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NEW LYME DISEASE STUDY

In June 1991, the State of Connecticut Department of Health Services (DOHS) was awarded $142,101 for FY 1991by the Centers for Disease Control to conduct Lyme disease research. DOHS will be working collaboratively with the Connecticut Agricultural Experiment Station (CAES) and the University of Connecticut Bureau of Educational Research and Service (UCONN).

DOHS will use $59,853 to implement and maintain an active surveillance system for Lyme disease. CAES will receive $38,590 of the funds to conduct tick studies, and UCONN will receive $43,658 to develop and evaluate a Lyme disease education module for ninth grade students.

DOHS will conduct active surveillance for Lyme disease in 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 study will begin in the fall of 1991 and continue through December 1993. Primary care physicians in the target areas will be contacted by telephone on regular basis for reports of Lyme disease cases. The regular passive, physician-based surveillance system will be continued in other parts of the state.

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,[1,2] and will be used to evaluate the passive, physician-based reporting system in use in Connecticut since 1987.

Pat Mshar and Starr-Hope Ertel will be coordinating surveillance activities for the Epidemiology Program, DOHS and can be reached at 566-5058.

References

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EASTERN EQUINE ENCEPHALITIS

Each summer and fall, state health departments along the Atlantic coast monitor the risk of Eastern equine encephalitis (EEE). In 1990, EEE virus activity occurred in Connecticut for the first time since 1983. Between October 1 and October 18, three EEE cases among horses were confirmed: one in Salem, one in Haddam, and one in Canterbury. In addition, EEE was confirmed in two flocks of pheasants, one flock in Wallingford and the other in Westbrook.

In 1990, EEE virus was found in mosquitoes trapped in Bristol and Plymouth Counties in Massachusetts. Three human cases of EEE were confirmed and at least 18 horses died. The

State of Massachusetts sprayed 600,000 acres in Bristol and Plymouth Counties in mid-August to control the mosquito populations that could transmit EEE virus from birds to humans. In Rhode Island, EEE virus was found in mosquitoes trapped in the town of Tiverton.

In early August 1991, two horse cases of EEE were confirmed and EEE virus was isolated from six pools of Culiseta melanura mosquitoes in Westboro, Massachusetts.

In Connecticut, because of the potential for EEE virus activity in the summer and early fall of 1991, an EEE Surveillance Program is being conducted by the Connecticut Department of Health Services (DOHS) in collaboration with the Connecticut Agricultural Experiment Station and Yale University's Department of Epidemiology and Public Health. Pools of mosquitos are being tested for EEE virus from sites (swamps thought to be potential sites of EEE virus activity) in the following towns: Chester, Cornwall, Fairfield, Haddam, Killingworth, Ledyard, North Stonington, Salem, Southington, Voluntown, and Waterford. As of August 29, 1991, there have been no EEE isolates from mosquitos, and no confirmed cases of EEE in horses.

EDITORIAL NOTE: Connecticut has had well-documented cases of EEE among horses and pheasants since 1938. Epizootics of EEE in pheasant flocks in Connecticut occurred in 1938, 1951, 1953 and 1955.[1] In 1972, there were 22 cases of EEE reported in horses as well as outbreaks in pheasant flocks. Two cases of EEE in horses were reported in 1982, and two more in 1983. Despite considerable periodic arboviral activity in Connecticut and human cases of EEE in New York and Massachusetts, no human cases of EEE have been demonstrated in Connecticut, although several cases have been suspected.

In the United States, EEE is the rarest of the mosquitoborne arboviral infections.[2,3] A median of five sporadically occurring infections among humans are reported annually; however, the illness is fatal in 30% of cases overall, and even higher case-fatality rates are observed at the extremes of age.[2]

The geographic distribution of EEE virus is restricted to the eastern seaboard from Massachusetts to Florida and Louisiana. The enzootic vector is the freshwater mosquito, Culiseta melanura. Culiseta melanura is a selective biter, feeding almost exclusively on birds. Wild birds serve as the reservoir for the virus. The virus is transmitted from bird to bird by the mosquito and the cycle occurs at low levels every year in endemic areas. In most cases, infection in the bird is asymptomatic with little mortality in the bird population.

However, non-native birds, such as pheasants, frequently die in large numbers when the virus is active. Because of their susceptibility, pheasant flocks are excellent sentinel animals for monitoring the presence of EEE virus. Spillover of the virus to mammals only occurs when viremia reaches sufficiently high levels to regularly infect mosquitos. Numerous mosquito species have been implicated as potential epizootic vectors of EEE.[2,4,5]

An effective EEE vaccine for horses is commercially available, but cases continue to occur because of failures to vaccinate foals and to revaccinate older horses. An experimental EEE vaccine for humans is available to laboratory workers. In many areas where EEE is enzootic, control programs to reduce vector mosquitoes rely on larvicides and adulticides and long-term projects to reduce breeding sites.

