

Enteric Illness

Giardiasis

Date Reviewed: June, 2015

Section: 3-110

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Notification Timeline:

From Lab/Practitioner to Public Health: Immediate.

From Public Health to Ministry of Health: Routine, within 2 weeks.

Public Health Follow-up Timeline: Initiate within 72 hours.

Information

Case Definition (Public Health Agency of Canada, 2008)

Confirmed Case	Laboratory confirmation of infection with or without symptoms from stool, duodenal fluid or small bowel biopsy specimen: <ul style="list-style-type: none">demonstration of <i>Giardia lamblia</i> OR <ul style="list-style-type: none">demonstration of <i>Giardia lamblia</i> antigen.
Probable Case	Clinical illness ¹ in a person who is epidemiologically linked to a confirmed case.
¹ Clinical illness is characterized by diarrhea, abdominal cramps, bloating, weight loss, fatigue or malabsorption.	

Causative Agent

- Giardia lamblia* (*G. intestinalis*, *G. Duodenalis*) – A flagellate protozoan (Heymann, 2015).
- Ingestion of one or more cysts may cause disease (U.S. Food and Drug Administration, 2012).

Symptoms

Heymann (2015) indicates that infection can be:

- asymptomatic;
- acute, self-limited diarrhea;
- a chronic condition consisting of diarrhea, steatorrhea, abdominal cramps, bloating, loose and pale greasy stools, fatigue, malabsorption of fats and weight loss.

Periods of diarrhea may alternate with constipation until treatment or resolution of symptoms.

Complications

Reactive arthritis may occur.

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In severe giardiasis, duodenal and jejunal mucosal cells may be damaged (Heymann, 2015)

Incubation Period

Usually 3-25 days, may be longer. Median 7-10 days (Heymann, 2015).

Reservoir/Source

Humans. Wild and domestic animals (e.g. beavers, cats, dogs, and cattle) (Heymann, 2015).

Mode of Transmission (Heymann, 2015)

Transmission occurs by:

- the fecal-oral route, especially in day cares and institutions;
- ingesting water from unfiltered sources¹ or shallow wells;
- ingesting water from local streams, lakes and recreational pools contaminated by human or animal feces;
- anal sex.

Period of Communicability

During the entire course of infection which can last up to several months (Heymann, 2015). Long term shedding of cysts can occur with asymptomatic carriers.

Specimen Collection and Transport

Stool or small bowel specimens placed in a lab container with SAF preservative.

Questionable results from stool specimens can be confirmed by examining duodenal fluid or mucosa for trophozoites.

Refer to the Saskatchewan Disease Control Laboratory Compendium of Tests for details at <http://sdcl-testviewer.ehealthsask.ca>.

¹Concentrations of chlorine used in routine water treatment do not kill *Giardia* cysts, especially when the water is cold.

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Methods of Control/Role of Investigator

Prevention and Education

Refer to the [Enteric Introduction and General Considerations](#) section of the manual that highlights topics for client education that should be considered as well as provides information on high-risk groups and activities.

- Provide prevention information and education to case or caregiver, daycare or institution workers about personal hygiene.
- Educate about disinfecting diaper changing areas after use by child with diarrhea.
- Provide standard letters to schools, daycares, hockey teams, etc.
- Educate food handlers about proper food and equipment handling and hygiene, especially about the avoidance of cross-contamination of food products, and emphasize thorough hand washing.
- Advise to avoid swallowing water from ponds, lakes, or untreated pools.
- Educate about the risk of sexual practices that permit fecal-oral contact.
- Avoid drinking untreated and inadequately filtered surface water (e.g. camping, traveling or wells).

Management

I. Case

History

Investigate exposure to:

- bodies of water (natural and recreational);
- unfiltered, untreated drinking water.

Determine:

- water source and sewage disposal if not on a municipal system;
- history of high-risk sexual practices, especially involving contact with feces;
- history of exposure in daycare or institutional settings.

Education

- Advise case to avoid food preparation until diarrhea has resolved (when stools have been normal for that individual for 48 hours).

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- Advise case to avoid using public swimming pools and other recreational waters for 2 weeks after symptoms resolve (American Academy of Pediatrics, 2012).

Immunization

Not applicable.

Treatment/Supportive Therapy

Treatment choices are governed by the most recent guidelines. The public health practitioner should direct any questions regarding the current treatment protocols to the physician/nurse practitioner or, in their absence to the Medical Health Officer. See [Appendix H - Sources for Clinical Treatment Guidelines](#).

Symptomatic cases should be treated. Asymptomatic carriers generally do not need treatment.

