Yersiniosis

Date Reviewed: March, 2012 Section: 3-210 Page 1 of 7

Notification Timeline:

From Lab/Practitioner to Public Health: Within 48 hours. From Public Health to Ministry of Health: Within 2 weeks. Public Health Follow-up Timeline: Initiate within 72 hours.

Information

Case Definition (American Academy of Pediatrics, 2009)

Confirmed Case of	Clinical findings consistent with enterocolitis and
Yersinia enterocolitica	isolation of Yersinia enterocolitica, usually from a
	stool culture but may be from throat swab, blood,
	peritoneal fluid, synovial fluid, bile, urine,
	cerebrospinal fluid, sputum, wounds, and/or
	mesenteric lymph nodes.

Note: Only *Y. enterocolitica* is a notifiable disease in Saskatchewan. Yersiniosis is not a nationally notifiable disease.

Confirmed Case of Yersinia psuedotuberculosis (not reportable in Saskatchewan)	Clinical findings consistent with pseudotuberculosis and isolation of <i>Yersinia pseudotuberculosis</i> from stool cultures and also from throat swabs, mesenteric lymph nodes, blood, and/or peritoneal fluid. <i>Y. pseudotuberculosis</i> causes an acute
	mesenteric lymphadenitis, clinically characterized by an appendicitis-like syndrome, sometimes with diarrhea.

Causative Agent

- *Yersinia enterocolitica* (*Y. enterocolitica*) or *Yersinia pseudotuberculosis* (*Y. pseudotuberculosis*); both are gram negative bacilli.
- Y. enterocolitica is not part of the normal human flora.
- *Y. enterocolitica* can multiply under refrigeration and micro-aerophilic conditions (requires oxygen but at a lower concentration than is present in the atmosphere).



Yersiniosis

Date Reviewed: March, 2012 Section: 3-210 Page 2 of 7

Symptoms

• *Y. enterocolitica* is most often linked with gasteroenterocolitis and can cause acute watery diarrhea, with leucocytes, blood and mucus in the stool, fever, headache, anorexia, and vomiting.

• *Y. pseudotuberculosis* presents with abdominal pain, adenitis, appendicitis, or terminal ileitis.

Incubation Period

Usually 3-7 days; generally under 10 days.

Reservoir/Source

- Animals. The pig is the main reservoir for *Y. enterocolitica*. *Y. pseudotuberculosis* is found in rodents and other small mammals.
- Outbreaks of *Y. enterocolitica* have been attributed to soybean cake (tofu), pork chitterlings (large intestines), contaminated milk, and bean sprouts.
- Strains of *Y. enterocolitica* can be found in meats (pork, beef, lamb, etc.), oysters, fish, and raw milk. The exact cause of the food contamination is unknown. However, the prevalence of this organism in the soil and water and in animals such as pigs, beavers, and squirrels, offers ample opportunities for it to enter our food supply.
- *Y. enterocolitica* is able to multiply under refrigeration and microaerophilic conditions.

Mode of Transmission

- Fecal-oral transmission through the consumption of contaminated food and water, or contact with infected persons or animals (Heymann, 2008).
- *Y. enterocolitica* infection is most often associated with ingestion of contaminated food (raw or inadequately cooked pork products, tofu, and unpasteurized milk) (American Academy of Pediatrics, 2009).
- Transmission by transfusion of stored blood from donors who were asymptomatic or had mild gastrointestinal illness (American Academy of Pediatrics, 2009).
- Person-to-person transmission is rare (American Academy of Pediatrics, 2009).
- Poor sanitation and improper food handling techniques by food handlers, including improper storage, cannot be overlooked as contributing to contamination and possible transmission.



Yersiniosis

Date Reviewed: March, 2012 Section: 3-210 Page 3 of 7

Risk Factors/Risk Groups

- Those most at risk for disease and possible complications are the very young, the debilitated, the elderly and immunocompromised individuals.
- People with excessive iron storage syndromes have a higher susceptibility to *Yersinia* bacteremia because the iron binding agents enhance the growth of the organism.