Personal protective measures to reduce mosquito bites are an important approach to prevention. These measures include the use of repellents, appropriate dress, and avoidance of outdoor activity during twilight hours when many mosquitoes are most active.[2]

Physicians in Connecticut should consider the diagnosis of EEE in persons with encephalitic symptoms from mid-summer to several weeks after the first heavy frost. Suspect cases should

be reported to the Epidemiology Program (566-5058). Serologic testing can be arranged though the State Virology Laboratory (566-4776).

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MENINGOCOCCAL DISEASE CONNECTICUT, 1980 - 1990

Meningococcal disease is a severe and potentially fatal infection of public health concern. If left untreated, or when treatment is delayed, mortality rates may exceed 50 percent. With appropriate antibiotic treatment, fatality rates are reduced to less than 10 percent.

From 1980 to 1990, 606 systemic infections with Neisseria meningitidis were reported to the Connecticut Department of Health Services (DOHS) (Figure 1). Meningitis and septicemia were most often reported. The average annual incidence was 1.7 cases per 100,000 population. New Haven County had the highest average incidence (2.0 cases per 100,000 population), and Tolland County had the lowest average incidence (0.7 cases per 100,000 population). Fatalities were reported in 72 (12%) cases.

Of the cases reported, 55% were female. Ages were provided for 599 (99%) cases. Although meningococcal disease occurred in all age groups, the highest rates were observed in children aged less than I year (Table 1).

TABLE 1: MENINGOCOCCAL DISEASE BY AGE GROUP, CONNECTICUT, 1980 - 1990

Age Group	No. of Cases	Incidence
<1	118	25.4
1 - 4	128	7.3
5 - 9	32	1.5
10 - 19	94	1.9
20 - 29	57	.9
30 - 39	33	.6
40 - 49	29	.7
50 - 59	31	.9
60+	77	1.2
Unknown	7	-

*Average annual incidence per 100,000 for 1980-1990 based on 1985 population estimates for the specific age groups.

Onset dates were available for 509 cases. While cases of meningococcal disease were reported throughout the year, 264 (53%) occurred during the five winter-spring months of December through April (Figure 2).

Information on serogrouping was available on 456 isolates. Of these, 3 (0.7%) were serogrouped A, 203 (45%) were serogrouped B, 182 (40%) were serogrouped C, 12 (3%) were serogrouped Y, 31 (7%) were serogrouped W135, and 25 (6%) were nongroupable.

EDITORIAL NOTE: From 1980 to 1990, approximately 2,500 - 3,500 cases of meningococcal disease occurred annually in the United States. The U.S. average incidence was 1.2 cases per 100,000 population.

In Connecticut, meningococcal infection is a reportable disease. Physicians are required to inform both the state and local health departments within 24 hours of diagnosis or suspicion of meningococcal disease.

In addition to reporting by physicians, regulations require that laboratories forward confirmed N. meningitides cultures to the State Laboratory for confirmation and serogrouping.

Recognition of a case of meningococcal disease immediately raises the question of prophylaxis for close contacts. In 1990, the Epidemiology Program evaluated six situations for possible prophylaxis of close contacts. Prophylaxis was recommended in one setting, and educational material on meningococcal disease was provided for contacts in the other five settings.

Cooperation of the primary physician, the local health department, and the DOHS are essential to identify, educate and, if appropriate, institute prophylaxis of people at increased risk of meningococcal disease in order to prevent spread of the disease in the community.

Figure 1: Meningococcal Disease Connecticut, 1980 - 1990

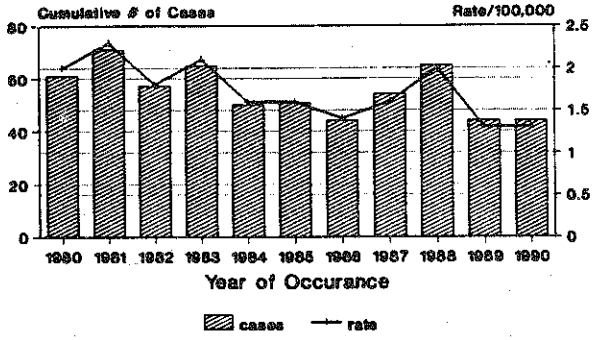
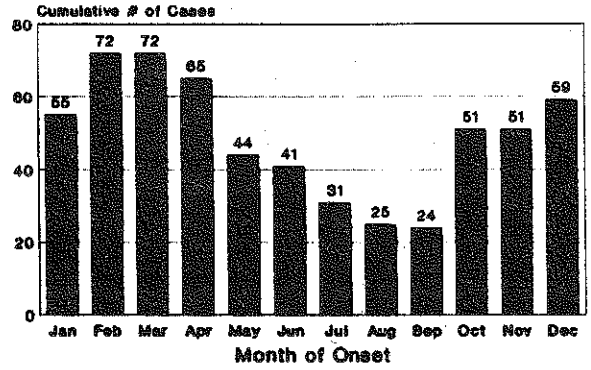


Figure 2: Meningococcal Disease by Month of Onset 1980-1990



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