



Infectious Disease Epidemiology Report

Bacterial Enteric Disease Surveillance Report – Maine, 2011



Introduction

Bacterial enteric diseases have a substantial impact on the community. Every year millions of cases of foodborne illness occur in the United States which are associated with hospitalizations and deaths.

The most common sources of transmission for all bacterial enteric diseases include food, water (drinking and recreational), and animal contact. Safe food handling practices and good hand hygiene, especially after using the toilet and handling animals, help to prevent illness.

Bacterial enteric diseases of concern in Maine include campylobacteriosis, salmonellosis, shiga toxin-producing *E. coli* (STEC) infections, shigellosis, vibriosis and listeriosis.

Methods

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 bacterial enteric diseases through disease reports from health care providers and laboratories. All disease reports are investigated by contacting the individual and questioning them about possible sources of illness. Information collected includes food consumption, water consumption and recreational contact, animal contact and travel history.

HETL routinely conducts confirmatory testing and molecular laboratory testing on bacterial enteric pathogens (*Salmonella*, STEC, *Shigella*, *Campylobacter* and *Listeria*). The testing, Pulsed Field Gel Electrophoresis (PFGE), allows for identification of specific DNA patterns. The pattern identified by PFGE is compared with other isolates within the state and across the country to identify potential clusters of illness.

Results

A total of 397 bacterial enteric diseases were reported in 2011. The majority of these cases were caused by *Campylobacter* or *Salmonella* species (Table 1).

The reported cases were evenly divided between females (50%) and males (50%), though some conditions showed more discrepancies between gender: 75% of vibriosis cases occurred in males, while 69% of shigellosis cases occurred in females.

Most enteric diseases occurred in adults, however, 22% of STEC cases occurred in children under the age of five years and 63% of shigellosis cases occurred in children under the age of 15 years.

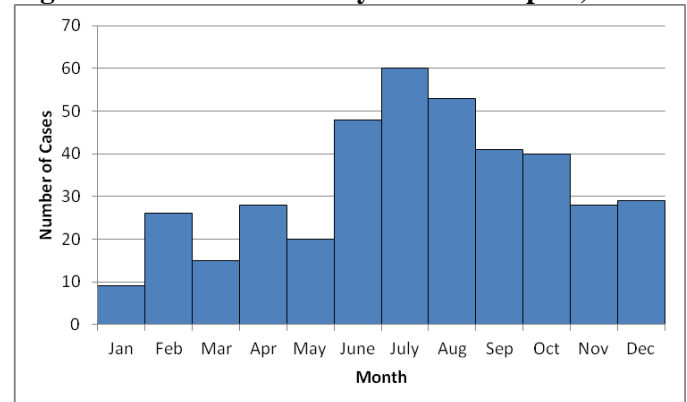
Table 1. Enteric disease case counts, rates, and median age, Maine 2011.

	Case Count	5 year Median	Case Rate*	Median Age
<i>Campylobacter</i>	195	149	14.7	48
<i>Salmonella</i>	134	138	10.1	47
STEC	28	26	2.1	23
<i>Shigella</i>	32	8	2.4	11
<i>Vibrio</i>	4	4	0.3	55
<i>Listeria</i>	4	4	0.3	78

*case rate per 100,000 persons.

Approximately half (51%) of bacterial enteric diseases were reported in the summer months, from June through September (Figure 1).

Figure 1. Enteric diseases by month of report, 2011.



Diseases were reported in all counties in the state (Table 2). Cases of listeriosis were reported in Kennebec, Somerset, Waldo and York counties. The vibriosis cases were reported in Knox, Lincoln and York counties. The majority of shigellosis cases occurred in Androscoggin County (75%).

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Table 2. Campylobacter, Salmonella and STEC cases by County, Maine 2011

County	<i>Campylobacter</i>	<i>Salmonella</i>	STEC
Androscoggin	14	17	1
Aroostook	6	6	1
Cumberland	44	28	5
Franklin	4	5	2
Hancock	4	1	0
Kennebec	23	11	2
Knox	1	9	1
Lincoln	4	4	0
Oxford	9	6	3
Penobscot	25	5	3
Piscataquis	2	1	1
Sagadahoc	6	1	3
Somerset	15	3	2
Waldo	3	10	1
Washington	3	1	0
York	32	26	3
Total	195	134	28

In Maine, the most commonly reported serotypes of *Salmonella* in 2011 were Enteritidis, and Typhimurium,. For STEC, only 21% of cases were *E. coli* O157:H7. *Shigella sonnei* and *flexneri* and *Vibrio alginolyticus*, *parahaemolyticus*, and *vulnificus* were also isolated in state residents.

In 2011 a community outbreak of *Shigella* occurred in Androscoggin County with 24 confirmed cases over seven months. In December 2011 a national cluster of 23 cases of *Salmonella* Typhimurium included 4 Maine residents. HETL isolated the same strain of *Salmonella* from leftover ground beef from one of the Maine residents. The investigation resulted in a recall of ground beef from a regional supermarket chain.

Prevention and Control

Individuals most at risk of enteric diseases include immune compromised individuals, children under the age of five years, and the elderly.

Bacterial enteric diseases can be prevented using the following guidance:

- Wash hands with soap and water:
 - After using the toilet
 - After changing diapers, or assisting an individual using the toilet
 - Before and after preparing or eating food

- After handling animals, animal living spaces and animal waste
- Rinse all fresh fruits and vegetables under clean running water
- Wash counters and cooking utensils with hot soapy water before and after preparing food
- Separate raw meat, poultry, seafood and eggs from other foods in the grocery cart and in the refrigerator at home
- Use separate cutting boards for fresh fruits and vegetables and for raw meat, poultry, and fish
- Do not reuse plates or packaging materials that held raw meat, poultry, seafood or eggs
- Do not consume raw or cracked eggs, raw unpasteurized milk, or other dairy products made with raw unpasteurized milk
- Avoid letting infants or young children come into contact (hold, cuddle or kiss) with:
 - reptiles, such as turtles or iguanas
 - baby chicks or young birds
- When traveling to countries where the water may not be safe and sanitation is poor do not use ice or drinking water and avoid eating uncooked foods.
- Avoid exposing open wounds to water sources, such as pools, lakes, seawater
- People with enteric infections should not prepare or serve food/beverages for others until all symptoms have resolved

All cases of campylobacteriosis, salmonellosis, STEC, shigellosis, vibriosis and listeriosis in Maine must be reported by calling 1-800-821-5821, or by faxing reports to 800-293-7534. All specimens (except *Campylobacter*) must be sent to HETL for confirmation.

For more information on enteric diseases:

- Maine CDC website www.mainepublichealth.gov
- Federal CDC website <http://www.cdc.gov>
- HETL website <http://www.mainepublichealth.gov/lab>
- FDA website <http://www.fda.gov/Food/FoodSafety>
- USDA website: http://www.fsis.usda.gov/food_safety_education/index.asp