

# Connecticut Epidemiologist



CONNECTICUT STATE DEPARTMENT OF HEALTH SERVICES

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## SHIGELLOSIS CONNECTICUT 1981-82

Hippocrates was the first to observe that when a dry winter was followed by a rainy spring that the summer would be associated with an increased number of cases of dysentery. This epidemiologic phenomenon has been observed recently in Connecticut, primarily in the city of Waterbury. A large outbreak of shigellosis occurred in July and August with approximately 350 culture positive cases to date. The epidemic curve, typical of person-to-person transmission is described in Figure 1.

The incidence of *Shigella* has been increasing dramatically in Connecticut since 1981. The annual incidence rate for 1981 was 11.1 cases per 100,000 population. This increase was due largely to activity in the towns of Hartford, Bridgeport, New Haven and New Britain.

In both the present outbreak and that of last summer, cases appeared to be clustered in certain geographic areas of each town and were attributable to person-to-person transmission. More than one-third of cases occurred within related households.

More than fifty percent of the cases in Waterbury occurred in children under the age of 10, (30% of the cases were in children 0-4 years of age). Most adult cases occurred in females 20-35 years of age. Approximately 30% of all cases had another family member who was culture positive. These findings are consistent with studies which have evaluated the interaction of the age of the exposed index patient and those of exposed family members.(1) Household members are at greatest risk of secondary in-

fection when the index case occurs in a preschool child.

In terms of transmission, from a practical standpoint, the only reservoir is man. Once in a community, infection can be spread via water, food, or person-to-person contact.

Infected individuals may shed the organism and transmit the infection for several weeks after the onset of symptoms. *Shigella* is generally present in stools in concentrations between  $10^3$  -  $10^9$  viable bacilli per gram of feces, depending on the stage of illness.(2) A highly efficient pathogen, *Shigella* is capable of producing disease following ingestion of as few as 200 organisms. This low infective dose explains the relative ease of person-to-person transmission of this organism.

Although shigellosis is endemic in all parts of the United States, cyclic epidemics have been described which may last several years. The cyclic pattern of shigellosis, and of specific serotypes of shigellosis suggests that herd immunity may play a major role in the lack of transmission of the disease in non-epidemic periods. *Shigella sonnei* is presently the prevalent serotype in the United States. Infection provides type-specific immunity which protects against reinfection.

It has been suggested that the disease attacks each generation, rendering the survivors immune. It must then wait for the occurrence of the next non-immune population. The prevalence of shigellosis in Connecticut suggests that there may be a susceptible generation, who may be at increased risk of infection through family, social and school con-

tacts. Appropriate cultures to identify the etiologic agent and reporting of diagnosed cases are critical to the early recognition of outbreaks in order to implement appropriate strategies for interruption of transmission.

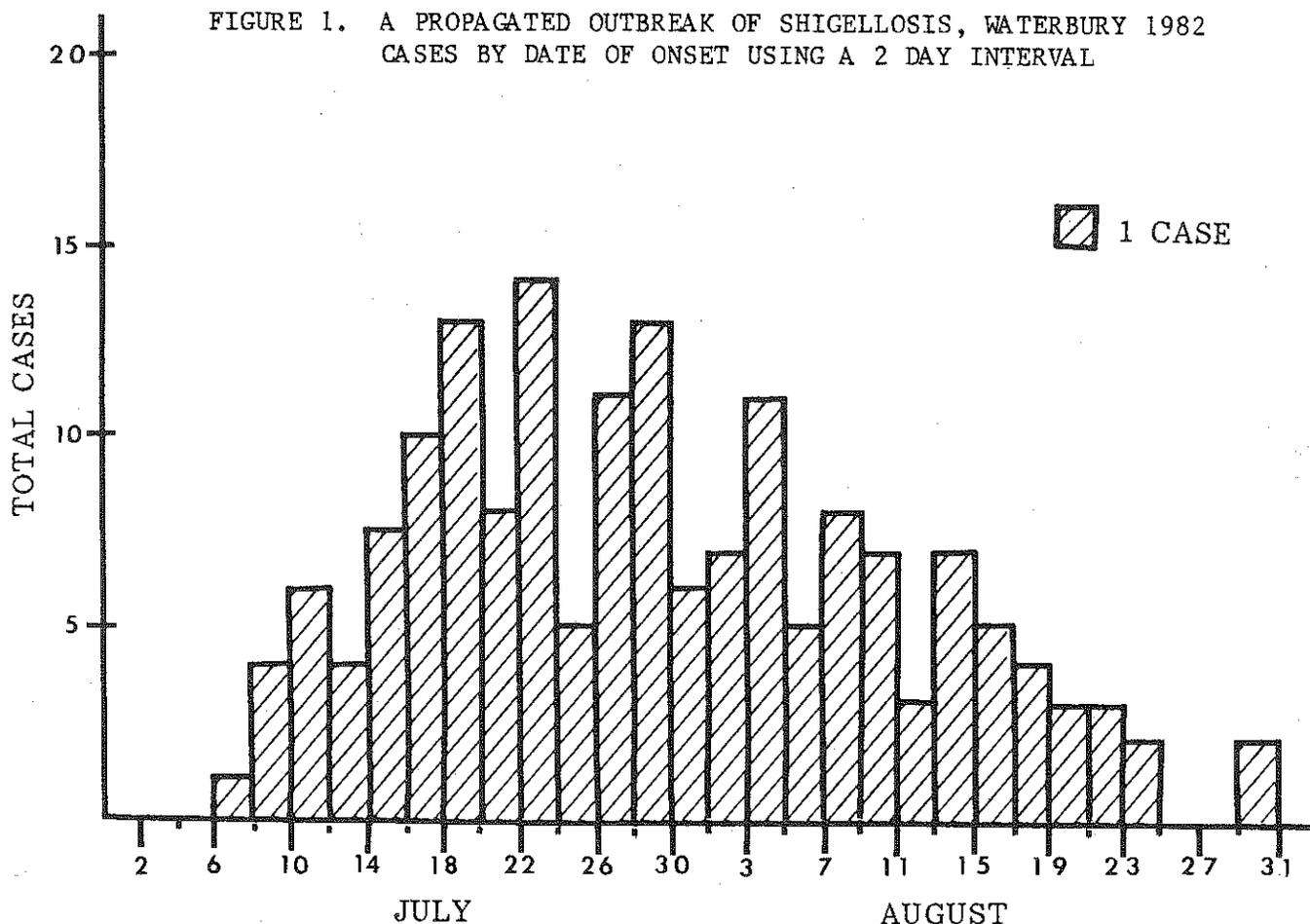
Antimicrobial treatment is not routinely recommended, because the infection is self-limited, and because the development of antibiotic resistance is common. However, in an outbreak, such as the one occurring in Waterbury, treatment with an appropriate antibiotic is one of the strategies utilized as a disease intervention. Since approximately fifty percent of *Shigella* isolates are resistant to Ampicillin, trimethoprim sulfamethoxazole (Bactrim or Septra) is currently the treatment of choice, especially when sensitivity is unknown.(2,3) Amoxicillin is ineffective against *Shigella* and should not be used.

