

CONNECTICUT EPIDEMIOLOGIST

State of Connecticut Department of Public Health
Stephen A. Harriman, Commissioner

September 1995

Volume 15, No. 5

THIS ISSUE

Foodborne Illness Project	17
Salmonellosis & Shigellosis, CT 1985-1994	18
E. Coli O157:H7	20

FOODBORNE ILLNESS PROJECT

The U.S. Department of Agriculture's Food Safety and Inspection Service (FSIS), the Food and Drug Administration (FDA), and the Centers for Disease Control and Prevention (CDC) are collaborating with state health departments and local investigators at five locations nationwide to more accurately determine the incidence of foodborne illness, especially illness caused by *Salmonella* and *Escherichia coli* O157:H7.

Connecticut is participating in this CDC-funded foodborne illness project through the Connecticut Emerging Infections Program (EIP), a collaborative project between the Connecticut Department of Public Health (DPH) and the Yale University School of Public Health. The project will be piloted in New Haven County (pop. 804,219) and Hartford County (pop. 851,783).

Salmonella and *E. coli* O157:H7 will be targeted because they are often identified with foodborne illness linked to meat, poultry and other foods. CDC estimates that 800,000 to 4 million cases of foodborne illness and 800 to 4,000 deaths are caused by *Salmonella* each year. In addition, 10,000 to 20,000 foodborne illness cases and 200 to 500 deaths are associated with *E. coli* O157:H7.

The Collaborative Project

Coordinated by CDC, data will be collected at five sites located in Atlanta, Georgia, at Emory

University and Veteran's Affairs Medical Center; in northern California at the State Department of Health Services and University of California at Berkeley; in Connecticut at the Department of Public Health and Yale University; in Minnesota at the Department of Health, and in Oregon at the State Health Division.

Laboratory-based Surveillance

Laboratories that conduct microbiological testing of stool samples will be surveyed to determine their practices for processing and culturing samples. They will report results from cultures which will determine the number of culture-confirmed cases of foodborne bacterial illnesses, including those associated with *Salmonella* and *E. coli* O157:H7 infections.

Population-based Surveillance

The population-based surveys will estimate the numbers of acute cases of diarrheal illness that occur in the study population each year. The surveys will determine the proportion of persons with diarrhea who seek health care, the proportion of health care providers who obtain stool cultures, and the proportion of laboratories that culture stools for particular foodborne pathogens.

Case-control Studies

Case-control studies will be carried out to obtain information about potential sources of exposure. These studies will consist of interviews with persons with acute diarrhea, the patients' physicians, and a randomly selected control group of people in the community who do not have a recent history of acute diarrheal disease.

How Data Will Be Used

The CDC and the project sites will use the information to monitor the incidence of foodborne diseases in the United States. Outbreaks that are identified during this surveillance project will be investigated and appropriate control measures taken. This system will help identify new and emerging foodborne infections.

The FSIS will use the baseline data to assist with the evaluation of new food safety programs and regulations to reduce foodborne pathogens. In February 1995, the agency published a proposal that would require meat and poultry plants to implement pathogen reduction and hazard analysis and critical control point (HACCP) systems to reduce microbial contamination. The proposal calls for microbial testing for *Salmonella* to verify the effectiveness of these procedures.

The FDA is also developing final regulations to require the use of HACCP procedures in seafood inspection. The agency will use the data from the project to evaluate the effectiveness of HACCP systems. Other food safety interventions will also be evaluated for effectiveness in reducing foodborne pathogens in seafood, dairy products, fruits and vegetables. The data will also be used to develop future food safety programs.

For More Information

For more information about the Foodborne Illness Project, contact Ms. Ruthanne Marcus or Ms. Joann Zamparo at the Yale Emerging Infections Program at 785-2920 or 785-2925.

SALMONELLOSIS & SHIGELLOSIS CONNECTICUT, 1985 - 1994

SALMONELLOSIS

Salmonellosis is both a provider-reportable disease and laboratory-reportable finding. The purpose of surveillance is to monitor changes in the epidemiology of salmonellosis over time and to detect and control outbreaks. Over the past 10 years, there have been two striking trends in the occurrence of salmonellosis in Connecticut.

First, the incidence of salmonellosis has been decreasing in the past 5 years (Figure 1). The average annual total numbers of cases reported of all serotypes has decreased from 1,172 cases per year in 1985-1989 to 835 cases per year in the past 5 years. The reason for this decrease is not clear. It may reflect a longer cyclic trend (from 1980-1984, an average of 875 cases per year were reported, similar to the most recent numbers). The decrease could be an artifactual decrease reflecting either a trend toward less reporting or less testing for *Salmonella*. It could also be a true decrease due to improved foodhandling procedures in restaurants and/or homes, a decrease in the burden of *Salmonella* in food products, or a change in consumer eating practices toward less consumption of meat. The Foodborne Illness Project should provide data that will help to explain changes in the epidemiology of salmonellosis.