Period of Communicability

- There is fecal shedding at least as long as symptoms exist, usually for 2-3 weeks; if untreated shedding may persist for 2-3 months.
- Prolonged asymptomatic carriage has been reported in both children and adults.

Specimen Collection and Transport

Submit stools in Cary-Blair transport media. Submit three or four spoonfuls (using builtin spoon) of liquid stool and mix thoroughly with the semi-solid Cary-Blair transport media. The final mixture should not fill the Cary-Blair container any more than three-quarters full. Blood cultures should be submitted if patient is septic. Refer to the Saskatchewan Disease Control Laboratory Compendium of Tests for further details at http://sdcl-testviewer.ehealthsask.ca.

Methods of Control/Role of Investigator

Prevention and Education

Refer to the <u>Enteric Introduction and General Considerations</u> 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 public education about personal hygiene, especially the sanitary disposal
 of feces and careful hand washing after defecation, and before and after food
 handling, especially after handling pork or before eating food.
- Educate food handlers about proper food and equipment handling and hygiene, especially in avoiding cross-contamination from raw meat products and thorough hand washing.
- Educate about the risk of sexual practices that permit fecal-oral contact.
- Test private water supplies for presence of bacterial contamination, if suspected.



Yersiniosis

Date Reviewed: March, 2012 Section: 3-210 Page 4 of 7

• Educate the public on the dangers of consuming raw or undercooked meats, unpasteurized milk and contaminated water.

Management

I. Case

History

- Determine possible source of infection taking into consideration the incubation period, reservoir, and mode of transmission. Assessment may include:
 - determining ingestion of potentially contaminated food (especially pork) or water and the time of consumption;
 - determining contact with animals;
 - assessing for history of high risk sexual practices, especially contact with feces;
 - obtaining a food history;
 - identifying history of recent travel.
- Assess for history of residing in areas with poor sanitation including improper water treatment and sewage disposal and include recent immigration.
- Assess for history of similar symptoms in other members of the household.
- Obtain implicated food samples, if possible.
- Suspected contaminated food may be held to prevent consumption.
- Suspected contaminated food may be destroyed.

Immunization

Not applicable.

Treatment/Supportive Therapy

- Yersiniosis is often self-limited.
- Antibiotics may shorten the duration of symptoms and are especially important
 for septicaemia or other invasive disease. 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 or Medical Health
 Officer (MHO). See Appendix H Sources for Clinical Treatment Guidelines.
- Antibiotic resistance has been demonstrated.



Yersiniosis

Date Reviewed: March, 2012 Section: 3-210 Page 5 of 7

Exclusion

Exclusion should be considered for symptomatic persons who are:

- Food handlers, health care, childcare or other staff involved with personal care, children below the age of five years in childcare: Exclude until diarrhea has resolved.
- Older children and adults unable to maintain adequate standards of personal hygiene (i.e., mentally or physically handicapped): Exclude until diarrhea has resolved. If the individual is living in an institution, follow contact precautions until diarrhea has resolved.
- Diarrhea is considered to be resolved when stools have been normal for that individual for 48 hours.

Referrals

Refer to public health inspection if source cannot be identified and transmission continues, or if food source suspected.

II. Contacts/Contact Investigation

Contact Definition

Contacts include:

- persons living in the household;
- children and childcare workers in a day care/day home;
- individuals exposed to the same source (if it is identified).

Testing

Symptomatic contacts should be assessed by a physician.

Prophylaxis/Immunization

Not applicable.

Exclusion

- Symptomatic contacts, in high-risk environments, may be excluded until diarrhea has resolved.
- Asymptomatic contacts are not excluded from work or day care.



Yersiniosis

Date Reviewed: March, 2012 Section: 3-210 Page 6 of 7

III. Environment

Child Care Centre/Schools Control Measures

Refer to Saskatchewan Ministry of Health Infection Control Manual for Child Care Facilities.¹

Health Facilities Control Measures

Refer to your Health Authority Infection Control Manual. Contact precautions should be used in healthcare setting where children or adults have poor hygiene or incontinence which cannot be contained.

