



# Infectious Disease Epidemiology Report

## Cryptosporidiosis and Giardiasis Surveillance Report – Maine, 2013



### Introduction

Cryptosporidiosis and giardiasis are diarrheal diseases caused by parasites. *Cryptosporidium sp.* (*C. hominis* or *C. parvum*) causes cryptosporidiosis (also referred to as ‘crypto’). Giardiasis is caused by *Giardia intestinalis*, *G. lamblia*, or *G. duodenalis*.

The parasites live in the intestines of infected humans or animals. Both parasites are found in soil, food, water, or surfaces that are contaminated with infected animal or human feces. Infection results from the consumption of contaminated food or water, from person-to-person contact, or from animal-to-person contact.

Healthy individuals are known to get sick from ingesting as few as 10 organisms. Infected individuals can shed the parasites for weeks after symptoms resolve.

Outbreaks of cryptosporidiosis in the United States are most often due to contaminated recreational water sources such as pools and waterparks. Chlorine does not effectively kill *Cryptosporidium*.

Individuals at greatest risk of infection with *Giardia* include persons swallowing contaminated drinking water (such as backpackers or campers), travelers to endemic countries, persons with close contact with infected individuals (including childcare settings), and/or infected animals.

### Methods

Cryptosporidiosis and giardiasis are reportable diseases in Maine. Maine Center for Disease Control and Prevention (Maine CDC) investigates cases of cryptosporidiosis to learn more about the risk factors associated with transmission. Reports of giardiasis are not investigated, though laboratory information is collected. Cases confirmed by laboratory testing and cases linked to laboratory confirmed cases are included in this surveillance report. The surveillance case definition for a confirmed case of cryptosporidiosis changed during the past years (2009, 2010, and 2012) reflecting changes in diagnostic practices.

Maine’s Health and Environmental Testing Laboratory (HETL) performs a validated *Cryptosporidium* PCR test that is currently available to clinicians. *Cryptosporidium* specimens tested at HETL are sent to federal CDC for speciation and genotyping to learn more about outbreaks and sporadic cases of disease.

### Results

A total of 35 cryptosporidiosis cases and 218 giardiasis cases were reported to Maine CDC in 2013 (Figure 1, Table 1).

Figure 1. Rates of cryptosporidiosis and giardiasis, Maine and US, 2009 - 2013.

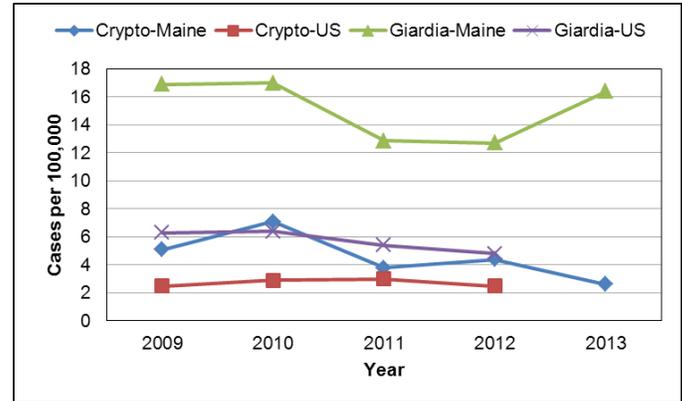


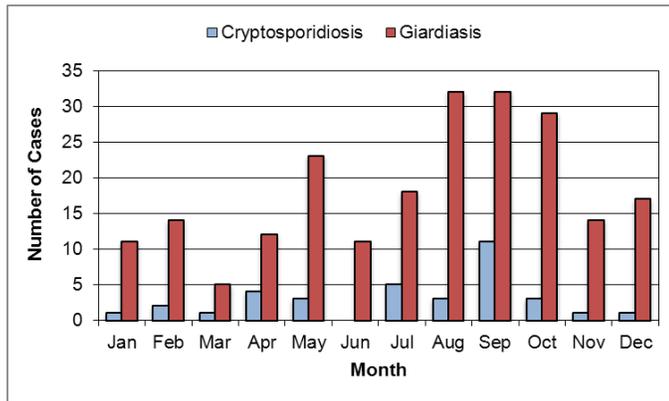
Table 1. Descriptive epidemiology of cryptosporidiosis and giardiasis - Maine, 2013.