The second trend has been the emergence of *Salmonella enteritidis* as the most common reported cause of salmonellosis in Connecticut. In the first 7 months of 1995, *S. enteritidis* infections accounted for 39% (151/383) of all reported isolates. From 1985-1994, *S. enteritidis* accounted for 28% (2,785/10,032) (Figure 1). *S. typhimurium*, previously the dominate serotype, accounted for 23% of isolates from 1985-1994. The emergence of *S. enteritidis* in Connecticut is part of a nationwide trend (1). Underlying this is the introduction and dissemination of strains of *S. enteritidis* that can infect first the ovaries of chickens and then intact shell eggs.

S. enteritidis has also become the leading serotype causing reported outbreaks of salmonellosis nationally and in Connecticut. From 1990-1994, the Department of Public Health (DPH) investigated 20 outbreaks of salmonellosis (Table 1). Of these, 10 were due to *S. enteritidis*.

Age-specific rates for *Salmonella* infections, including those for *S. enteritidis*, were highest for persons aged <9 years, 20-29 years, or >80 years (Figure 2). The greatest number of isolates for both *S. enteritidis* and other *Salmonella* serotypes occurred during the summer months (Figure 3).

REFERENCES

1. CDC. Update: *Salmonella enteritidis* infections and shell eggs-United States, 1990. *MMWR*. 1990;39:909-912.

Table 1. Reported Outbreaks of Salmonellosis, by Year and Serotype Connecticut, 1990-1994

Year	No. Reports by Serotype		
	<i>S. enteritidis</i>	<i>S. typhimurium</i>	other
1990	4	1	3
1991	1	0	4
1992	2	0	1
1993	3	0	0
1994	0	1	0
TOTAL	10	2	8

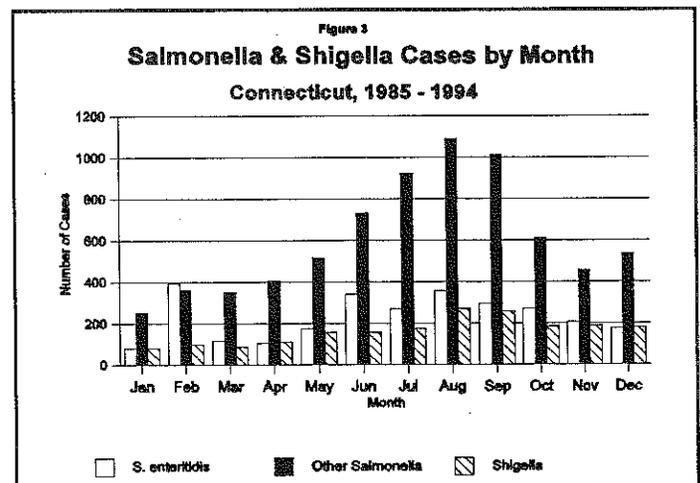
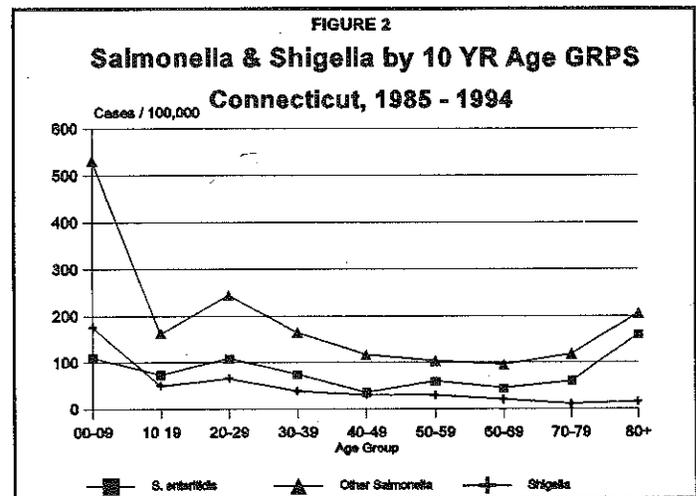
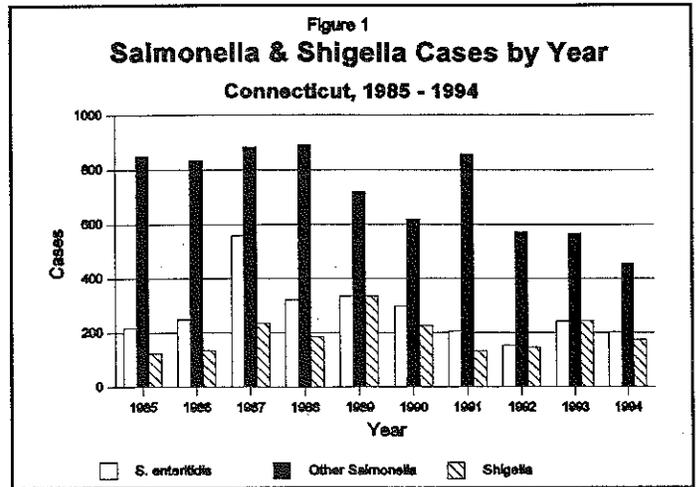
SHIGELLOSIS

