Infectious Disease Epidemiology Report

Salmonellosis Surveillance Report - Maine, 2006

Introduction

Salmonellosis is an illness of variable severity usually manifested by diarrhea, abdominal pain, fever, and sometimes nausea and vomiting. It is one of the most frequent foodborne diseases reported in Maine and the United States. Nationwide, an estimated 1.4 million infections occur each year, resulting in approximately 15,000 hospitalizations and 400 deaths. This report provides a summary of the 2006 surveillance on *Salmonella* infections reported to the Maine Center for Disease Control and Prevention (Maine CDC).

Methods

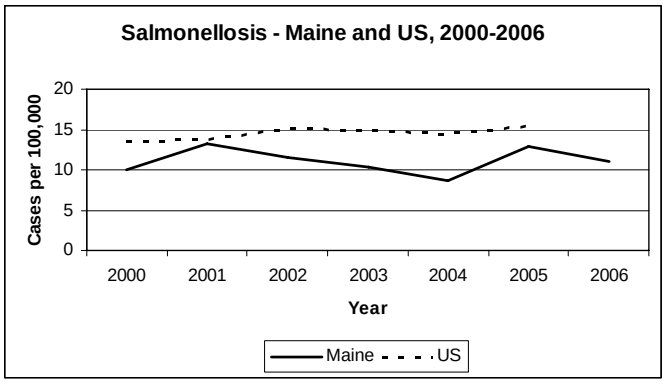
Salmonellosis is a reportable disease in Maine. For surveillance purposes, a confirmed case of salmonellosis is defined as the isolation of *Salmonella* from clinical specimens such as stool, urine or blood. A probable case of salmonellosis is defined as someone who meets the clinical criteria and is epidemiologically-linked to a confirmed case. The Maine CDC collects surveillance data on all laboratory confirmed reports of *Salmonella* infections. Maine-specific data presented here were extracted from the National Electronic Disease Surveillance System (NEDSS) as well as from a spreadsheet maintained by the Health and Environmental Testing Laboratory (HETL). National level data are obtained from Morbidity and Mortality Weekly Reports (MMWR). Population denominators are based on 2000 census data.

Results

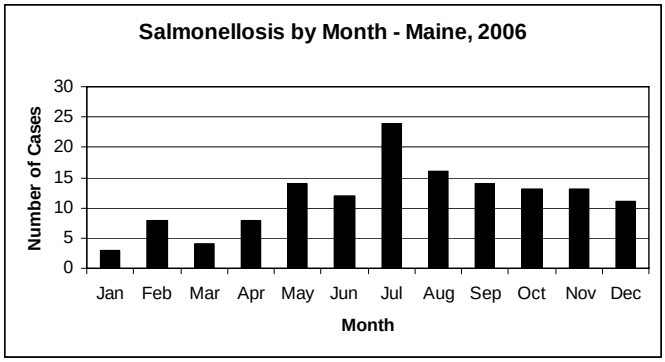
During 2006, a total of 140 culture-confirmed cases of salmonellosis were reported to the Maine CDC. This represents an overall rate of 11.0 per 100,000 persons. Seventy-four (53%) of the confirmed cases were female. The median age was 42 years, with a range of one month to 92 years. Serotypes Enteritidis and Typhimurium were the two most commonly reported serotypes and accounted for about 42% of patient isolates submitted to HETL. Other serotypes seen in significant numbers were Montevideo (6%), Copenhagen (5%), Oranienburg (5%), Newport (5%), I 4,[5],12:i:- (5%), and Javiana (4%). In addition to the 140 culture-confirmed cases, there were 21 probable cases of salmonellosis. Most of these probable cases were associated with confirmed cases within household settings.

Typhoid Fever: One culture-confirmed case of *Salmonella* serotype Typhi was reported in a 39 year-old female with overseas travel history.

Five-Year Trend: The incidence of salmonellosis in Maine has been somewhat steady over the last seven years. The 2006 case rate (11.0 per 100,000) was similar to the five-year median rate of 11.5 per 100,000. Similarly, incidence at the national level has remained stable.



