

Notification Timeline:

From Lab/Practitioner to Public Health: Within 48 hours.

From Public Health to Saskatchewan Ministry of Health: Within 2 weeks (or immediate if an outbreak is suspected or anticipated).

Public Health Follow-up Timeline: Within 24-48 hours.

Public Health Purpose for Notification of Salmonellosis (adapted from Massachusetts, 2016)

- To identify whether the case may be a source of infection for other persons (e.g., a diapered child, daycare attendee, or food handler), and if so, to prevent further transmission.
- To identify transmission sources of public health concern (e.g., a restaurant or a commercially distributed food product), and to stop transmission from such sources.
- To monitor the effectiveness of prevention and control measures;
- To make timely and evidence informed actions on outbreaks; and
- To inform the public and medical community about salmonellosis.

Information

Table 1. Surveillance Case Definition¹ (Public Health Agency of Canada [PHAC], December 2023)

Confirmed Case	<p>Laboratory confirmation of infection with or without clinical illness*:</p> <ul style="list-style-type: none"> • isolation of <i>Salmonella</i> spp. (excluding <i>Salmonella typhi</i>) from an appropriate clinical specimen (e.g., sterile site, deep tissue wounds, stool, vomit or urine). •
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¹ Surveillance case definitions ensure uniform reporting to allow comparability of surveillance data. The definition is not intended to be used for clinical or laboratory diagnosis or management of cases.

Probable Case	<p>Clinical illness* in a person who is epidemiologically linked to a confirmed case</p> <p>OR</p> <p>Detection of <i>Salmonella</i> spp. nucleic acid with or without clinical illness, in an appropriate clinical specimen (dependent on the test used), using a nucleic acid test (NAT), such as a polymerase chain reaction (PCR)^{§, °}</p>
<p>*Clinical illness is characterized by diarrhea, chills, headache, abdominal pain, fever, nausea and/or vomiting. The severity of illness may vary. While not considered clinical illness, asymptomatic infections may occur.</p> <p>§Culture is required for public health and clinical management. Thus, culture must be performed on NAT-positive (NAT+) specimens to enable molecular typing (e.g., whole genome sequencing) for surveillance, outbreak detection and response, as per Canadian Public Health Laboratory Network (CPHLN) guidance. An isolate may also be required for antimicrobial susceptibility testing (AST) and/or antimicrobial resistance (AMR) predictions to guide clinical treatment and/or for AMR surveillance.</p> <p>° NAT-positive (NAT+) and culture-negative (culture–) results would still be considered a probable case.</p>	

