the Centers for Disease Control in 1982. The number of reported cases has increased from 491 in 1982 to 9,344 in 1991. In 1991, 83% of cases were reported from nine states: New York, New Jersey, Wisconsin, Connecticut, Pennsylvania, Rhode Island, California, Massachusetts, and Minnesota.

Lyme disease surveillance has become more complex since the first epidemiological studies of the disease were conducted in Connecticut in 1975.<sup>2</sup> The State of Connecticut Department of Health Services (DHS) has been tracking Lyme disease since 1984, although the disease did not become officially reportable until July 1987.<sup>3</sup> The number of reported cases increased from 460 in 1984 to 1,192 in 1991. The incidence in 1991 was 36 per 100,000 population, the highest rate for any state.

In Connecticut, only Lyme disease case reports that meet the revised CDC surveillance case definition for Lyme disease adopted by the Council of State and Territorial Epidemiologists in 1990 are counted as cases.<sup>4</sup> Follow-up questionnaires are sent to physicians who report a case of Lyme disease without supplying clinical information. Reports without clinical information are not counted as cases.

Of the 2,136 Lyme disease reports received by DHS in 1991, 919 (43%) were reports of EM with no other serologically confirmed symptoms. Of the 1,217 non-EM reports received by DHS, 273 (22%) had one or more systemic manifestations and a positive serologic test for antibody to *Borrelia burgdorferi* and thus met the surveillance case definition. Arthritic symptoms occurred in 200 (79%), neurologic manifestations occurred in 47 (19%), and cardiac complications occurred in 5 (2%). The remaining 944 reports contained either insufficient (79%) or no (21%) clinical information.

In 1991, as in past years, the highest rates were among residents of Middlesex and New London Counties (Table 1). Cases were reported among residents of 134 of the state's 169 towns and cities. Town-specific incidence ranged from zero to 1,086 per 100,000 population (Figure 1).

## REFERENCES

1. CDC. Lyme disease surveillance - United States, 1990-1991. *MMWR*, 1991;40:417-21.
2. Steere AC, Malawista SE, Snyderman DR, et al. Lyme arthritis: an epidemic of oligoarticular arthritis in children and adults in three Connecticut communities. *Arthritis Rheum* 1977;20:7-17.
3. Cartter ML, Mshar P, Hadler JL. The epidemiology of Lyme disease in Connecticut. *Conn Med* 1989;53:320-3
4. Centers for Disease Control. Case definitions for public health surveillance. *MMWR* 1990;39(No. RR-13):19-21.