Exclusion

- Food handlers, health care, childcare or other staff involved with personal care, children below the age of 5 years in childcare, individuals unable to maintain adequate standards of personal hygiene (e.g., mentally or physically challenged): Exclude until diarrhea has resolved.
- People with diarrhea should not use recreational water for 2 weeks after symptoms resolve. (American Academy of Pediatrics, 2012)
- Diarrhea is considered to be resolved when stools have been normal for that individual for 48 hours.
- Asymptomatic persons: exclusion is not warranted for asymptomatic persons.

Referrals

Refer to public health inspection if source cannot be identified and transmission continues or advice regarding drinking water treatment is required.

II. Contacts/Contact Investigation

Contact Definition

Contacts include:

- persons living in the same household;
- children and childcare workers in a daycare/dayhome;
- sexual contacts.

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Testing

All symptomatic household contacts should be referred to their physician for appropriate follow-up.

Prophylaxis/Immunization

Not applicable.

Exclusion

Exclude symptomatic contacts as cases until diagnosis has been ruled out. Asymptomatic contacts, in general, are not excluded (American Academy of Pediatrics, 2012).

III. Environment

Child Care Centres/Institutional Control Measures

- Contact precautions for symptomatic institutionalized individuals (Heymann, 2015).
- Clustered cases in child care and institutional settings require epidemiological investigation to determine source of infection and mode of transmission.

Epidemic Measures

Institute an epidemiological investigation to determine source of infection and mode of transmission for cases clustered by location or institution. A common vehicle should be sought and appropriate measures should be taken to control the situation.

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References

American Academy of Pediatrics. (2012). *Red Book: 2012 Report of the Committee on Infectious Diseases* (29th ed.). Elk Grove Village, IL: Author.

Heymann, D. L., (Ed.). (2015). *Control of Communicable Diseases Manual* (20th ed.). Washington, DC: American Public Health Association.

Public Health Agency of Canada. (2008). Case definitions for communicable diseases under national surveillance. *Canada Communicable Disease Report (CCDR)*, 35S2, November 2009. Retrieved April, 2015 from <http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/09vol35/35s2/Giardi-eng.php>.

United States Food and Drug Administration. (2012). *Bad bug book: Foodborne pathogenic microorganisms and natural toxins handbook: Giardia lamblia*. Retrieved April, 2015 from <http://www.fda.gov/downloads/Food/FoodSafety/FoodborneIllness/FoodborneIllnessFoodbornePathogensNaturalToxins/BadBugBook/UCM297627.pdf>.

Giardiasis Data Collection Worksheet

Please complete all sections.

Panorama QA complete: Yes No

Panorama Client ID: _____

Initials: _____

Panorama Investigation ID: _____

A) CLIENT INFORMATION

SUBJECT -> CLIENT DETAILS -> PERSONAL INFORMATION

Last Name:	First Name: and Middle Name:	Alternate Name (Goes by):
DOB: YYYY / MM / DD Age: _____	Health Card Province: _____ Health Card Number (PHN): _____	Preferred Communication Method: (specify - i.e. home phone, text): Email Address: <input type="checkbox"/> Work <input type="checkbox"/> Personal
Phone #: <input type="checkbox"/> Primary Home: <input type="checkbox"/> Mobile contact: <input type="checkbox"/> Workplace:		
Place of Employment/School:	Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female <input type="checkbox"/> Other <input type="checkbox"/> Unknown	
Alternate Contact: _____ Relationship: _____ Alt. Contact phone: _____	Address Type: <input type="checkbox"/> No fixed <input type="checkbox"/> Postal Address <input type="checkbox"/> Primary Home <input type="checkbox"/> Temporary <input type="checkbox"/> Legal Land Description Mailing (Postal address): Street Address or FN Community (Primary Home): Address at time of infection if not the same:	

B) INVESTIGATION INFORMATION

LHN-> SUBJECT SUMMARY-> ENTERIC ENCOUNTER GROUP ->CREATE INVESTIGATION

Disease Summary Classification:	Date	Classification:	Date	LAB TEST INFORMATION:
CASE		CONTACT		Date specimen collected:
<input type="checkbox"/> Confirmed	YYYY / MM / DD	<input type="checkbox"/> Contact	YYYY / MM / DD	YYYY / MM / DD
<input type="checkbox"/> Does Not Meet Case Definition	YYYY / MM / DD	<input type="checkbox"/> Not a Contact	YYYY / MM / DD	Specimen type:
<input type="checkbox"/> Person Under Investigation	YYYY / MM / DD	<input type="checkbox"/> Person Under Investigation	YYYY / MM / DD	<input type="checkbox"/> Fluid
<input type="checkbox"/> Probable	YYYY / MM / DD			<input type="checkbox"/> Biopsy
				<input type="checkbox"/> Stool

