



Infectious Disease Epidemiology Report

Bacterial Enteric Disease Surveillance Report – Maine, 2013



Introduction

Bacterial enteric diseases have a substantial impact on the community. Every year millions of cases of foodborne illness occur in the United States of which many require hospitalizations and some cases are fatal.

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 reported 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 on risk factors is gathered including specific questions about food and water consumption, recreational water contact, animal contact, and travel history.

HETL routinely conducts confirmatory and molecular testing on bacterial enteric pathogens (*Salmonella*, STEC, *Shigella*, *Campylobacter*, and *Listeria*). Pulsed Field Gel Electrophoresis (PFGE) testing allows for identification of specific DNA patterns. The patterns are compared with those isolated from other patients in the state and across the country to identify potential clusters of illness.

Results

A total of 404 cases of bacterial enteric disease were reported in 2013. The majority of these cases were caused by *Campylobacter* or *Salmonella* species (Table 1).

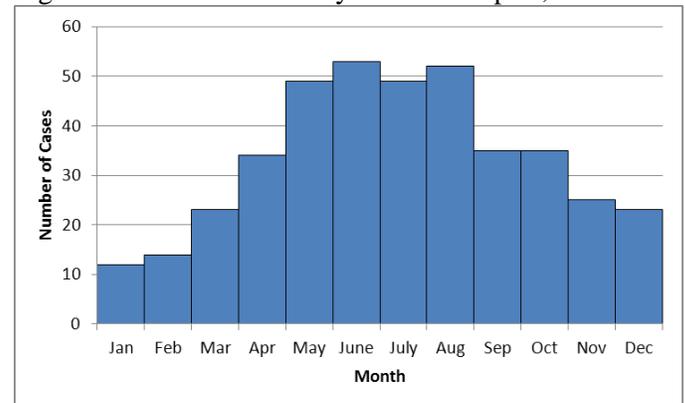
Table 1. Enteric disease case counts, rates, and median age, Maine 2013.

	Case Count	5 year Median	Case Rate*	Median Age
<i>Campylobacter</i>	228	172	17.2	47
<i>Salmonella</i>	131	134	9.9	40
STEC	27	21	2.0	20
<i>Shigella</i>	5	8	0.4	55
<i>Vibrio</i>	9	4	0.7	38
<i>Listeria</i>	4	4	0.3	73

*case rate per 100,000 persons.

Sixty percent of shigellosis cases reported international travel. Almost half (47%) of bacterial enteric diseases were reported during the summer months from June through September (Figure 1).

Figure 1. Enteric diseases by month of report, 2013.



The most commonly submitted serotypes of *Salmonella* were Enteritidis, Newport, and Typhimurium. Forty-three percent of STEC cases were *E. coli* O157:H7. Both *Shigella sonnei* and *flexneri* were isolated as well as three types of *Vibrio* (*alginolyticus*, *parahaemolyticus*, and *Grimontia hollisae*).

Enteric diseases were reported in all counties in the state (Table 2). Campylobacteriosis and salmonellosis were widespread; other diseases were reported in only a few counties. Cases of listeriosis were reported in Cumberland, Kennebec, and Sagadahoc counties. Vibriosis cases were reported in Cumberland, Hancock, Lincoln, Somerset, Washington, and York counties. The shigellosis cases resided in Cumberland, Kennebec, and York counties.

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Table 2. *Campylobacter*, *Salmonella* and STEC cases by County, Maine 2013

County	<i>Campylobacter</i>	<i>Salmonella</i>	STEC
Androscoggin	9	11	1
Aroostook	16	7	0
Cumberland	55	27	6
Franklin	6	8	1
Hancock	10	3	1
Kennebec	25	16	4
Knox	4	4	0
Lincoln	8	4	0
Oxford	15	3	1
Penobscot	18	11	6
Piscataquis	1	0	0
Sagadahoc	3	2	1
Somerset	7	7	0
Waldo	5	4	0
Washington	4	1	1
York	42	23	5
Total	228	131	27

In both the summer of 2012 and 2013, an increase in gastrointestinal vibriosis cases with seafood exposure in Maine was observed. A collaborative investigation with other Maine agencies was conducted and no common exposure was determined. In 2013, one case of salmonellosis was linked to an exposure during a microbiology class at a higher education institution. One case of *Salmonella* infantis was part of a national outbreak investigation involving exposure to baby poultry.

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 by practicing the following:

- 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
- Food handlers, daycare, and healthcare workers should refrain from work as specified by industry rules and guidelines

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 isolates (except *Campylobacter*) must be sent to HETL for confirmatory testing.

For more information on enteric diseases:

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