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LYME DISEASE UPDATE

The Connecticut Department of Public Health and Addiction Services (DPHAS) has been conducting surveillance for Lyme disease (LD) since 1984, although the disease did not become officially reportable until July 1987. In 1991, through a cooperative agreement with the Centers for Disease Control and Prevention (CDC), DPHAS established an active surveillance system for LD in the 12-town Lyme, Connecticut area (Chester, Clinton, Deep River, East Haddam, Essex, Haddam, Killingworth, Lyme, Old Lyme, Madison, Old Saybrook, and Westbrook) where LD is hyperendemic and Litchfield County where LD is emerging.

In Connecticut, only LD case reports that meet the national LD surveillance case definition are counted as cases [MMWR 1990;39(No. RR-13):19-21]. The surveillance case definition was developed for state and national reporting of LD and is not appropriate for clinical diagnosis. Follow-up questionnaires are sent to physicians who report a case of LD without supplying clinical information. Reports without clinical information are not counted as cases.

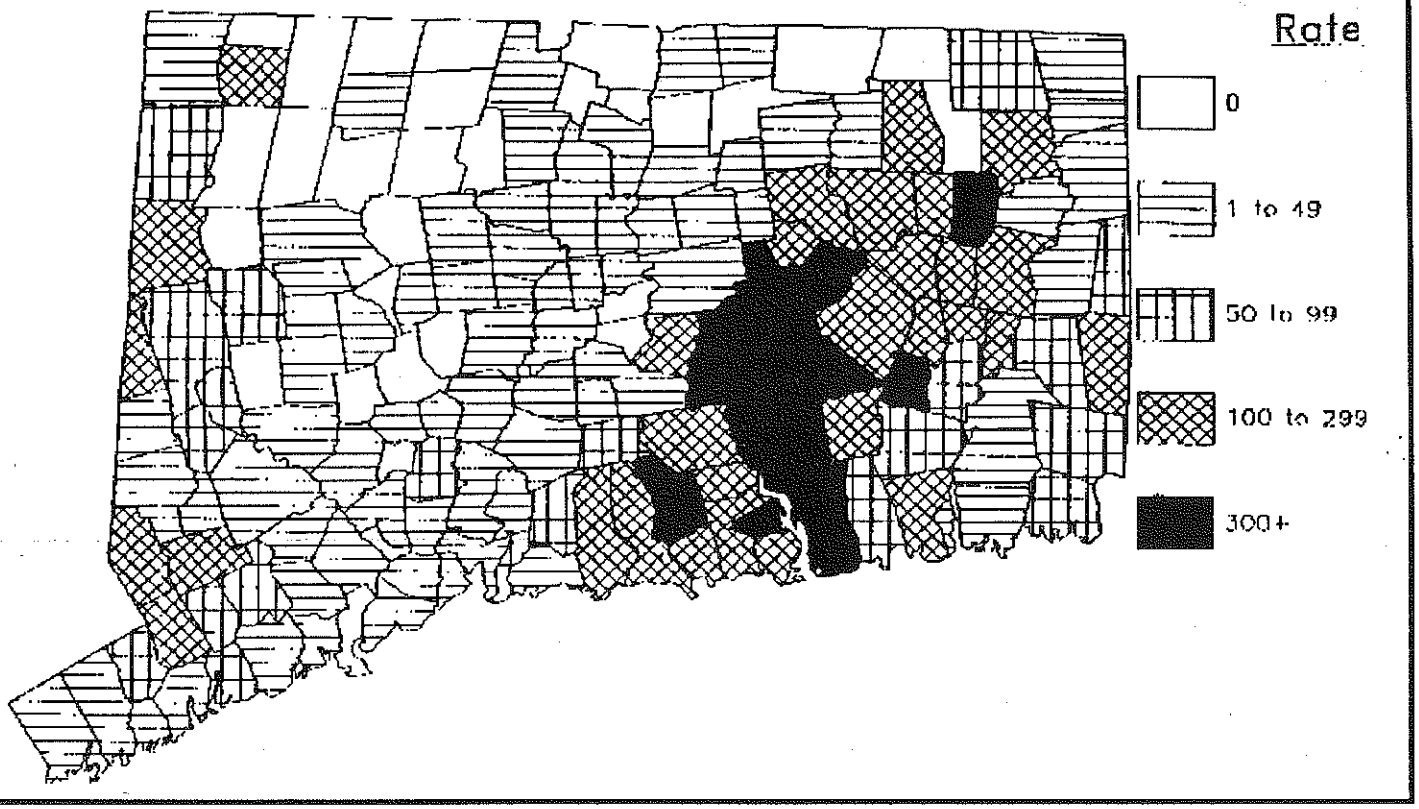
Of the 2,536 LD reports received by DPHAS in 1993, 1,390 (53%) met the surveillance case definition, 860 (34%) were reports of erythema migrans (EM) only and 69 (3%) were reports of EM and a late manifestation of LD. Of the 1,607 non-EM reports received, 421 (26%) had one or more systemic manifestations and a positive serologic test for antibody to Borrelia burgdorferi and thus met the surveillance case definition. Arthritic symptoms occurred in 304 (72%), neurologic manifestations occurred in 132 (31%), and cardiac complications occurred in 5 (1%). The remaining 1,186 reports contained either insufficient (61%) or no (39%) clinical information (i.e. laboratory reports only).