Disposition:

FOLLOW UP:

<input type="checkbox"/> In progress	YYYY / MMM / DD	<input type="checkbox"/> Complete	YYYY / MMM / DD
<input type="checkbox"/> Incomplete - Declined	YYYY / MMM / DD	<input type="checkbox"/> Not required	YYYY / MMM / DD
<input type="checkbox"/> Incomplete - Lost contact	YYYY / MMM / DD	<input type="checkbox"/> Referred - Out of province	YYYY / MMM / DD
<input type="checkbox"/> Incomplete - Unable to locate	YYYY / MMM / DD	(Specify where)	YYYY / MMM / DD

REPORTING NOTIFICATION

Name of Attending Physician or Nurse:

Location:

Provider's Phone number:

Date Received (Public Health): YYYY / MMM / DD

Type of Reporting Source: Health Care Facility Lab Report Nurse Practitioner Physician Other _____

C) DISEASE EVENT HISTORY

LHN->INVESTIGATION->DISEASE SUMMARY (UPDATE)->DISEASE EVENT HISTORY

Staging: Acute Chronic Carrier

Giardiasis Data Collection Worksheet

Please complete all sections

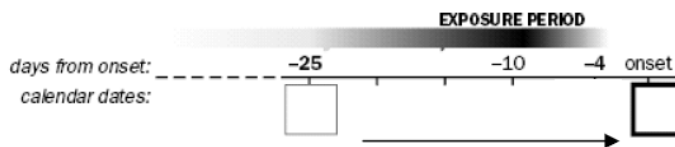
D) SIGNS & SYMPTOMS

LHN-> INVESTIGATION->SIGNS & SYMPTOMS

Description	Yes	Date of recovery	Description	Yes	Date of recovery
Asymptomatic		YYYY / MMM / DD	Lethargy (fatigue, drowsiness, weakness, etc)		YYYY / MMM / DD
Abdominal - bloating or distension		YYYY / MMM / DD	Pain - abdominal		YYYY / MMM / DD
Abdominal - cramping		YYYY / MMM / DD	Stool - steatorrhea (pale and greasy)		YYYY / MMM / DD
Constipation		YYYY / MMM / DD	Weight loss		YYYY / MMM / DD
Diarrhea		YYYY / MMM / DD			YYYY / MMM / DD
Other Signs & Symptoms if applicable					

Exposure Period

Enter onset date in heavy box. Count back to figure the probable exposure period.



The communicable period is quite variable—weeks to months without treatment. Infected persons without symptoms are more likely to be infectious than those who are sick.

E) INCUBATION AND COMMUNICABILITY

LHN-> INVESTIGATION->INCUBATION & COMMUNICABILITY

Incubation for Case (period for acquisition):
 Earliest Possible Exposure Date: YYYY / MM / DD Latest Possible Exposure Date: YYYY / MM / DD

Exposure Calculation details:

Communicability for Case (period for transmission):
 Earliest Possible Communicability Date: YYYY / MM / DD Latest Possible Communicability Date: YYYY / MM / DD

Communicability Calculation Details:

F) RISK FACTORS N—No, NA—Not asked, U—Unknown

LHN-> SUBJECT->RISK FACTORS

DESCRIPTION	Yes	N, NA, U	Start date	Add'l Info
Animal Exposure - Other (Add'l Info)			YYYY / MM/DD	
Animal Exposure - Pets (including reptiles) (Add'l Info)			YYYY / MM/DD	
Animal Exposure - Rodents/rodent excreta			YYYY / MM/DD	
Animal Exposure - Wild animals (other than rodents) (Add'l Info)				
Behaviour – Camping/hiking				
Contact – Daycare				
Contact – Persons with diarrhea/vomiting			YYYY / MM/DD	
Contact to a known case (Add'l Info)			YYYY / MM/DD	
Exposure – Diaper changing				
Immunocompromised - Related to underlying disease or treatment			YYYY / MM/DD	
Occupation - Child Care Worker	TE		YYYY / MM/DD	
Occupation - Food Handler	TE		YYYY / MM/DD	
Occupation - Health Care Worker - IOM Risk Factor	TE		YYYY / MM/DD	
Occupation – Personal Care Worker				
Other risk factor (Add'l Info)			YYYY / MM/DD	
Special Population - Attends childcare	TE		YYYY / MM/DD	