Epidemiology and Occurrence

Global and national

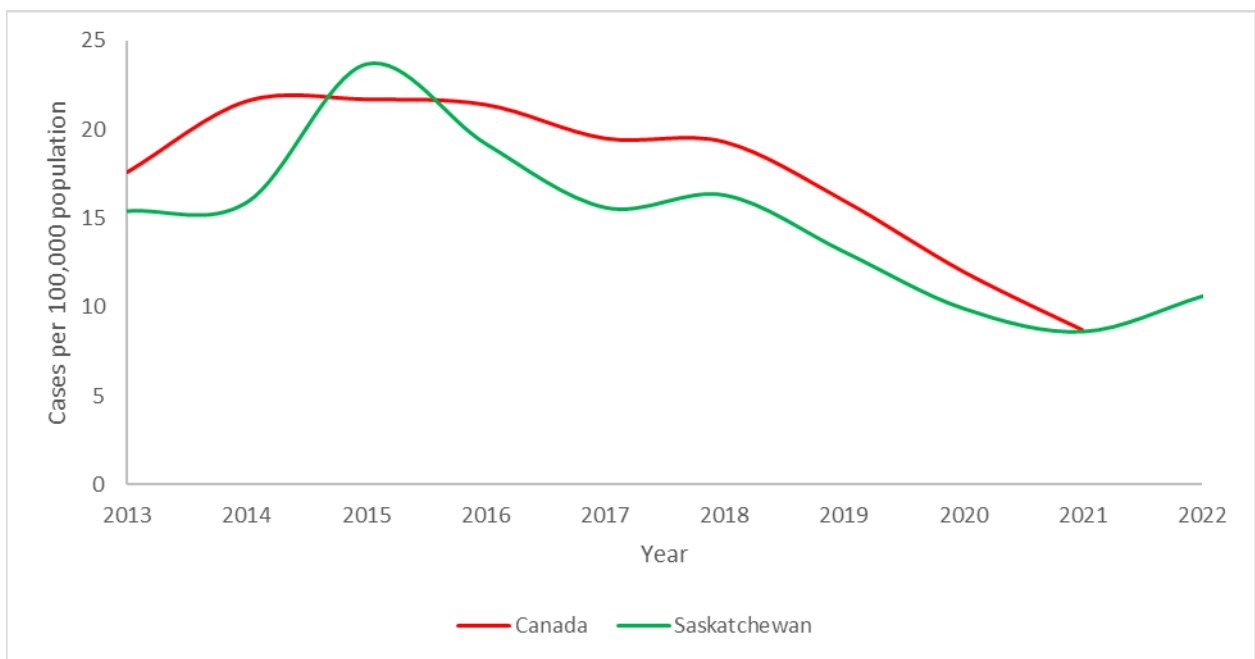
- Globally, *Salmonella* accounts for 25% of diarrhea cases (World Health Organization [WHO], 2018). Cases may occur sporadically, but outbreaks have been reported annually across Europe, Australia and the US.
- Most *Salmonella* cases are mild but severe infection could occur depending on host factors (including the young, the elderly, and the immunocompromised individuals) and the *Salmonella* serotype.
- In Canada, *Salmonella* accounted for about 42% (6350) of all the over 15000 cases caused by the ten nationally reportable foodborne pathogens according to reports from the provincial public health laboratories from 2014-2019 (Government of Canada, 2020). Multi-jurisdictional outbreaks have also been reported.

Provincial

- In Saskatchewan, the most predominant serotypes causing salmonellosis in humans are *S. Enteritidis*, *S. Typhimurium*, and *S. Enterica* and serovars. Serovars of *S. Enterica* were responsible for the multi-provincial outbreaks that lasted over 3 years.
- The incidence of human salmonellosis in Saskatchewan has been on a declining trend, with an average of 170 cases reported annually. Except for 2015, the

salmonellosis rate in SK has consistently remained lower than overall rate in Canada. In 2021, incidence rate in Saskatchewan was 8.6 cases per 100,000 population compared to 8.7 cases per 100,000 population in Canada.

- The risk factors of salmonellosis in Saskatchewan include travel, consumption of contaminated fruits, vegetables, and poultry products. Snakes and feeder mice and rodents have been implicated in recent outbreaks of *Salmonella*.



References

WHO (2018). [https://www.who.int/news-room/fact-sheets/detail/salmonella-\(non-typhoidal\)](https://www.who.int/news-room/fact-sheets/detail/salmonella-(non-typhoidal))
Government of Canada. National Enteric Surveillance Program Annual Summary 2019: Public Health Agency of Canada, Guelph, 2020.
https://publications.gc.ca/collections/collection_2021/aspc-phac/HP37-15-2019-eng.pdf

Additional Background Information

Causative Agent

- *Salmonella* organisms are gram-negative bacilli that belong to the *Enterobacteriaceae* family.
- The genus *Salmonella* has two recognized species: *S. enterica* and *S. bongori* with six main subspecies of *S. enterica*: *enterica* (I), *salamae* (II), *arizonae* (IIIa), *diarizonae* (IIIb), *houtenae* (IV), and *indica* (VI) (PHAC, 2023).