Connecticut has the highest reported rate of LD of any state (41 cases per 100,000 population in 1993). The number of reported cases increased from 460 in 1984 to 1,350 in 1993. Surveillance and tick studies show that LD can be acquired in any county in Connecticut and that some areas of the state remain much more affected than others (Table 1, Figure 1). The rate of LD in the 12-town area was 5.4 per 1,000 in 1992 and 3.2 per 1,000 in 1993.

Table 1. Reported LD cases by county, Connecticut, 1993.

County	Cases	Rate/100,000 Pop.
Fairfield	258	31.2
Hartford	73	8.6
Litchfield	38	21.8
Middlesex	265	185.1
New Haven	148	18.4
New London	291	114.1
Tolland	112	87.0
Windham	100	97.5
Unknown	65	--
TOTAL	**1350**	**41.1**

Figure 1. Reported Lyme disease rates by town, per 100,000 population, Connecticut, 1993



LYME DISEASE COMMUNITY INTERVENTION PROJECT

In May 1994, the Connecticut Department of Public Health and Addiction Services (DPHAS) was awarded federal funding for a Lyme Disease Community Intervention Project. This 3-year project is funded through a cooperative agreement with the Centers for Disease Control and Prevention (CDC) and is an expansion of activities funded during the previous 3-year project period. The project's objectives are:

1. To define the epidemiology of LD and monitor incidence trends by conducting active surveillance in the 12-town Lyme, Connecticut area and in Litchfield County and by enhancing passive surveillance statewide in 1994 through 1997.

2. To define environmental factors that increase the risk of LD and target environmental and educational interventions in the 12-town Lyme, Connecticut area by using case data from the active surveillance system and geographic information system (GIS) techniques in 1994 through 1996.

3. To implement and evaluate a community-wide program for the control of I. scapularis and prevention of LD in the 12-town Lyme, Connecticut area by using risk assessment, personal protection, and two tick control strategies in 1994 through 1996.

4. To assess LD knowledge, attitudes and behaviors (KAB) among the residents in the 12-town Lyme, Connecticut area and develop a community-based education intervention from May 30, 1994 through March 31, 1995.

The work will be done by DPHAS, the Connecticut Agricultural Experiment Station, the University of Connecticut Departments of Geography and Education, and the University of Connecticut Health Center. DPHAS is the lead agency for the Lyme Disease Community Intervention Project.

ROCKY MOUNTAIN SPOTTED FEVER CONNECTICUT, 1983 - 1993

Rocky Mountain spotted fever (RMSF) is a rickettsial infection caused by Rickettsia rickettsii. Man contracts RMSF either through the bite of an infected tick or by contamination of the skin with crushed tissues or feces of infected ticks. In Connecticut, the chief vector of R. rickettsii is the adult American dog tick, Dermacentor variabilis. These ticks are found throughout the state from mid April through late August. Studies conducted by the Connecticut Agricultural Experiment Station found less than one percent of dog ticks in Connecticut carry R. rickettsii.

RMSF is a reportable disease in Connecticut. From 1983 - 1993, 27 cases of RMSF were reported to the Connecticut Department of Public Health and Addiction Services (DPHAS). Of the 27 reported cases, 14 (52%) were females. Ages ranged from 3 to 80 years; the median age was 34 years. A total of 19 (70%) cases were reported among residents of Fairfield and New Haven counties (Table 2). The majority (78%) of these cases were reported between May and September (Figure 2).

Table 2. Reported RMSF cases by county, Connecticut, 1983-1993.

County	Cases
Fairfield	11
Hartford	2
Litchfield	4
Middlesex	1
New Haven	8
New London	0
Tolland	1
Windham	0
TOTAL	27

EDITORIAL NOTE: RMSF is relatively rare in Connecticut. While the first case was reported in 1965, the number of reported cases is low and has remained stable over the past 10 years. Although only a small proportion of persons bitten by ticks will develop RMSF, physicians should still maintain a high level of suspicion of this disease throughout the summer months, since the presenting complaint may be nothing more than fever and headache. The physician should attempt to evaluate tick exposure, particularly when RMSF or other arthropod-borne infections are a likely possibility.