Giardiasis Data Collection Worksheet

Please complete all sections

DESCRIPTION	Yes	N, NA, U	Start date	Add'l Info
Special Population - Attends school	TE		YYYY / MM/DD	
Travel - Outside of Canada (Add'l Info)	AE		YYYY / MM/DD	
Travel - Outside of Saskatchewan, but within Canada (Add'l Info)	AE		YYYY / MM/DD	
Water – Bottled water (Add'l Info)			YYYY / MM/DD	
Water - Private well or system (Add'l Info)			YYYY / MM/DD	
Water - Public water system (Add'l Info)			YYYY / MM/DD	
Water - Untreated water (Add'l Info)			YYYY / MM/DD	
Water (Recreational) - Pond, stream, lake, river, ocean (Add'l Info)			YYYY / MM/DD	
Water (Recreational) - Private (swimming pool/whirl pool) (Add'l Info)			YYYY / MM/DD	
Water (Recreational) - Public (swimming/paddling pool/whirl pool) (Add'l Info)			YYYY / MM/DD	

G) USER DEFINED FORM (SEE ATTACHED)

LHN-> INVESTIGATION-> INVESTIGATION DETAILS -> LINKS AND ATTACHMENTS -> GIARDIASIS FORM

H) COMPLICATIONS

LHN-> INVESTIGATION->COMPLICATIONS

Description	Yes Date of onset	Description	Yes Date of onset
Arthritis - reactive (Reiter's syndrome)	YYYY / MMM / DD	Malabsorption of fats	YYYY / MMM / DD
Other complications			

I) TREATMENT

LHN-> INVESTIGATION-> MEDICATIONS->MEDICATIONS SUMMARY

Medication (Antibiotics are contraindicated – refer to physician if on Rx)
(Panorama = Other Meds) : _____

Prescribed by: _____ Started on: YYYY / MM / DD

J) INTERVENTIONS

LHN-> INVESTIGATION->TREATMENT & INTERVENTIONS->INTERVENTION SUMMARY

Intervention Type and Sub Type:	
Assessment: <input type="checkbox"/> Assessed for contacts Investigator name	YYYY/ MM/DD Public Health Order: <input type="checkbox"/> Other (specify) Investigator name
Communication: <input type="checkbox"/> Other communication (See Investigator Notes) Investigator name <input type="checkbox"/> Letter (See Document Management) Investigator name	YYYY / MM / DD Other Investigation Findings: <input type="checkbox"/> Investigator Notes <input type="checkbox"/> Document Management
General: Investigator name <input type="checkbox"/> Disease-Info/Prev-Control YYYY/ MM / DD <input type="checkbox"/> Disease-Info/Prev-Cont/Assess'd for Contacts YYYY/ MM / DD	Referral: Investigator name <input type="checkbox"/> Canadian food inspection agency YYYY/ MM/DD <input type="checkbox"/> Primary care provider YYYY/ MM/DD
Education/counselling: Investigator name <input type="checkbox"/> Prevention/Control measures YYYY/ MM/DD <input type="checkbox"/> Disease information provided YYYY/ MM/DD	Testing: Investigator name <input type="checkbox"/> Stool testing recommended (e.g. for follow-up) YYYY/ MM/DD
Exclusion: Investigator name <input type="checkbox"/> Daycare YYYY/ MM/DD <input type="checkbox"/> School YYYY/ MM/DD <input type="checkbox"/> Preschool YYYY/ MM/DD <input type="checkbox"/> Work YYYY/ MM/DD	
Immunization: <input type="checkbox"/> Eligible Immunization recommended Investigator name	YYYY/ MM/DD

Giardiasis Data Collection Worksheet

Please complete all sections

Date	Intervention subtype	Comments	Next follow-up Date	Initials
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	

K) OUTCOMES

LHN-> INVESTIGATION-> OUTCOMES

<input type="checkbox"/> Not yet recovered/recovering	YYYY / MM / DD	<input type="checkbox"/> ICU/intensive medical care	YYYY / MM / DD	<input type="checkbox"/> Hospitalization	YYYY / MM / DD
<input type="checkbox"/> Recovered	YYYY / MM / DD	<input type="checkbox"/> Intubation /ventilation	YYYY / MM / DD	<input type="checkbox"/> Unknown	YYYY / MM / DD
<input type="checkbox"/> Fatal	YYYY / MM / DD	<input type="checkbox"/> Other _____	YYYY / MM / DD		