# Reported Lyme Disease Cases, Connecticut 1991

Per 100,000 population

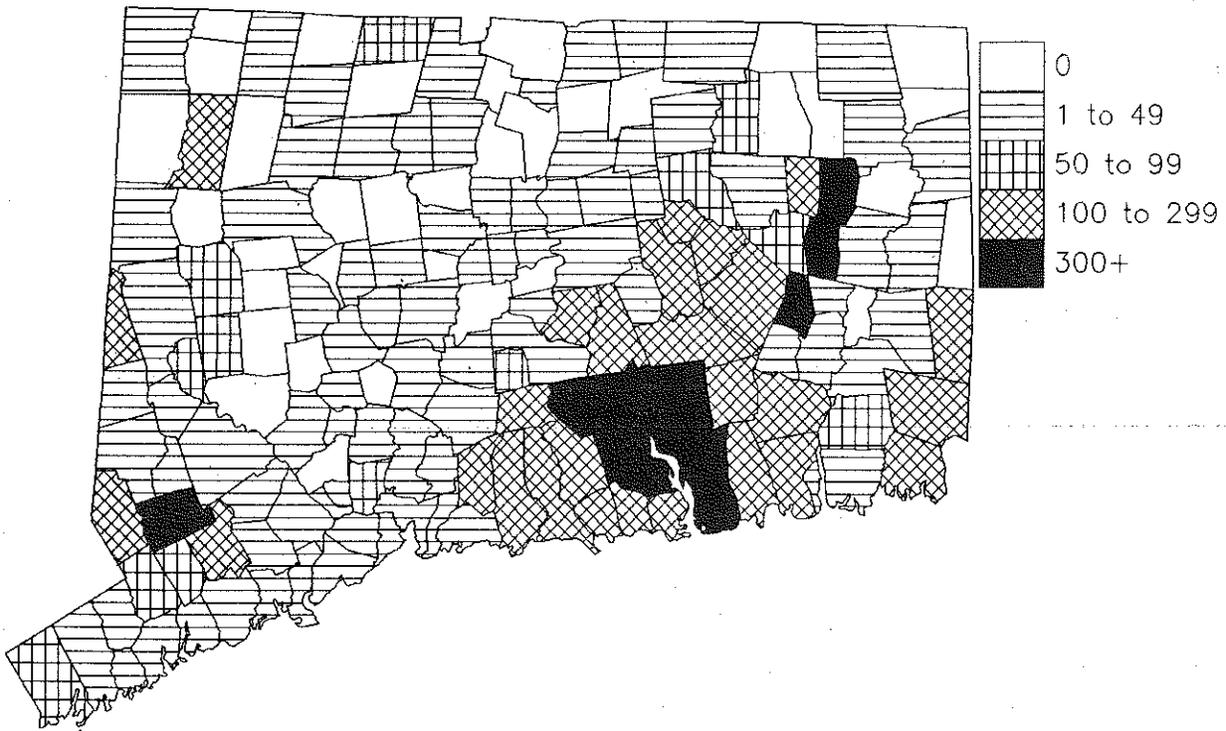


Table 1

Reported cases of Lyme Disease by County  
Connecticut, 1990-1991

County	1990		1991	
	Cases	Rate*	Cases	Rate*
Fairfield	167	20	234	28
Hartford	78	9	74	9
Litchfield	13	8	24	14
Middlesex	117	82	254	177
New Haven	56	7	169	21
New London	204	80	290	114
Tolland	33	26	56	44
Windham	21	21	44	43
Unknown	131	--	47	--
Total	704	21	1192	36

\*Per 100,000 population. 1990 U.S. Census Bureau

## ACTIVE SURVEILLANCE FOR LYME DISEASE

The Department of Health Services began an active Lyme disease surveillance study in November 1991, under a cooperative agreement with the Centers for Disease Control. The study will continue through December 1993 and will focus on the 12-town area around Lyme, Connecticut (Old Lyme, Lyme, East Haddam, Old Saybrook, Essex, Deep River, Chester, Haddam, Westbrook, Clinton, Killingworth, and Madison) and in Litchfield County. The regular passive, physician-based surveillance system will be continued in other parts of the state.

A total of 116 physicians (78% of those contacted) have agreed to participate in the active surveillance study: 36 from the 12-town area and 67 from Litchfield County. Physician specialties included Internal Medicine, Family Practice, Dermatology, Pediatrics, General Practice, and

Gastroenterology. An additional 25 physicians from four surrounding towns have also been enrolled in this study. These physicians frequently evaluate patients from the target area for Lyme disease.

In addition to physician reporting, infection control nurses from six hospitals that serve residents from the target areas (Middlesex, Lawrence and Memorial, William W. Backus, Winsted Memorial, Charlotte Hungerford, and Sharon) are submitting monthly reports on in-patients that meet the CDC case definition for Lyme disease. The Lyme disease clinics at Yale University and the University of Connecticut Health Center in Farmington are also participating in this study.

In the first 7 months of the study, a total of 34 cases meeting the CDC case definition were reported by the participating physicians. Of these, 33 were from the 12-town area and 1 was from Litchfield county. Three hospitalized patients were reported by infection control nurses. Five cases were reported by the Lyme disease clinics, none from the target area.

The goal of the active surveillance study is to define and monitor the public health importance of Lyme disease in Connecticut. At the end of the project period, the results of active surveillance will be compared to the active surveillance studies of Lyme disease conducted in the target areas in 1977, and will be used to evaluate the passive, physician-based reporting system in use in Connecticut since 1987.