From 1985 through 1994, 1,945 cases of shigellosis were reported to the Connecticut DPH (Figure 1). During this period, *Shigella sonnei* accounted for 81% (1,584) of all isolates, followed by *S. flexneri* 11% (214), *S. boydii* 1.3% (26), and *S. dysenteriae* 1% (12).

Illness caused by *Shigella* infections accounted for an annual average rate of 5.9 per every 100,000 state residents. By county of residence, New London County had the highest annual average rate (9.4/100,000), while Litchfield County had the lowest rate (2.3/100,000). Rates of shigellosis were highest in persons aged ≤ 9 years and in persons 20 - 29 years, but unlike salmonellosis, were lower for those aged ≥ 70 years (Figure 2).

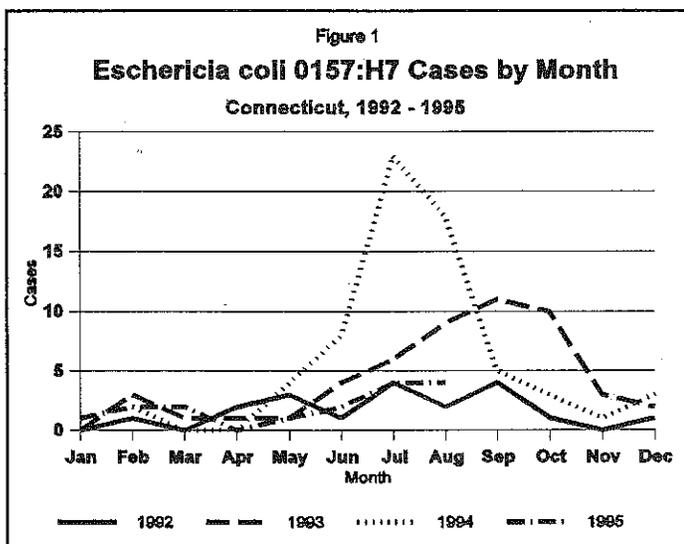
The greatest number of *Shigella* isolates occurred during July, August, and September, however, the seasonality of the disease was less pronounced than for *Salmonella* (Figure 3).

Only one outbreak of shigellosis was attributed to a point source during this period: a foodborne outbreak of shigellosis associated with dining at a hotel in Farmington in December 1988. Several person-to-person outbreaks, all lasting several months, were investigated by the DPH. In 1992, 64 of the 147 (44%) cases involved residents of Bridgeport and Stamford, and in 1993, 126 of the 245 (51%) reported cases involved residents of New London. During late 1994 and continuing into early 1995, 82 cases of *S. sonnei* were isolated from residents of New Haven.



ESCHERICHIA COLI 0157:H7

In Connecticut, *E. coli* 0157:H7 has been a laboratory reportable disease since 1990: 19 cases were reported in 1992, 51 cases in 1993, and 68 cases in 1994 (Figure 1). In the first 8 months of 1995, 16 cases were reported, involving residents of six of the state's eight counties (Fairfield, 6 cases; Hartford, 3 cases; Litchfield, 1 case; Middlesex, 1 case; New Haven, 4 cases; and Tolland, 1 case). Case-patients ranged in age from 9 months to 81 years, with a mean of 30.8 years. Seven cases occurred in persons \leq 5 years of age. Eight cases occurred in females. Ten cases had onset of illness during June-August.



STAFF ASSIGNMENTS

In August 1995, Christine L. Roberts, MBBS, MPH took a position with the National Centre for Epidemiology and Population Health at the Australian National University in Canberra, Australia. Dr. Roberts made important contributions to the Epidemiology Section during her 2-year assignment here with the CDC's Epidemic Intelligence Service. We wish her well in her new position.

In July 1995, Elizabeth D. Hilborn, RN, DVM, MPH began her 2-year assignment as the Epidemic Intelligence Service Officer in Connecticut. Dr. Hilborn received her veterinary degree from North Carolina State University in 1993 and her masters in public health degree from the University of North Carolina, Chapel Hill in 1994. We welcome her to Connecticut.