Distribution By Month: In 2006, the incidence of salmonellosis peaked in July. This was in contrast to 2005 when incidence peaked in May.



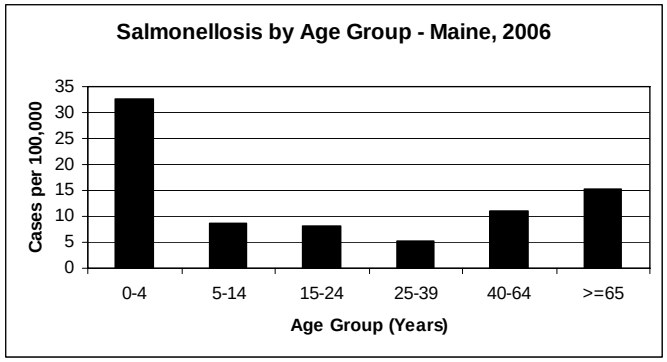
Distribution By County: York County, Cumberland County, and Kennebec County had the three highest percentages of cases at 23%, 20%, and 9%, respectively. Oxford County and York County had the two highest case rates at 20.1 and 17.1 per 100,000, respectively. Aroostook County and Hancock County jointly recorded the third highest case rate at 13.5 per 100,000.

Salmonellosis by County - Maine, 2006

County	Cases	Rate[§]	Percentage
Androscoggin	7	6.7	5
Aroostook	10	13.5	7
Cumberland	27	10.2	20
Franklin	1	3.4	1
Hancock	7	13.5	5
Kennebec	12	10.2	9
Knox	5	12.6	4
Lincoln	3	8.9	2
Oxford	11	20.1	8
Penobscot	6	4.1	4
Piscataquis	2	11.6	1
Sagadahoc	4	11.4	3
Somerset	6	11.8	4
Waldo	2	5.5	1
Washington	3	8.8	2
York	32	17.1	23

[§]Cases per 100,000 population

Case Rates By Age Group: Age is an important risk factor for salmonellosis. Consistent with national data, children under the age of five years had the highest incidence of salmonellosis in Maine during 2006 with a rate of 24.0 per 100,000. Persons 65 years and older represented another high-risk group. Relative to 2005, the incidence of salmonellosis among persons between the ages of 15 and 24 years was substantially lower in 2006.



Clusters and Outbreaks: In 2006, nine clusters were identified by use of Pulse-Field Gel Electrophoresis and through routine epidemiologic investigations. Three of these clusters developed into actual outbreaks and were investigated accordingly. Overall, 20% (28 of 140) of culture-confirmed *Salmonella* cases were associated with clusters and outbreaks. Summaries of outbreaks are provided below:

S. Montevideo, May 2006: Multi-state outbreak associated with chicks originating from a hatchery in New Mexico. Three Maine residents became sick after contact with infected chicks. All three cases were two years or younger in age and resided in Penobscot (2) and Waldo (1) counties.

S. Typhimurium, October 2006: Multi-state outbreak involving eight Maine residents. A national case-control study implicated tomatoes served in restaurants as the source of illness. All eight cases were from York (6) and Cumberland (2) counties and their ages ranged from 3 to 53 years.

S. Enteritidis, November 2006: A local outbreak of *S.* Enteritidis among employees of an animal vaccine production facility following a spill of *Salmonella* stock culture within the production building. A study by the Maine CDC identified 21 cases, although only five were culture-confirmed. The median age for ill workers was 42 years. The exact mechanism for infection of the workers remains unknown. Nonetheless, it is thought that environmental contamination of the room used for cleaning and sterilizing materials may have served as an ongoing source of *S.* Enteritidis.

Discussion and Recommendations

Salmonellosis continues to be a major enteric pathogen in Maine, especially in children under the age of five years. Human infection still occurs primarily through the ingestion of contaminated meat, poultry, eggs, and fresh produce. However, we increasingly see cases where the source of illness is not a food item. The *S.* Montevideo and *S.* Enteritidis outbreaks were associated with baby poultry and an animal vaccine production facility, respectively, and are prime examples of the changing trends in the spread of *Salmonella* infections.

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