Epidemic Measures

- Any group of cases of acute gastroenteritis or cases suggestive of appendicitis
 must be reported at once to the MHO, even in the absence of specific causal
 identification.
- Investigate general sanitation and search for common-source vehicle; pay attention to consumption of (or possible cross-contamination with) raw or undercooked pork; look for evidence of close contacts with pet dogs, cats and other domestic animals.



¹ http://www.saskatchewan.ca/live/births-deaths-marriages-and-divorces/starting-a-family/early-learning-and-child-care/child-care.

Yersiniosis

Date Reviewed: March, 2012 Section: 3-210 Page 7 of 7

References

Alberta Health and Wellness. (2008). *Public health notifiable disease management guidelines: Yersiniosis*. Retrieved March, 2012 from http://www.health.alberta.ca/professionals/notifiable-diseases-guide.html.

American Academy of Pediatrics. (2009). *Red book: 2009 Report of the Committee on Infectious Diseases* (28th ed.). Elk Grove Village, IL: Author.

Heymann, D. L. (Ed.). (2008). *Control of communicable diseases manual* (19th ed.). Washington, DC: American Public Health Association.

Manitoba Health. (2012). *Communicable disease management protocols: Yersiniosis*. Retrieved March, 2012 from http://www.gov.mb.ca/health/publichealth/cdc/protocol/index.html.

United States Food and Drug Administration. (2009). Yersinia entercolitica. In Bad bug book: Foodborne pathogenic microorganisms and natural toxins handbook. Retrieved March, 2012 from

 $\underline{http://www.fda.gov/Food/FoodSafety/FoodborneIllness/FoodborneIllnessFoodborneP} \\ \underline{athogensNaturalToxins/BadBugBook/ucm070040.htm}.$







Please complete all sections.

Panorama QA complete: ☐Yes Initials:	□No	Please comp	olete all sections	•	Р		lient ID:
A) CLIENT INFORMATION				LHN -> SUBJ	ECT -> CLIE	NT DETAILS -> PER	SONAL INFORMATION
Last Name:		First Name: and Middle Name:			Alternate	Name (Goes by):	
DOB: YYYY / MM / DD Phone #: Primary Home: Mobile contact: Workplace:	Age:	Health Card Prov Health Card Num			home pho	Communication None, text): dress: □Work □	Nethod: (specify - i.e. Personal
Place of Employment/School:		Gender: □ Ma	ale	□ Female		Other	□ Unknown
Alternate Contact: Relationship: Alt. Contact phone:		Address Type: No fixed Primarily Postal and Street Address or Address at time of	ddress): r FN Community	r (Primary Hom		porary □Legal L	and Description
B) INVESTIGATION INFORMATION		LHN->	> SUBJECT SUM	IMARY-> ENTE	RIC ENCOU	JNTER GROUP ->C	REATE INVESTIGATION
Disease Summary Classification: CASE	Date	Classification: CONTACT		Date	e	LAB TEST INFORI	
☐ Confirmed	YYYY / MM / DD	□Contact		YYYY / MN	Λ / DD	YYYY / MM / D	
□ Does Not Meet Case	YYYY / MM / DD	□ Not a Contact		YYYY / MN	Λ / DD	Specimen type:	_
☐ Person Under Investigation	YYYY / MM / DD	☐ Person Under I	Investigation	YYYY / MN	/ DD	□ Blood □ Stool	□ Urine □ Swab
Disposition: FOLLOW UP: ☐ In progress ☐ Incomplete - Declined ☐ Incomplete — Lost contact ☐ Incomplete — Unable to locate	YYYY / MM / DD YYYY / MM / DD YYYY / MM / DD YYYY / MM / DD		Complete Not required Referred – Out pecify where)		YYYY / N	MM / DD MM / DD MM / DD	
REPORTING NOTIFICATION Name of Attending Physician or Nu	rse:		Location:				
Physician/Nurse Phone number:			Date Received	(Public Health): YYYY ,	/ MM / DD	
Type of Reporting Source:	llth Care Facility	ab Report	Nurse Practitio	ner □Phy	sician	□ Other	

