



Infectious Disease Epidemiology Report

Bacterial Enteric Disease Surveillance Report – Maine, 2010



Introduction

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

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

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, can prevent illness.

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, except for *Campylobacter*, are investigated by contacting the individual and determining possible sources of illness. Data collected include food consumption, water consumption and contact, animal contact and travel history

HETL routinely conducts confirmatory testing and molecular laboratory testing on select bacterial enteric pathogens (*Salmonella*, STEC, *Shigella* 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 clusters of illness.

Results

A total of 316 bacterial enteric diseases were reported in 2010. The majority of these cases were caused by campylobacter or salmonella species (Table 1).

The reported cases were evenly split between females (51%) and males (49%), though some conditions showed more discrepancies between gender: 80% of vibriosis cases occurred in males, 63% of shigellosis cases occurred in males and 57% of STEC cases occurred in females.

Most enteric diseases occurred in adults, however, 24% of STEC cases occurred in children under the age of five years.

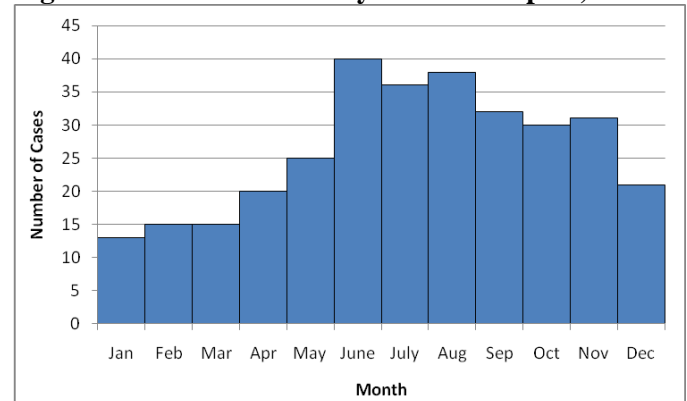
Table 1. Enteric disease case characteristics, Maine 2010

	Case Count	5 year Median	Case Rate*	Median Age
Campylobacter	148	151	11.3	45
Salmonella	133	159	10.1	41
STEC	21	29	1.6	31
Shigella	8	14	0.6	42
Vibrio	5	3	0.4	58
Listeria	1	5	0.1	N/A

*case rate per 100,000 persons.

The majority (46%) of bacterial enteric diseases were reported in the summer months, from June through September (Figure 1).

Figure 1. Enteric diseases by month of report, 2010.



Diseases were reported in all counties in the state (Table 2). The only case of listeriosis was reported in Aroostook County. The vibriosis cases were reported in Cumberland, Franklin, Kennebec and York counties. The shigellosis cases were reported in Aroostook, Cumberland, Kennebec, Lincoln and York Counties.

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Table 2. Campylobacter, Salmonella and STEC cases by County, Maine 2010

County	Campylobacter	Salmonella	STEC
Androscoggin	10	4	3
Aroostook	9	11	2
Cumberland	34	34	1
Franklin	4	1	1
Hancock	8	7	1
Kennebec	15	7	0
Knox	1	3	0
Lincoln	6	4	0
Oxford	6	5	2
Penobscot	20	18	5
Piscataquis	2	2	0
Sagadahoc	8	5	3
Somerset	7	7	0
Waldo	0	3	0
Washington	1	1	0
York	17	21	3
Total	148	133	21

In Maine, the most commonly reported serotypes of *salmonella* in 2010 were enteritidis, newport, typhimurium, and I 4,[5],12:i:-. For STEC, 47% of cases were *E. coli* O157:H7. *Shigella sonnei* and *flexneri* and *Vibrio alginolyticus*, *parahaemolyticus*, and *vulnificus* were also isolated in state residents.

In the summer of 2010, two cases of STEC, identified as *E. coli* O26, were found to have the same PFGE pattern by laboratory testing. The investigation led to the first recall in the US of ground beef for *E. coli* non-O157 contamination.

Prevention and Control

Individuals at most risk of enteric diseases include immunocompromised 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 veggies 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, do not use ice or drinking water and avoid eating uncooked foods in countries where the water may not be safe and sanitation is poor.
- 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

Additional recommendations to prevent listeriosis for pregnant women and immunocompromised individuals are available at www.cdc.gov.

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 207-287-6865. All specimens must be sent to the Health and Environmental Testing Laboratory for confirmation.

For more information on enteric diseases:

- Maine CDC website <http://www.maine.gov/dhhs/boh/ddc/epi/food-borne.shtml>
- 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