### TICKS AND LYME DISEASE

Determining the rate of *Borrelia burgdorferi* infection among deer ticks is a measure of the public health importance of Lyme disease in a given area. In the summer and fall of 1989 through 1991, scientists from the Connecticut Agricultural Experiment Station (CAES) conducted studies of *Ixodes dammini* at selected sites. Tick infection rates by site are given in Table 2.

Table 2. Percentage of *I. dammini* nymphs infected with *B. burgdorferi* by town of site surveyed, 1989 - 1991.

Towns	%Ticks Infected (# infected /# Tested)		
	1989	1990	1991
Chester	NA*	0 (0/1)	25 (7/28)
E. Haddam	9 (11/120)	3 (1/34)	13 (34/270)
Lyme	15 (77/513)	14 (29/207)	13 (118/946)
Old Lyme	13 (18/144)	13 (3/23)	11 (26/229)

\* Not available

### DEER AND LYME DISEASE

During the fall hunting season in 1991, scientists at CAES conducted a study of blood samples obtained from deer that were killed and brought by hunters to selected biological deer check stations in the state. The percentage of deer tested that showed evidence of current or past infection with *B. burgdorferi* by county is presented in Table 3. The results show that Lyme disease is present among deer in Litchfield and Tolland counties, two counties that have been relatively spared in the past.

Table 3. Percentage of deer sera positive for antibodies to *B. burgdorferi* by county, 1989 - 1991.

Towns	%Antibody Positive (#Positive/#Tested)		
	1989	1990	1991
Fairfield	NA*	23 (9/39)	18 (5/28)
Hartford	13 (1/8)	NA	NA
Litchfield	11 (5/46)	14 (3/21)	4 (4/92)
Middlesex	0 (0/2)	27 (13/48)	25 (14/55)
New Haven	NA	NA	NA
New London	20 (9/46)	NA	NA
Tolland	0 (0/2)	5 (4/85)	13 (4/30)
Windham	30 (12/40)	NA	NA
TOTAL	25 (27/108)	15 (29/193)	13 (27/205)

\* Not available

## ADULT IMMUNIZATION PROGRAM

The University of Connecticut Health Center, Department of Medicine has instituted an Adult Immunization Program under the direction of the Division of Infectious Diseases. This was done in response to a need for centralized adult vaccination and organized in order to improve the availability of both information and vaccine services. All vaccines that are currently commercially available are offered in this clinic (see Table 1). Patients may be seen by physician referral or on a self-referral basis. Administrative processing for this clinic is prompt, requiring minimal patient time.

The recent rabies epizootic in Connecticut has demonstrated the need for such a clinic. The introduction of raccoon rabies into this state has

left a large number of individuals at risk for exposure to rabies who have previously not been immunized. The Immunization Program offers rabies vaccine for both pre- and post-exposure. In the last 6 months, more than 1,500 doses of rabies vaccine have been administered through this clinic.

Other services available are vaccination and documentation for required vaccines such as measles for school and Hepatitis B to meet current OSHA requirements. Individuals interested in receiving vaccines should contact the Adult Immunization Program at the University of Connecticut Health Center by calling 679-4225.

**Table 4. Vaccines available through the Adult Immunization Clinic, UCHC.**

Toxoids	Inactivated Bacteria Vaccine	Killed Virus Vaccine
Tetanus-diphtheria toxoid	Cholera	Polio
	H influenza type B	HBV
<b>Live Virus Vaccines</b>	Meningococcal polysaccharide	Influenza A/B
Measles	A/C A/C/Y/W-135	Rabies Human Diploid Cell
Mumps	Plague	
Rubella	Pneumococcal (23 valent)	<b>Immunoglobulins</b>
Yellow Fever	Typhoid	Pooled Human Immunoglobulin
Polio (Sabin)		Hepatitis B immune
		Rabies immune
<b>Skin Testing</b>		Varicella zoster immune
TBC		

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