	Cryptosporidiosis	Giardiasis
Case count	35	218
Five year median	58	187
Maine rate, 2013	2.6	16.4
US rate, 2012	2.5	4.8
Male	54%	47%
Female	46%	53%
Median age	24 years	47 years
Age range	1-80 years	0-89 years
Travel history	29%	N/A
Animal contact	91%	N/A
Private well	49%	N/A
Recreational water use	37%	N/A

The majority of cryptosporidiosis and giardiasis cases occurred in the summer and early fall (Figure 2).

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Figure 2. Reported cases of cryptosporidiosis and giardiasis by month of symptom onset - Maine, 2013.



Nine counties (Androscoggin, Cumberland, Franklin, Hancock, Lincoln, Piscataquis, Sagadahoc, Somerset, and Waldo) experienced rates of giardiasis more than three times the national rate (Table 2).

Table 2. Incidence of cryptosporidiosis and giardiasis by county – Maine, 2013.

County	Cryptosporidiosis		Giardiasis	
	Count	Rate*	Count	Rate*
Androscoggin	0	0.0	19	17.7
Aroostook	0	0.0	8	11.4
Cumberland	6	2.1	69	24.2
Franklin	0	0.0	6	19.7
Hancock	1	1.8	11	20.1
Kennebec	7	5.8	15	12.4
Knox	0	0.0	1	2.5
Lincoln	0	0.0	10	29.3
Oxford	0	0.0	6	10.5
Penobscot	9	5.9	12	7.8
Piscataquis	1	5.8	3	17.5
Sagadahoc	0	0.0	6	17.1
Somerset	3	5.8	13	25.1
Waldo	1	2.6	18	46.2
Washington	0	0.0	4	12.4
York	7	3.5	17	8.5
<b>Total</b>	<b>35</b>	<b>2.6</b>	<b>218</b>	<b>16.4</b>

\*Rate per 100,000 population

### Discussion and Recommendations

Reports of giardiasis increased in 2013 compared to previous years with a rate three times the US rate (6 states did not report giardiasis in 2012). Due to the high volume of reports of giardiasis, these reports are not investigated, therefore the cause of the high rate of giardiasis in Maine is not known.

The best way to prevent cryptosporidiosis and giardiasis is to practice good personal hygiene, avoid swimming when ill with diarrhea, and disinfect water that may contain the parasites. The following steps can be taken to prevent infection:

- 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 and animal waste
  - After gardening, even if wearing gloves
- Do not swim if you have diarrhea. Children in diapers should not be in the water if they have diarrhea. If diagnosed with cryptosporidiosis, wait two weeks after diarrhea ends to swim.
- Do not swallow water when swimming or boating.
- Do not drink untreated water from lakes, streams, ponds, or springs.
- Avoid unpasteurized juices and raw milk products.
- Rinse all fresh fruits and vegetables under clean running water.
- When traveling to countries where the water may not be safe and sanitation is poor, do not use ice or tap water and avoid eating uncooked foods.
- Children with diarrhea should be excluded from child-care settings until diarrhea has stopped.
- Food handlers should refrain from work until the diarrhea has resolved.

If the safety of drinking water is questionable: use bottled water, disinfect water by heating to a rolling boil for 1 minute, or use an appropriate filter (National Safety Foundation (NSF) Standard 53 or 58). Filtered water will need additional treatment to kill/inactivate bacteria or viruses.

All cases of cryptosporidiosis and giardiasis in Maine must be reported by calling 1-800-821-5821, or by faxing reports to 1-800-293-7534.

For more information:

- Maine CDC website: [www.maine.gov/idepi](http://www.maine.gov/idepi)
- Federal CDC websites:
  - [www.cdc.gov/crypto/](http://www.cdc.gov/crypto/)
  - [www.cdc.gov/giardia](http://www.cdc.gov/giardia)
  - [www.cdc.gov/healthyswimming](http://www.cdc.gov/healthyswimming)