Symptoms, which usually appear within two weeks of the bite of an infected tick, include sudden onset of fever, headache, malaise, chills and conjunctival infection. These symptoms are followed in two to three days by a maculopapular rash on the wrists and ankles. The rash soon includes the palms and soles and spreads rapidly to much of the body. In severe cases the rash may become petechial, confluent, or largely hemorrhagic. In untreated cases, the case fatality rate is about 15-20%. With prompt treatment, 4% of reported cases have been fatal (1).

Prompt treatment with chloramphenicol or tetracycline is particularly important for older persons, for whom the case-fatality rate is higher. The mortality rate increases dramatically if therapy is delayed even briefly, so that treatment must often begin before laboratory confirmation of the diagnosis is available.

A number of diagnostic tests for RMSF exist: the nonspecific Weil-Felix test; the complement fixation test (CF); the indirect fluorescent antibody (IFA), latex agglutination (LA), indirect hemagglutination (IHA), and microagglutination (MA) tests (2). A single Weil-Felix agglutination titer of at least $\geq$ 1:160, preferably $\geq$ 1:320, or a fourfold rise in paired sera is considered indicative of infection. However, this test can be positive in many non-rickettsial infections such as urinary tract infections caused by Proteus, leptospirosis, brucellosis, borrelia infections, typhoid fever, serious liver disease, and occasionally in pregnancy. A single CF titer of $\geq$1:16 is considered a positive reaction. This test lacks sensitivity, especially if antibiotic therapy was initiated early in the disease process. A single

titer of ≥ 1:64 for IFA or of ≥ 1:128 for the LA, IHA or MA is also considered indicative of infection.

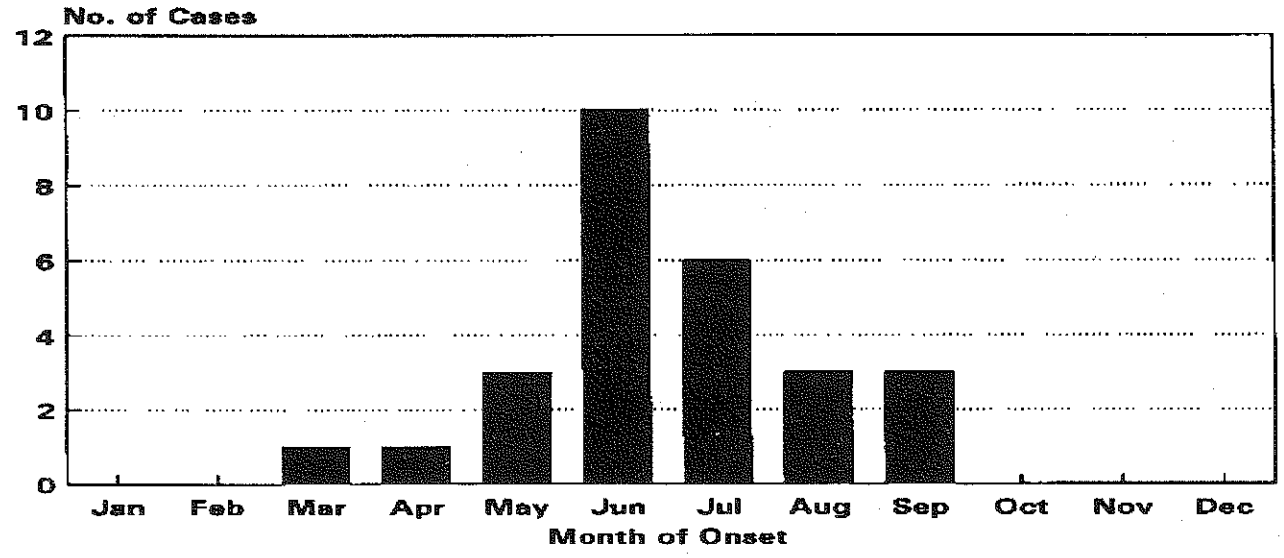
Prevention of RMSF is primarily through avoiding tick bites where possible by: wearing of protective clothing to inhibit tick attachment, application of repellents on clothing, and daily inspection of the entire body while in tick infested areas to remove attached ticks. Physicians and their patients may have ticks identified by sending specimens to the Connecticut Agricultural Experiment Station, P.O. Box 1106, New Haven, CT 06504.

References

1. Benenson, AS, ed. Control of communicable diseases in man. 15th ed. Washington, DC: American Public Health Association;1990:372.

2. Zaki, MH: Selected tickborne infections: A review of Lyme Disease, Rocky Mountain Spotted Fever, and Babesiosis. New York State Journal of Medicine June 1989.

Figure 2. Reported RMSF cases by month of onset, Connecticut, 1983-1993.



EPIDEMIOLOGY SECTION
State of Connecticut
Department of Public Health and Addiction Services
150 Washington Street
Hartford, CT 06106

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