November 22, 2019 Page 1 of 4

Please complete all sections

Panorama Client ID:	
Panorama Investigation ID:	

C)	SIGNS	&	SYMP	TOMS
----	-------	---	------	------

LHN-> INVESTIGATION->SIGNS & SYMPTOMS

Description	Yes Date of onset	Date of recovery	Description	Yes Date of onset	Date of recovery
Diarrhea	Date of offset	YYYY / MMM / DD	Loss of appetite (anorexia)	Date of offset	YYYY / MMM / DD
Diarrhea - bloody		YYYY / MMM / DD	Pain - abdominal		YYYY / MMM / DD
Diarrhea - watery			Stool - bloody		
Fever			Stool - mucousy		
Headache			Vomiting		

Exposure Period

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

			EXPOS	URE PERIO	DD		CO	MMUNICABLE
days from onset	-10		- 7		-3	-2	onset	
calendar dates		ask abou	ut exposures bet	ween these dat	es			2-12 weeks unless treated

D) INCUBATION AND COMMUNICABILITY

LHN-> INVESTIGATION->INCUBATION & COMMUNICABILITY

D) INCODATION AND COMMONICABLETT	LINE INVESTIGATION - INCODATION & COMMONICABLETT
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
Communicate lite. Colon lating Dataile.	
Communicability Calculation Details:	

E) RISK FACTORS N—No, NA–Not asked,	U–Unk	nown		LHN-> SUBJECT->RISK FACTORS		
DESCRIPTION	Yes	N, NA, U	Start date	Add'l Info		
Animal Exposure – Farms (Add'l Info)			YYYY / MM/DD			
Animal Exposure - Petting zoos/zoos/special events/other (Add'l Info)			YYYY / MM/DD			
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)			YYYY / MM/DD			
Contact – Persons with similar symptoms			YYYY / MM/DD			
Contact to a known case (Add'l Info)			YYYY / MM/DD			
Immunocompromised - Related to underlying disease or treatment			YYYY / MM/DD			
Medical Treatment - Blood, blood product or tissue recipient (add'l info)			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			
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			

November 22, 2019 Page 2 of 4

Please complete **all** sections

Panorama Client ID:	
Panorama Investigation ID:	

		n, 1		1		Panorama investiga		
DESCRIPTION	Yes	N, NA, U	Start da	rt date Add'l Info				
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				
F) USER DEFINED FORM (SEE ATTACHED) G) TREATMENT		LHN-> I	NVESTIGATI		ON DETAILS -> LINKS			
Medication (Antibiotics are contraindicated - (Panorama = Other Meds) :		•	,					
Prescribed by:				Started on:	YYYY / MM / DD			
H) INTERVENTIONS			LHI	I-> INVESTIGATION	N->TREATMENT & IN	TERVENTIONS->INTE	RVENTION SUN	/IMAR
Intervention Type and Sub Type:								
Assessment: ☐ Assessed for contacts Investigator name	١	/YYY/ MM/	/DD	Immunization: ☐ Eligible Immur Investigator name	ization recommende	d YYY	Y/ MM/DD	
Communication: ☐ Other communication (See Investigator N Investigator name ☐ Letter (See Document Management) Investigator name		/YYY / MN		Public Health Ord ☐ Other (specify) Investigator name		YYY	Y/ MM/DD	
General: Investigator name □ Disease-Info/Prev-Control □ Disease-Info/Prev-Cont/Assess'd for Control		YYYY/ MM YYYY/ MM		Other Investigation Investigator No Document Ma	otes			
Education/counselling: Investigator ☐ Prevention/Control measures ☐ Disease information provided	Υ	(YYY/ MM, (YYY/ MM,		Referral: Investi □ Canadian food □ Primary care p	inspection agency		Y/ MM/DD Y/ MM/DD	
	□ Preschoo		MM/DD MM/DD	Testing: Investing results of the string	gator name ecommended (e.g. fo		Y/ MM/DD	
Date Intervention subtype	Comments	5				Next follow-up Da	ite Initial	s
YYYY / MM / DD						YYYY / MM / DD		
YYYY / MM / DD						YYYY / MM / DD	1	
YYYY / MM / DD						YYYY / MM / DD	1	
YYYY / MM / DD						YYYY / MM / DD		
YYYY / MM / DD						YYYY / MM / DD)	
YYYY / MM / DD						YYYY / MM / DD	1	
YYYY / MM / DD						YYYY / MM / DD	1	
						, ,		