- There are over 2500 serotypes of *S. enterica* identified. Typhimurium and Enteritidis are the most commonly identified serotypes in Canada.
- The infective dose of *S. enterica*, especially for children, is not necessarily high. The probability model suggests that a 10-20% probability for infection with a dose of 100 organisms, and a 60-80% probability for infection at 1,000,000 organisms (Heymann, 2022).

Reservoir/Source

Reservoirs include poultry (including chicks and other baby poultry), swine, cattle, reptiles (e.g., iguanas, turtles, and snakes), dogs, cats, hamsters, hedgehogs, frogs, and salamanders (Heymann, 2022).

Symptoms

- Generally, causes an inflammation of the small intestine.
- Severity of symptoms may vary; depends upon age and health of host, ingested dose and serotype of organism.
- Sudden onset of headache, abdominal pain/cramping, diarrhea, fever, chills, nausea and/or vomiting.
- Acute symptoms may last for 1-2 days or may be prolonged, depending on host factors, and ingested dose and strain characteristics of organism. Generally, symptoms will resolve within 4-7 days.
- Dehydration and electrolyte imbalances which may lead to death in the very young, the elderly and immunocompromised individuals.
- Bacteremia (presence of viable bacteria in the circulating blood) and septicemia (bacteria in the blood that often occurs with severe infections) may occur.
- Septicemia in people with sickle-cell disease increases the risk of focal systemic infections, e.g., osteomyelitis (Heymann, 2022).

Complications

- Occasionally, the organism may localize in any tissue of the body, produce abscesses, and cause septic arthritis, cholecystitis, endocarditis, meningitis, pericarditis, pneumonia, pyoderma, or pyelonephritis (Heymann, 2022).
- Reactive arthritis (an autoimmune response) may follow 3-4 weeks after onset of acute symptoms (U.S. Food and Drug Administration [FDA], 2012).

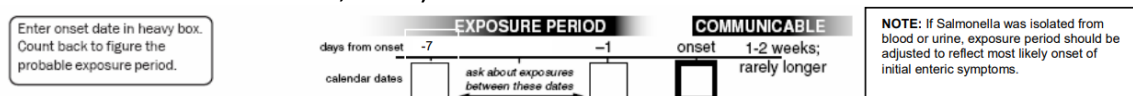
Incubation Period

- Usually 12-96 hours, but incubations for up to 7 days is not unusual (Centers for Disease Control and Prevention [CDC], 2024).
- Longer incubation periods of up to 16 days have been documented, and may not be uncommon following low dose ingestion (Heymann, 2022).

Period of Communicability

- Throughout the course of infection; extremely variable, usually several days to several weeks.
- Asymptomatic carrier state may continue for months, especially in infants.
- Depending on the serotypes, approximately 1% of infected adults and 5% of children under 5 may excrete the organism for 1 year (Heymann, 2022).

Figure 1. Calculating Incubation and Communicability (adapted from British Columbia Center for Disease Control, 2022)



Mode of Transmission

- Ingestion of organisms in improperly cooked food (including undercooked eggs/egg products), unpasteurized milk, contaminated food (e.g. raw fruits and vegetables), or contaminated drinking water.
- Contact with infected pets and/or their environment as well as contaminated pet treats.
- Person-to-person via fecal-oral transmission is possible, especially when diarrhea is present (Heymann, 2022).

Risk Factors

Risk factors are associated with individual susceptibility for severe disease and settings that create opportunities for acquisition or transmission to others. Risk factors for salmonella include:

- achlorhydria (low stomach acid)
- current medication (e.g. antacid treatment, broad-spectrum antibiotics)
- gastrointestinal surgery

- neoplastic disease
- malnutrition
- sickle-cell disease (Heymann, 2022)
- individuals with weakened immune systems due to age (e.g., very young, elderly), medical conditions (e.g., HIV) or medications (e.g., chemotherapy or immunosuppressive treatment) (U.S. FDA, 2012).

Persons at greater risk for transmission to other include food handlers, healthcare workers, childcare workers, and children under 5 in in childcare settings.