Education remains the single most important method for control of shigellosis. Adults may become infected from young children, and serve as the source

of infection to other family members via food handling. Parents may need appropriate counseling regarding the ease of transmission of this disease, and the importance of good handwashing practice. With the beginning of the school year, it is imperative that cases be identified early in order to prevent smoldering outbreaks that may continue throughout the academic year.

REFERENCES:

- (1) Centers for Disease Control. Family illness associated with *Shigella* infection: the interrelationship of age of the index patient and the age of household members in acquisition of illness. *J. Infect. Dis.* 1981; 143:130-32.
- (2) Dupont HL. *Shigella* species (bacillary dysentery). In Mandel GL, Douglas RG, Bennett JE (eds.) *Principles and practice of infectious diseases*. New York: John Wiley and Sons, 1979, 1751-1759.
- (3) *The Medical Letter Handbook of Antimicrobial Therapy*. Revised Edition, 1982.



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TOTAL FOR JULY  
CUMULATIVE 1982  
CUMULATIVE 1981

AMEBIASIS	BOTULISM	BRUCELLOSIS	ENCEPHALITIS (ALL TYPES)	Primary	Post	FOODBORNE OUTBREAKS	GONORRHEA	HEPATITIS A	HEPATITIS B	HEPATITIS NON A NON B	HEPATITIS UNSPECIFIED	LEGIONELLOSIS	LEPROSY	MALARIA	MEASLES	MENINGITIS (All Types)	Aseptic	Hemophilus influenzae	Meningococcal	Other	MUMPS	PERTUSSIS	PSITTACOSIS	RABIES IN ANIMALS	REYE'S SYNDROME	ROCKY MT. SPOTTED FEVER	RUBELLA	SALMONELLA	SHIGELLA	SYPHILIS	TUBERCULOSIS (ALL TYPES)	Pulmonary	Other	TYPHOID FEVER
4	0	0	1	0	1	1	51	7	35	4	4	5	0	0	0	17	3	4	5	5	3	0	0	1	0	0	1	102	79	21	10	4	6	1
22	1	3	14	10	4	5	77	43	24	14	26	27	1	6	3	117	20	24	38	35	16	2	1	3	1	0	3	400	230	84	63	44	19	2
13	0	0	13	10	3	8	117	58	17	NR	20	43	2	11	8	138	12	37	53	36	33	2	0	4	4	2	12	397	82	72	104	86	18	4

NEW EPIDEMIOLOGY PUBLICATION

With the publication of this issue, the Preventable Diseases Division of the State of Connecticut Department of Health Services is reinstating a monthly newsletter from the Epidemiology Section. The Connecticut Epidemiologist will replace the Preventable Disease Notes which have not been distributed since August, 1981 due to fiscal restraints.

We believe that the dissemination of current, pertinent information to health care professionals is a critical component of the surveillance function of the Epidemiology Section. The announcement by CDC that the Weekly Mortality and Morbidity Report will be available only by subscription, increases the importance of a vehicle for communication between the public health agencies and health care providers.

The Connecticut Epidemiologist will be a monthly publication devoted to the presentation of morbidity data collected

by this department, reviews of significant infectious disease problems, newly discovered agents, and disease occurrence of interest to the Connecticut medical community. It will be available at no charge.

If you wish to receive this newsletter, please complete the enclosed form and return it to the Epidemiology Section. This initial issue is being sent to all licensed physicians in Connecticut. Future issues will be sent only to those returning the subscription coupon.

Many new changes have occurred in the Preventable Diseases Division. I would like to take this opportunity to introduce new personnel and to provide an updated listing of programs and personnel. This newsletter is intended to be a resource document for physicians, public health personnel, infection control practitioners and other health care personnel. We hope that you will inform us of topics which you wish to be reviewed in future issues.

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