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LYME DISEASE CONNECTICUT, 1994

In Connecticut, Lyme Disease (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 3,473 LD reports received by the Connecticut Department of Public Health (DPH) in 1994, 2,030 (58%) met the surveillance case definition: 1,522 (44%) were reports of erythema migrans (EM) only and 103 (3%) were reports of EM and a late manifestation of LD. Of the 1,852 non-EM reports received, 405 (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 287 (71%), neurologic manifestations occurred in 111 (27%), and cardiac complications occurred in 7 (2%). The remaining 1,443 reports contained either insufficient (60%) or no (40%) clinical information (i.e. laboratory reports only).

Lyme disease is a seasonal disease with the majority of cases occurring in the summer months. In 1994, 63% of cases with known onset dates occurred during the months of June and July (Figure 1, pg 16).

In 1994, New London county reported the highest incidence of Lyme disease with 179.6 cases per 100,000 population. In contrast, Hartford county reported 11.5 cases per 100,000 population which was the lowest county incidence rate in the state (Figure 2, pg 16).

The age group with the highest LD rate was in children aged 5 through 9 years. In 1994, the incidence rate for this age group was 107 per 100,000 population. The lowest rate occurred in the 20 to 24 year age group (Figure 3, pg 16).

EDITORIAL NOTE: The DPH has been conducting surveillance for 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), the DPH established an active surveillance system for LD in the 12-town Lyme, Connecticut area (Chester, Clinton, Deep River, East Haddam, Essex, Haddam, Killingworth, Lyme, Madison, Old Lyme, Old Saybrook, and Westbrook) where LD is hyperendemic and in Litchfield County where LD is emerging.

In 1994, Connecticut had the highest reported rate of LD of any state (61.8 cases per 100,000 population). The number of reported cases increased from 1,350 in 1993 to 2,030 in 1994, the largest number of cases ever reported in Connecticut (Figure 4, pg 16). 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. The rate of LD in the 12-town area was 3.2 per 1,000 in 1993 and 3.2 per 1,000 in 1994.

LYME SEROLOGY

In October 1994, the Association of State and Territorial Public Health Laboratory Directors and the CDC sponsored the Second National Conference on the Serologic Diagnosis of Lyme Disease. An important recommendation from the meeting is that laboratories use a two-test approach for Lyme disease serology. Specimens should be tested first with a sensitive screening test (e.g., EIA or IFA). Those specimens found to be positive or equivocal should then be tested with the more specific IgG and IgM Western Blot (WB). The IgM WB should be reserved only for serum specimens drawn within the first four weeks after exposure.

As of June 1, 1995, the Serology Laboratory at the Connecticut Department of Public Health will use the IgG and IgM WB for all EIA-positive or equivocal specimens. The Laboratory will use the method and interpretive criteria recommended at the meeting. Serum specimens for Lyme disease testing should be submitted in the BS collection kit, and a completed requisition form with the date of onset noted should be included.

INSECT REPELLENTS WITH DEET *USE WITH CAUTION*

Lyme disease is transmitted by the bite of an infected black-legged tick (*Ixodes scapularis*). There are many preventive measures that can be taken to help prevent a tick from biting; one of them is applying an insect repellent containing DEET (N,N-diethyl-m-toluamide).

While repellents with DEET have been used by the public for more than 30 years, the use of highly concentrated products can cause adverse reactions. The adverse reactions in adults are limited to skin irritation. However, there have been reports of serious neurological problems in children as a result of frequent and excessive application of DEET-containing insect repellents on the skin. Neurological involvement has ranged from slurred speech and confusion to seizures and coma. These more serious reactions are not common. Some research has suggested that using a concentration of 20-30% DEET is about 90% effective in keeping ticks away.

It is recommended that people:

☞ Read all label directions before using any product.

☞ Use all repellents sparingly (1-2 times a day).

☞ Avoid prolonged and excessive use of DEET products.

☞ Use products containing 20-30% DEET. Higher concentrations or repeated applications do not increase the effectiveness.

☞ With children, avoid using the higher concentration products on the skin. Use repellents on clothing when possible. Do not put repellents on a child's hands (and thereby keep repellent out of the mouth and eyes).

☞ Avoid using DEET products on damaged skin. Persons with sunburns, cuts and other skin conditions, such as psoriasis, should avoid using DEET-containing products on affected skin.