November 22, 2019 Page 3 of 4

Please complete **all** sections

					a Client ID: tigation ID:
OUTCOMES				LHN-> INVE	STIGATION-> OUTCOME
□ Not yet recover☐ Recovered □ Fatal	red/recovering YYYY / MM YYYY / MM YYYY / MM	/ DD	cal care YYYY / MM / DD ion YYYY / MM / DD YYYY / MM / DD	□ Unknown YY	YY / MM / DD YY / MM / DD
Cause of Death: (if	Fatal was selected)				
EXPOSURES Acquisition Every			LHN-> INVESTIGATION-> E	XPOSURE SUMMARY-> AG	QUISITION QUICK ENTR
xposure Name: _					
cquisition Start	YYYY / MM / DD to Ac	equisition End: YYYY / MM /	DD		
ocation Name: _					
etting Type					
] Travel	☐ Exposure or consumpt	tion of potentially contaminated for	ood or water	☐ Most likely	source
Transmission E	vents	LHN -> INVESTIGATION	-> EXPOSURE SUMMARY ->	TRANSMISSION EVENT SU	IMMARY -> QUICK ENTR
ransmission vent ID	Exposure Name	Setting type		Date/Time	# of contacts
		☐ Food service establishment	☐ Health Care setting		
		☐ Public facilities	☐ Household Exposure		
		☐ Food service establishment	☐ Health Care setting		
		☐ Public facilities	☐ Household Exposure		
		☐ Food service establishment	☐ Health Care setting		
		☐ Public facilities	☐ Household Exposure		
		☐ Food service establishment	☐ Health Care setting		
			☐ Household Exposure		
		☐ Public facilities			
	Yersiniosis Contacts – Inv	☐ Multiple Settings		YYYY / MM / DD to YYYY / MM / DD	

November 22, 2019 Page 4 of 4



Yersiniosis 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 Yes \bigcirc No Are you a vegetarian? O Don't know O Not asked Yes ○ No Do you have any food Allergies / avoidances / special diet? ODon't know O Not asked If yes, specify details **Food Exposures** Show/Hide In the 10 days prior to onset, did you eat... Yes O Probably Any pork? \bigcirc No O Don't know O None of the Above If yes, specify details (E.g., where consumed, type, brand, location) Yes Probably \bigcirc No Any ham? O Don't know



If yes, specify details (E.g., where consumed, type, brand, location)
○ Yes
○ Probably
Any bacon?
○ Don't know
○ None of the Above
If yes, specify details (E.g., where consumed, type,
brand, location)
○Yes
Probably
Any pork rinds?
○ Don't know
○ None of the Above
If you specify datails (F. g. where consumed type
If yes, specify details (E.g., where consumed, type, brand, location)
○ Yes
O Probably
Any raw, local direct-from-farm produce? No
○ Don't know ○ None of the Above
O Notic of the Above
If yes, specify details (E.g., where consumed, type,
brand, location)
○Yes
○ Probably
Any processed meats?
○ Don't know
○ None of the Above
If yes, specify details (E.g., where consumed, type,
brand, location)



☆Show/Hide
<u> </u>
<u> </u>



Click the Add button to add grocery store details		
Add		
Loyalty card/store issued card (for outbreak investigation only)		<u> </u>
This section is only for use in some specific outbreak		
situations, with client consent. It is not a routine question for sporadic cases.	on	
	○Yes	
Has the client given consent (written or verbal)?	○ No	
	○ Not applicable	
Loyalty card details (names and numbers)		
Interviewer Details and Notes		<u> </u>
Interviewer Name		
	0/26/2019	
Interview date	9/26/2018	
Any special notes regarding this interview		

Orbeon Forms Orbeon Forms 4.9.0.201505052329 CE