



Infectious Disease Epidemiology Report



Salmonella, Maine -- 2007

Background

Salmonella is one of the most frequent enteric diseases reported in Maine. The Infectious Disease Epidemiology program and the Maine Health and Environmental Testing Laboratory (HETL) of the Maine Center for Disease Control and Prevention monitor the incidence of *Salmonella* through reporting cases of illness. This report summarizes surveillance data on *Salmonella* from 2007. Maine specific data presented here were extracted from the National Electronic Disease System for Surveillance (NEDSS), Maine's 2007 Infectious Disease Summary Report, a disease reporting database maintained by the infectious disease program, and an enteric spreadsheet maintained by the Health and Environmental Testing Laboratory.

Overview of *Salmonella* Maine, 2007

A total of 138 *Salmonella* cases were reported to Maine CDC in 2007. One hundred and nineteen cases were cultured-confirmed and 19 cases were probable, defined as clinically compatible and epidemiologically linked. Eighty-three (60%) of the cases reported were female and 55 cases (40%) were male. The median age was 41 years, with a range of 3 month to 90 years.

Table: *Salmonella* cases by county-- Maine, 2007

County	Count	Case Rate [‡]
Androscoggin	7	6.6
Aroostook	6	8.3
Cumberland	34	12.3
Franklin	3	10.0
Hancock	6	11.3
Kennebec	12	9.9
Knox	0	0
Lincoln	2	5.7
Oxford	9	15.9
Penobscot	14	9.4
Piscataquis	2	11.6
Sagadahoc	3	8.2
Somerset	5	9.7
Waldo	0	0
Washington	3	9.2
York	32	15.9
State of Maine	138	10.5

Note: Population denominators are from 2007 census data
[‡] Rate per 100,000 population

Cumberland County had the highest number of cases with 34, representing approximately 24% of all cases reported in 2007. York County followed closely with 32 cases, representing approximately 23% of case reported in 2007. These case counts reflect closely what has been seen in previous years.

Outbreaks and Clusters in Maine 2007

The infectious disease program and HETL routinely conduct investigations and Pulse-Field Gel Electrophoresis testing (PFGE) to try and identify clusters and outbreaks of disease.

Maine identified two outbreaks associated with *Salmonella* during 2007. An outbreak was defined as three or more laboratory confirmed cases of illness with matching PFGE results or identification through common exposures. Six clusters of *Salmonella* were identified during 2007. A cluster is defined as two cases identified as having the same exposure or matching PFGE results. Maine also identified seven cases of *Salmonella* that matched a national cluster or outbreak pattern by PFGE.

- The first outbreak involved *Salmonella Newport*, a common serotype found in the United States. In September, seven individuals became ill after eating at the same restaurant.
- The second outbreak involved *Salmonella Typhimurium*, one of the most common serotypes of *Salmonella* found in the United States. Five people became ill after eating at the same restaurant in October.

Salmonella Nomenclature

Salmonella is a genus of bacteria from the family *Enterobacteriaceae*. This genus is further divided into species, and then serotype. Serotype designation includes subspecies identification, which is typically determined by biochemical characterization. Serotyping consists of the immunologic classification of two surface structures, O-polysaccharide (O antigen) and flagellin protein (H antigen).

Salmonella – Maine, 2007

The Kauffmann-White serotyping scheme which is commonly used among laboratories throughout the United States for designation of *Salmonella* serotypes recognizes 46 O serogroups and 114 H antigens that, in various combinations, make up the 2,523 characterized serotypes

Serotypes found in Maine, 2007

The most common serotypes found in the United States are *Typhimurium*, *Enteritidis*, *Newport* and *Heidelberg*. *Typhimurium*, *Enteritidis*, and *Newport* were the most common serotypes found in the state. These serotypes represented 53% of serotypes found in Maine in 2007.

Serotype	Count
Braenderup*	1
Choleraesuis	1
Derby	2
Dublin	1
Durban	1
Ealing	1
Enteritidis*	18
Fulda	1
Hadar	4
Heidelberg	3
Manhattan	2
Mbandaka	1
Mikawasima	1
Minnesota	1
Muenchen	5
Muenster	1
Newport*	20
Norwich	2
Oranienburg	3
Montevideo	2
Pomona	2
Poona	1
Saintpaul	2
Sandiego	1
Schwarzengrund*	2
Senftenberg	1
Singapore	1
Stanley	3
Tennessee	1
Thompson*	3
Typhimurium*	19

Note: Not all cases of *Salmonella* were serotyped in 2007

*At least one case of serotype identified matched a national cluster or outbreak

Prevention and Control

Salmonella is one of the most common enteric illnesses in Maine. *Salmonella* is transmitted by ingesting the organism on food contaminated by feces from an infected animal or person. Lizards and reptiles are also common sources of infections, especially in young children. Hand washing, avoiding consumption of undercooked foods associated with *Salmonella*, handling food carefully, and handling animals associated with *Salmonella* carefully remain the best prevention and control measures to preventing illness.

Salmonella is on the Notifiable Conditions List and can be reported by calling 1-800-821-5821, or by faxing reports to 207-287-6865

For more information on *Salmonella*, see the Maine CDC website <http://www.maine.gov/dhhs> and federal CDC website <http://www.cdc.gov/salmonella>

References

Popoff MY. 2001. Antigenic formulas of the *Salmonella* serovars, 8th. WHO Collaborating Centre for Reference and Research on *Salmonella*, Institut Pasteur, Paris, France.

Popoff MY, Bockemuhl LL. 2003. Supplement 2001 (no. 45) to the Kauffmann-White scheme. Res. Microbiol. 154:173-174.

Heymann, D.L. ed. 2004. Control of Communicable Disease Manual 18th. American Public Health Association. Salmonellosis, 469-472.

Centers for Disease Control and Prevention. <http://www.cdc.gov/salmonella/>