☞ Apply repellents in a manner to avoid inhaling or ingesting the product. Keep repellents out of eyes.

☞ After returning indoors, wash treated skin with soap and water.

☞ If you suspect that you or your child are having an adverse reaction from the use of an insect repellent, wash treated skin then call your doctor. When you go to the doctor, take the repellent with you.

☞ Your doctor can get specific medical information about the active ingredients in repellents and other pesticides by calling the **National Pesticide Telecommunications Network at 1-800-858-7378** or by calling the **Connecticut Poison Control Center at 1-800-343-2722.** Both NPTN and the CT PCC operate 24 hours a day, 7 days a week.

FOR
PUBLIC HEALTH EMERGENCIES
AFTER 4:30 P.M. AND ON WEEKENDS
CALL THE
DEPARTMENT OF PUBLIC HEALTH
AT 566-4800

HUMAN EHRLICHIOSIS

In 1994, Connecticut was one of four states to be awarded federal funding by the Centers for Disease Control and Prevention to establish an Emerging Infections Program (EIP). The Connecticut EIP is a joint effort involving the Department of Public Health (DPH) and the Yale School of Medicine. The EIP has begun investigations into invasive bacterial disease, community-acquired pneumonias, unexplained deaths of possible infectious etiology, cryptosporidiosis, and human ehrlichiosis.

In the last decade, several hundred cases of *Ehrlichia* infection have been recognized in the United States. *Ehrlichia* infections are transmitted by tick bite. Recent vector research suggests that the black-legged tick, *Ixodes scapularis*, the vector of the causative agent of Lyme disease, is also a possible vector of *Ehrlichia*. While most cases of recognized *Ehrlichia* infection have occurred in southern and midwestern states, evidence indicates that one or more *Ehrlichia* species are present in Connecticut. Studies at the Connecticut Agricultural Experiment Station (CAES) have produced serological evidence of infection throughout the state (Dr. Louis Magnarelli, personal communication). Furthermore, at least one Connecticut death appears to be attributable to *E. equi* or a closely related strain (*Connecticut Epidemiologist*, Vol. 14, No. 5).

To assist clinicians in identifying cases of human ehrlichiosis, the Connecticut EIP will provide, at no charge, serologic testing for antibodies against *E. chaffeensis* and *E. equi*. Testing for *E. chaffeensis* antibody will be done at the State Laboratory on acute and/or convalescent-phase serum obtained between two and six weeks after onset of illness from patients who meet certain screening criteria. Further testing for *E. equi* antibody will be done at the CAES.

While the purpose of the study is to determine the extent to which ehrlichiosis is occurring in Connecticut and its clinical spectrum, results of each test and the results of the project in general should be of both immediate and future practical clinical value. For additional information concerning this study, please contact Dr. Mark Wilson at 203-785-2904 or (fax) 203-785-7552.

SURVEILLANCE FOR HUMAN EHRLICHIOSIS

SCREENING CRITERIA

Acute- and convalescent-phase sera will be collected from eligible patients and sent to the DPH Bureau of Laboratories to be analyzed for presence of antibody against *Ehrlichia spp*. Patients fulfilling the criteria below are eligible to be included in the study.

Potential case-patients must have an unexplained acute febrile illness associated with all of the following signs/symptoms. Patients who do not meet these criteria are not eligible for this study.

- Fever $\geq$ 38° C
- Headache
- Malaise
- Thrombocytopenia or leukopenia

(Other signs/symptoms may include chill/rigor, nausea/vomiting, arthralgias, or anorexia.)

SURVEILLANCE CASE DEFINITION

A case of ehrlichiosis will be defined as a Connecticut resident who meets the above criteria and has an elevated acute titer by IFA testing (1:64 or greater to *E. chaffeensis*, 1:80 or greater to *E. equi*) or a four-fold rise in titer between acute- and convalescent-phase sera.

SPECIMEN SUBMISSION

Serum specimens from patients meeting the above criteria should be accompanied by both a completed **Ehrlichiosis Case Report** form and a completed **Virology Laboratory Requisition** form. Collection kits (the VR-B kit) and requisition forms are available by calling 566-2824. For case report forms or additional information, call the State Virology Laboratory at 566-4776.

Mail or deliver specimens to: Connecticut Deptartment of Public Health, Bureau of Laboratories, Virology Laboratory, P.O. Box 1689,10 Clinton Street, Hartford, Connecticut 06106.