Cause of Death: (if Fatal was selected) _____

L) EXPOSURES

Acquisition Event

LHN-> INVESTIGATION-> EXPOSURE SUMMARY-> ACQUISITION QUICK ENTRY

Acquisition Event ID: _____

Exposure Name: _____		
Acquisition Start	YYYY / MM / DD	to Acquisition End: YYYY / MM / DD
Location Name: _____		
Setting Type		
<input type="checkbox"/> Travel	<input type="checkbox"/> Exposure or consumption of potentially contaminated food or water	<input type="checkbox"/> Most likely source

Transmission Events

LHN -> INVESTIGATION-> EXPOSURE SUMMARY -> TRANSMISSION event SUMMARY -> QUICK ENTRY

Transmission Event ID	Exposure Name	Setting type	Date/Time	# of contacts
		<input type="checkbox"/> Health Care setting <input type="checkbox"/> Household Exposure		
		<input type="checkbox"/> Health Care setting <input type="checkbox"/> Household Exposure		
		<input type="checkbox"/> Health Care setting <input type="checkbox"/> Household Exposure		
		<input type="checkbox"/> Health Care setting <input type="checkbox"/> Household Exposure		
	Giardia Contacts – Inv ID# _____	<input type="checkbox"/> Multiple Settings	YYYY / MM / DD to YYYY / MM / DD	

M) TOTAL NUMBER OF CONTACTS

LHN -> INVESTIGATION-> EXPOSURE SUMMARY -> TRANSMISSION EVENT SUMMARY -> TE HYPERLINK -> UNKNOWN/ANONYMOUS CONTACTS

Anonymous contacts: _____ (total number of individuals exposed)

Initial Report completed by:	Date initial report completed: YYYY / MM / DD
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 Giardiasis Routine Questionnaire - August 2018



Record type:

Record ID:

Record Name:

In this form the answers (Yes, Probably, No, and Don't know) are from the perspective of the person being interviewed. "Probably" can be used if the client thinks he/she may have eaten this food or usually eats this food, but is unsure if it was eaten during the period in question.

Diet and Allergies
[Show/Hide](#)

Are you a vegetarian?

- Yes
 No
 Don't know
 Not asked

Do you have any food Allergies / avoidances / special diet?

- Yes
 No
 Don't know
 Not asked

If yes, specify details

Food Exposures
[Show/Hide](#)
In the period 3-25 days prior to onset, did you eat...

Any raw vegetables (e.g. spinach, green leaf lettuce, romaine lettuce, green onion, broccoli, carrots)?

- Yes
 Probably
 No
 Don't know
 None of the Above

If yes, specify details (E.g., where consumed, type, brand, location)

Any raw fruits (e.g. strawberries, tomatoes)?

- Yes
 Probably
 No
 Don't know



If yes, specify details (E.g., where consumed, type, brand, location)

None of the Above

Any fresh herbs (e.g. fresh basil, fresh parsley)?

- Yes
 Probably
 No
 Don't know
 None of the Above

If yes, specify details (E.g., where consumed, type, brand, location)

Any ready to eat, pre-washed packaged salad (e.g. pre-washed leafy greens in bags or packages; lettuce or leafy greens salad kits with topping and dressing; ready-to-eat salads sold at the grocery store deli counter or fast food restaurant)?

- Yes
 Probably
 No
 Don't know
 None of the Above

If yes, specify details (E.g., where consumed, type, brand, location)

Social Functions

[Show/Hide](#)

In the 3-25 days prior to onset, did you attend any social functions (e.g. parties, weddings, showers, potlucks, community events)?

- Yes
 No
 Don't know
 Not asked

Click the Add button to add social event/function details

Add

Restaurants

[Show/Hide](#)

In the 3-25 days prior to onset, did you attend any restaurants (including take-out, cafeteria, bakery, deli, kiosk)?

- Yes
 No
 Don't know
 Not asked



Click the Add button to add restaurant details

Add

Grocery Stores

[Show/Hide](#)

In the past 3 - 25 days prior to onset, did you visit grocery stores for foods consumed during the incubation period?

- Yes
 No
 Don't know
 Not asked

Click the Add button to add grocery store details

Add

Loyalty card/store issued card (for outbreak investigation only)

[Show/Hide](#)

This section is only for use in some specific outbreak situations, with client consent. It is not a routine question for sporadic cases.

Has the client given consent (written or verbal)?

- Yes
 No
 Not applicable

Loyalty card details (names and numbers)

Interviewer Details and Notes

[Show/Hide](#)

Interviewer Name

Interview date

9/26/2018

Any special notes regarding this interview