FOR
PUBLIC HEALTH EMERGENCIES
AFTER 4:30 P.M. AND ON WEEKENDS
CALL THE
DEPARTMENT OF PUBLIC HEALTH
AT (860) 566-5058.

20

Infectious Disease Division, James L. Hadler, M.D., M.P.H., State Epidemiologist

<i>Epidemiology</i> - Matthew L. Cartter, M.D., Program Coordinator	(860) 566-5058
<i>Immunizations</i> - Vincent Sacco, Acting Program Coordinator	(860) 566-4141
<i>Pulmonary Diseases</i> - Joseph Marino, Program Coordinator	(860) 566-3099
<i>Sexually Transmitted Diseases</i> - Ted Pestorius, Program Coordinator	(860) 566-4492

Connecticut Epidemiologist

Editor: Matthew L. Cartter, M.D.
Assistant editor: Starr-Hope Ertel

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

Bulk Rate
U.S. Postage
PAID
Permit No 4313
Hartford, Conn

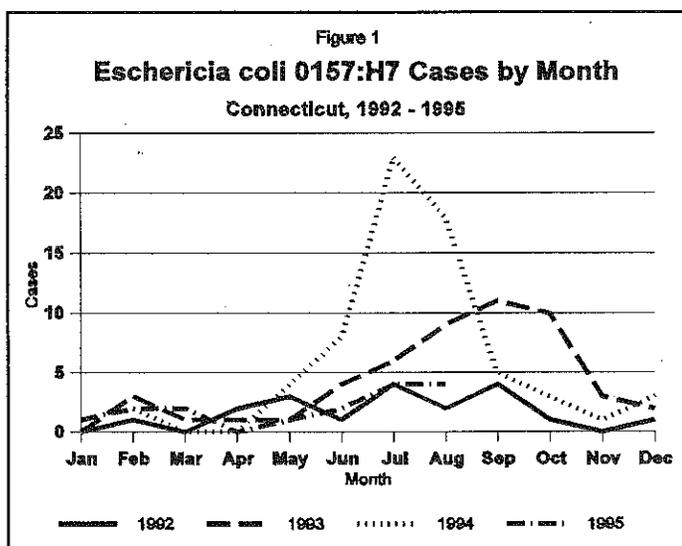
ESCHERICHIA COLI 0157:H7

STAFF ASSIGNMENTS

In Connecticut, *E. coli* 0157:H7 has been a laboratory reportable disease since 1990: 19 cases were reported in 1992, 51 cases in 1993, and 68 cases in 1994 (Figure 1). In the first 8 months of 1995, 16 cases were reported, involving residents of six of the state's eight counties (Fairfield, 6 cases; Hartford, 3 cases; Litchfield, 1 case; Middlesex, 1 case; New Haven, 4 cases; and Tolland, 1 case). Case-patients ranged in age from 9 months to 81 years, with a mean of 30.8 years. Seven cases occurred in persons ≤ 5 years of age. Eight cases occurred in females. Ten cases had onset of illness during June-August.

In August 1995, Christine L. Roberts, MBBS, MPH took a position with the National Centre for Epidemiology and Population Health at the Australian National University in Canberra, Australia. Dr. Roberts made important contributions to the Epidemiology Section during her 2-year assignment here with the CDC's Epidemic Intelligence Service. We wish her well in her new position.

In July 1995, Elizabeth D. Hilborn, RN, DVM, MPH began her 2-year assignment as the Epidemic Intelligence Service Officer in Connecticut. Dr. Hilborn received her veterinary degree from North Carolina State University in 1993 and her masters in public health degree from the University of North Carolina, Chapel Hill in 1994. We welcome her to Connecticut.



FOR
PUBLIC HEALTH EMERGENCIES
AFTER 4:30 P.M. AND ON WEEKENDS
CALL THE
DEPARTMENT OF PUBLIC HEALTH
AT (860) 566-5058.

20

Infectious Disease Division, James L. Hadler, M.D., M.P.H., State Epidemiologist

<i>Epidemiology</i> - Matthew L. Cartter, M.D., Program Coordinator	(860) 566-5058
<i>Immunizations</i> - Vincent Sacco, Acting Program Coordinator	(860) 566-4141
<i>Pulmonary Diseases</i> - Joseph Marino, Program Coordinator	(860) 566-3099
<i>Sexually Transmitted Diseases</i> - Ted Pectorius, Program Coordinator	(860) 566-4492

Connecticut Epidemiologist

Editor: Matthew L. Cartter, M.D.
Assistant editor: Starr-Hope Ertel

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

Bulk Rate
U.S. Postage
PAID
Permit No 4313
Hartford, Conn