

# CONNECTICUT EPIDEMIOLOGIST

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## LYME DISEASE IN CONNECTICUT

Lyme disease surveillance has become more complex since the first epidemiological studies of the disease were conducted in Connecticut in 1975.<sup>1</sup> Connecticut has had a passive, physician-based surveillance system for Lyme disease since July 1987.<sup>2</sup> The number of cases meeting the Centers for Disease Control's (CDC) case definition for Lyme disease has increased from 362 in 1988 to 704 (22 per 100,000 population) in 1990.

In 1989, the Lyme disease surveillance system was expanded to include a supplemental Lyme disease case report form. Follow-up questionnaires were sent to physicians who reported a case of Lyme disease without supplying clinical information. Reports without clinical information were not counted as cases. In 1990, the Connecticut Department of Health Services (CDHS) studied the impact on reporting of a requirement that the diameter of erythema migrans (EM) be  $\geq 5$  cm. Physicians were asked for the EM diameter on the supplemental form; telephone follow up was done if the information was not provided.

The new surveillance requirement for EM was part of the revised CDC surveillance case definition for Lyme disease adopted by the Council of State and Territorial Epidemiologists in 1990.<sup>3</sup> The CDC Lyme disease surveillance form does not request EM diameter.

Of the 1318 Lyme disease reports received by CDHS in 1990, 597 (45%) were reports of EM with no other serologically confirmed symptoms. Based

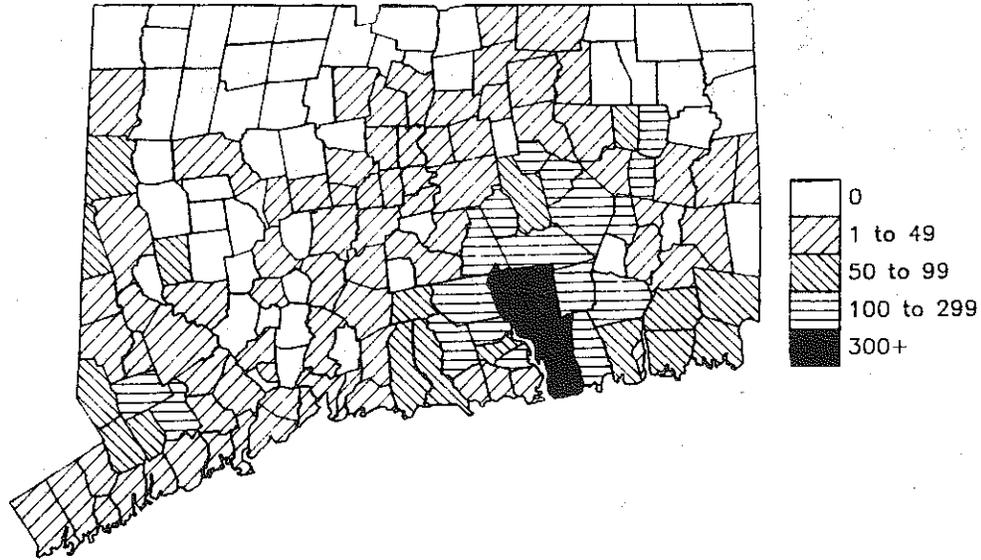
on information obtained on either the initial or the supplemental report forms, the EM diameter was  $\geq 5$  cm for 388 (65%),  $< 5$  cm for 35 (6%); and unspecified for 174 (29%). Telephone follow up was conducted on these 174 reports, and the EM diameter was  $\geq 5$  cm for 82 (47%),  $< 5$  cm for 35 cases (20%), and remained unspecified for 57 (33%).

Of the 721 non-EM reports received by CDHS, 234 (33%) 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 140 (60%), neurologic manifestations occurred in 87 (37%), and cardiac complications occurred in 7 (3%). The remaining 487 reports contained either insufficient (49%) or no (51%) clinical information. No telephone follow up was done on these reports.

If the EM study had not been conducted, all 597 EM reports would have been counted as cases. Instead, 388 of the EM reports initially met the revised case definition, and telephone follow-up added 82 more cases for a total of 470. If information on EM diameter had not been collected, the surveillance case count would have been 831 for 1990; instead, the study resulted in a 15% (127/831) reduction in cases.

In 1990, as in past years, the highest rates were among residents of Middlesex and New London Counties (Table 1). Cases were reported among residents of 114 of the state's 169 towns and cities. Town-specific incidence ranged from zero to 581 per 100,000 population (Figure 1).

Figure 1. Reported Lyme Disease Cases, Connecticut, 1990 (per 100,000 population)



REFERENCES

1. 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.
2. Carter ML, Mshar P, Hadler JL. The epidemiology of Lyme disease in Connecticut. *Conn Med* 1989;53:320-3.
3. Centers for Disease Control. Case definitions for public health surveillance. *MMWR* 1990;39(No. RR-13):19-21.

TICKS, DEER, 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. Tick surveillance studies began in Connecticut during 1976-1977 when scientists at the Connecticut Agricultural Experiment Station learned about human cases of Rocky Mountain Spotted Fever.

Investigations of *Ixodes dammini* were begun in 1978. The tick was found in the southcentral and southeastern parts of Connecticut, paralleling the reports of human cases. Shortly after the discovery of *B. burgdorferi* in 1982, it was possible to determine tick infection rates. From 1983-1985, studies revealed infection rates of about 15 to 30% for nymphs and 25 to 49% for adults in areas endemic for Lyme disease. Current work focuses on monitoring infection rates in *I. dammini* in areas of high and low endemicity.

