



Infectious Disease Epidemiology Report

Cryptosporidiosis and Giardiasis Surveillance Report – Maine, 2012



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.

The infectious dose for both parasites is low and 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 a 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 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 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 are sent to federal CDC for speciation and genotyping to learn more about outbreaks and sporadic cases of disease.

Results

A total of 58 cryptosporidiosis cases and 169 giardiasis cases were reported to Maine CDC in 2012 (Figure 1, Table 1). The majority of cryptosporidiosis and giardiasis cases occur in the summer and early fall (Figure 2).

Figure 1. Rates of cryptosporidiosis and giardiasis, Maine and US, 2008 - 2012.

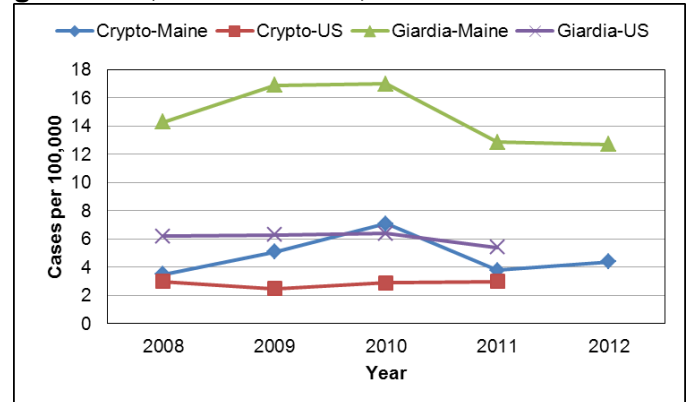
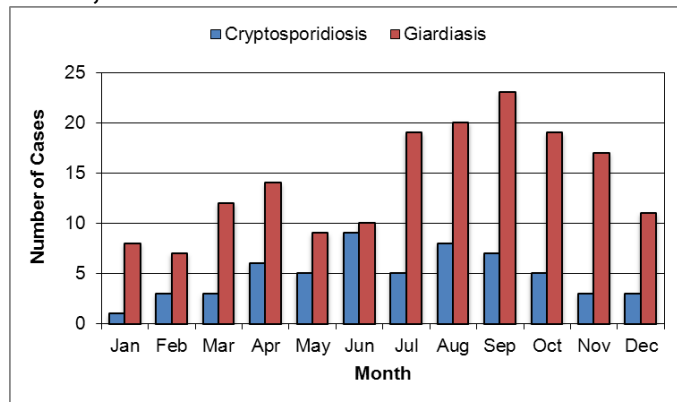


Table 1. Descriptive epidemiology of cryptosporidiosis and giardiasis - Maine, 2012.

	Cryptosporidiosis	Giardiasis
Case count	58	169
Five year median	56	197
Maine rate, 2012	4.4	12.7
US rate, 2011	3.0	5.4
Male	52%	46%
Female	48%	54%
Median age	30 years	39 years
Age range	1-97 years	1-83 years
Travel history	24%	N/A
Animal contact	81%	N/A
Private well	50%	N/A
Recreational water use	26%	N/A

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Figure 2. Reported cases of cryptosporidiosis and giardiasis by month of symptom onset - Maine, 2011.



Four counties (Cumberland, Lincoln, Piscataquis, and Somerset) experienced rates of giardiasis more than three times the national rate (Table 2).

Table 2. Incidence of cryptosporidiosis and giardiasis by county – Maine, 2012

County	Cryptosporidiosis		Giardiasis	
	Count	Rate*	Count	Rate*
Androscoggin	1	0.9	17	15.8
Aroostook	5	7.1	6	8.5
Cumberland	8	2.8	50	17.6
Franklin	0	0.0	3	9.8
Hancock	1	1.8	8	14.7
Kennebec	11	9.0	19	15.6
Knox	0	0.0	3	7.6
Lincoln	2	5.9	7	20.5
Oxford	1	0.0	7	12.2
Penobscot	11	7.2	10	6.5
Piscataquis	4	23.1	4	23.1
Sagadahoc	1	2.8	5	14.2
Somerset	6	11.6	11	21.2
Waldo	3	7.7	3	7.7
Washington	1	0.0	2	6.2
York	3	1.5	14	7.0
Total	58	4.4	169	12.7

*Rate per 100,000 population

Discussion and Recommendations

Reports of giardiasis decreased in 2012 compared to previous years. However, the rate of giardiasis in Maine is still twice the US rate (6 states do not report giardiasis). 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 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; or 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 207-287-6865.

For more information:

- Maine CDC website: www.maine.gov/idepi
- Federal CDC websites:
 - www.cdc.gov/crypto/
 - www.cdc.gov/giardia
 - www.cdc.gov/healthyswimming