Figure 1

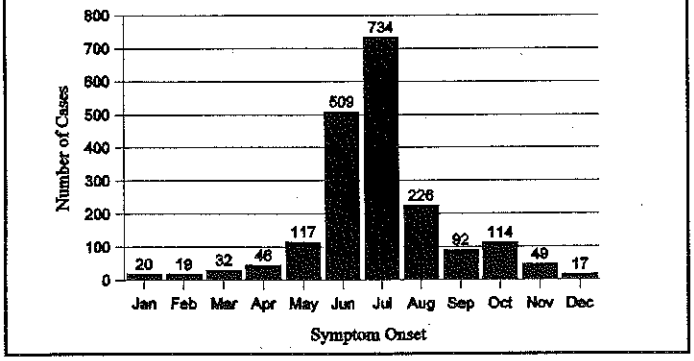


Figure 2

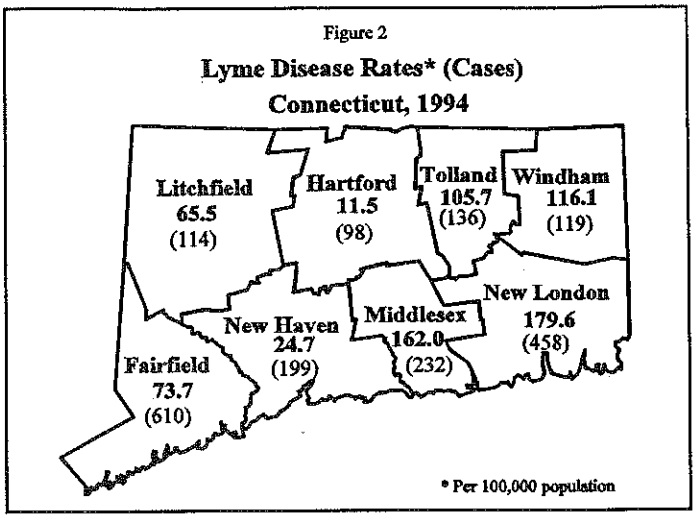


Figure 3

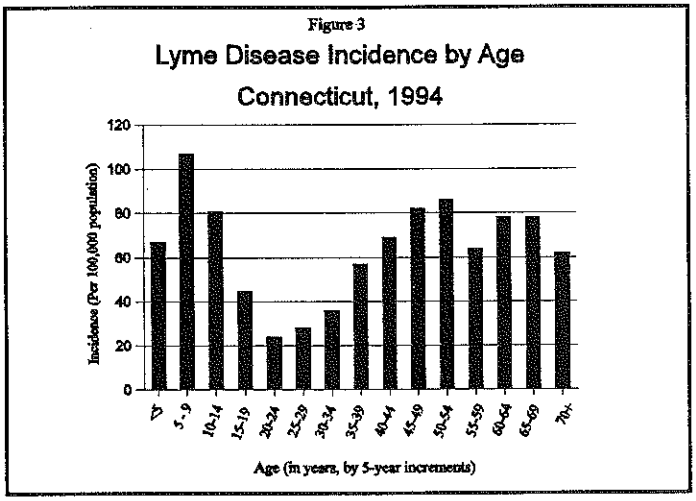
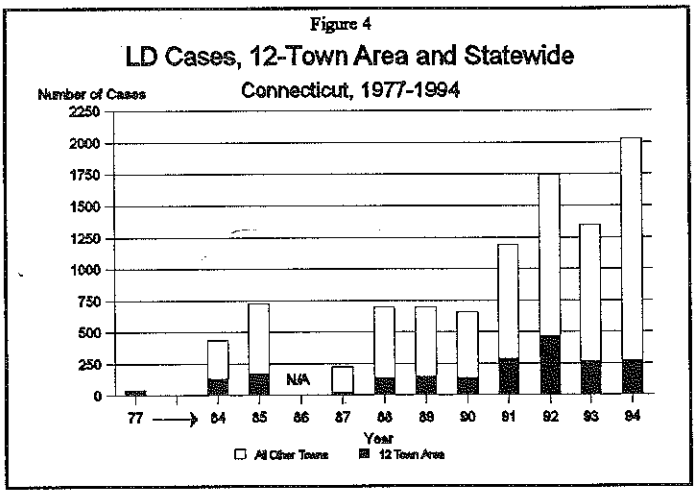


Figure 4



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