In the summer and fall of 1989 and 1990, scientists from the Connecticut Agricultural Experiment Station conducted tick studies, partially funded by CDHS, at selected sites. Tick infection rates by site in 1990 are given in Table 2. Tick infection rates in areas thought to be highly endemic for Lyme disease (East Haddam and Lyme) do not appear to be increasing.

Table 1. Reported Lyme Disease Cases by County, Connecticut, 1985 and 1990

County	No. Cases	% Total	Rate/100,000 Residents**
Middlesex	117	( 17)	82
New London	204	( 29)	80
Tolland	33	( 5)	26
Windham	21	( 3)	21
Hartford	78	(11)	9
Litchfield	13	( 2)	8
New Haven	56	( 8)	7
Fairfield	167	(24)	20
Unknown	13	( 1)	--
<b>TOTAL</b>	<b>704</b>	<b>(100)</b>	<b>21</b>

\* 1985 population estimates, Connecticut State Department of Health Services

\*\* 1990 U.S. Census Bureau

Table 2. Percentage of ticks infected with *B. burgdorferi* by town of site surveyed.

Towns	Sampling Period	% Ticks Infected (# infected / # Tested)					
		Larvae	Nymphs	Adults		Females	
				Males			
Chester	Jul-Oct	0 (0/0)	0 (0/1)	50 (1/2)		100 (1/1)	
Durham	Nov	0 (0/0)	0 (0/0)	100 (1/1)		71 (5/7)	
East Haddam	Jul-Nov	0 (0/1)	3 (1/34)	11 (3/27)		54 (7/13)	
Lyme	Jul-Nov	0 (0/7)	14 (29/207)	17 (3/18)		15 (2/13)	
Newtown	Nov	0 (0/0)	0 (0/0)	0 (0/1)		0 (0/0)	
Old Lyme	Jul-Nov	0 (0/27)	13 (3/23)	44 (4/9)		25 (1/4)	
Stamford	Nov	0 (0/0)	0 (0/0)	75 (18/24)		29 (5/17)	
Stonington	Nov	0 (0/0)	0 (0/0)	83 (5/6)		50 (2/4)	
Wilton	Jul-Nov	0 (0/2)	23 (14/61)	54 (52/96)		61 (39/64)	

During the fall hunting season in 1989 and 1990, scientists at the Connecticut Agricultural Experiment Station conducted a study of blood samples obtained from deer that were killed and brought by hunters to four of the eleven biological deer check stations in the state.

Three of the stations were chosen for their location in the northern part of the state where Lyme disease occurs less commonly.

In 1990, sera were obtained from 193 of the 1,407 deer seen at the four check stations. The percentage of deer tested that showed evidence of current or past infection with *B. burgdorferi* by county was 23% (9/39) for Fairfield County, 14% (3/21) for Litchfield County, 27% (13/48) for Middlesex County, and 5% (4/85) for Tolland County.

The results show that Lyme disease is present among deer in Litchfield and Windham counties, two counties that have been relatively spared in the past.

## STAFF ASSIGNMENTS

On July 1, 1991, Eric Mintz, MD, MPH will continue his preventive medicine residency and take a position with the Enteric Diseases Branch, Division of Bacterial Diseases, Center for Infectious Diseases at the Centers for Disease Control in Atlanta, Georgia. Dr. Mintz made important contributions to the Epidemiology Section during his 2-year assignment here with the CDC's Epidemic Intelligence Service. We wish him well in his new assignment.

In July 1991, Douglas Hamilton, MD, PhD will take up his post as the Epidemic Intelligence Service Officer for Connecticut. Dr. Hamilton is a family practitioner who received his doctorates in microbiology and medicine from Vanderbilt University in 1982 and 1984, respectively. He completed his residency training at the University of Minnesota in 1984-1987. In the last 4 years, he has served as a medical officer with the Indian Health Service.

## RABIES UPDATE

Between March 27 and June 21, 1991, 13 cases of raccoon rabies were confirmed in Connecticut (Danbury 5, Ridgefield 3, Redding 2, Bridgewater 1, and Wilton 1). The rabies epizootic in raccoons, with occasional transmission to other mammalian species, is expected to spread rapidly across Connecticut over the next 6 to 12 months. With the arrival of raccoon rabies in Connecticut, the number of persons seeking and needing rabies postexposure prophylaxis has increased dramatically. Additional information or technical assistance can be obtained by calling:

1. Your local health department or,
2. Department of Health Services' Epidemiology Program at 566-5058 for questions concerning the management of human exposures. Emergency consultation after hours and on weekends can be obtained by calling the Department's emergency telephone number (566-4800),
3. Department of Environmental Protection's Wildlife Division at 566-4683 or 566-2841 for questions concerning wild animals. Emergency consultation after hours and on weekends can be arranged by calling the DEP Communications at 566-3333, or
4. Department of Agriculture's Canine Control Division at 566-5924 or the State Veterinarian at 566-4616 for questions concerning domestic animals.

### REPORTS OF SELECTED COMMUNICABLE DISEASES, CONNECTICUT, YEAR TO DATE

Disease	1/1/91 to 6/14/91*	1/1/90 to 6/15/90	% Change
AIDS	234	206	14 %
GONORRHEA	2916	4211	-30.8%
SYPHILIS PS	237	481	-50.7%
MEASLES	20	140	-85.7%
RUBELLA	0	3	-100.0%
TUBERCULOSIS	74	65	+13.8%
HEPATITIS A	43	39	+10.3%
HEPATITIS B	51	101	-49.5%
SALMONELLOSIS	234	284	-17.6%
SHIGELLOSIS	26	75	-65.3%

\* Figures Subject To Change

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