Lab Reports and Interpretation

- The final interpretation of a test result and how it aligns with the case definition must take into account the type of test and the clinical presentation.
- Further characterization (e.g., serotyping, whole genome sequencing [WGS]) is required for epidemiologic, public health, and clinical management, including to monitor for and identify clusters or to establish linkages to known outbreaks.
- Serotyping and whole genome sequencing will be completed for all isolates except for duplicates from the same patients within 15 days.
 - No further laboratory workup if culture is negative
 - Following PCR testing, further testing to be completed for isolation in pure culture and characterization through serotyping or sequencing
- NAAT testing is expected to be more sensitive than culture in some cases; culture recovery following NAAT positivity is not guaranteed

Table 2. Interpretation of Test Results

Type of Specimen	Type of test	Result	Interpretation as per Case Definition (in conjunction with clinical presentation)
Stool or other appropriate clinical specimen*	Culture	Isolated	Confirmed
Stool	PCR/NAAT	Detected	Probable

*Refer to case definition.

Source: RRPL January 30, 2024

Treatment/Supportive Therapy

Treatment for clinical management is at the discretion of the primary care provider. The following serves as a reference for the public health investigator:

- *Supportive therapy includes oral rehydration solution to replace fluids and electrolytes.*
- *Antibiotics are not usually recommended, as they may not eliminate the carrier state and may lead to prolonged excretion, resistant strains or more severe infections.*
- *Individuals that should receive antibiotics include infants less than 2 months, the elderly, the debilitated, those with sickle-cell disease, persons infected with HIV and/or persons with continued/high fever or manifestations of extra-intestinal infections (Heymann, 2022).*
- *Antibiotic treatment, when indicated should be based on antimicrobial susceptibility testing.*

Public Health Investigation

I. Case

Refer to [Attachment – Salmonellosis Data Collection Worksheet](#) to assist in follow-up.

History

- Onset of illness – to determine incubation period and period of communicability which helps to identify the possible source and contacts to be followed.
- Chronic medical condition that increases risk of acquisition. See [Risk Factors](#).
- In the **seven days** prior to onset of illness:
 - Identify history of travel (during the incubation period), especially to areas with inadequate sanitation, water and sewage treatment.
 - Exposed as a close contact to a case. See [Contact Definition](#).
 - Exposure to farm animals and pets including chicks, chickens, reptiles, and amphibians. Exposure to locations with animals i.e. farms, petting zoos, animals shows, etc. Exposure to or handling of pet food, particularly raw food, feeder mice, etc. Consider pets with diarrhea as a possible source of *Salmonella*. Pets may also have fecal matter on their hair, fur, feathers, or skin that is transferred to hands when they are touched.

- Obtain a detailed complete food history including recent ingestion of potentially contaminated food such as raw or undercooked chicken, eggs, unpasteurized milk, grocery produce including tomatoes, melons, apple cider, alfalfa sprouts, peanut butter or unpasteurized milk (complete the [User Defined Form](#)).
- Assess for safe food handling procedures (e.g. handwashing, temperature control, potential cross-contamination such as cutting boards).
- Determine history of child care, institution, communal living (i.e. camps, dorms) or hospital exposure.
- Identify exposure to drinking and recreational water sources.
- Determine history of high-risk sexual practices, particularly activities that result in contact with feces.
- Identify others who may have been exposed to the same source, including travel companions.
- Assess for history of similar symptoms in visitors or other members of the household.
- Occupational considerations for transmission exist for food handlers, health care and childcare workers.

Public Health Interventions

Assessment

- Assess for [contacts](#) paying particular attention individuals that have had exposure to the same source or are a risk for further transmission.

Communication

- Letters can be used to inform contacts of the exposure, symptom monitoring and when to seek medical attention (see Sample letter).
- Letters can also be used when exclusion from school or work settings are required as a public health intervention.

Education

- All cases should be provided information on prevention and control measures including safe food handling and handwashing. See [Appendix F](#).

Environmental Health

- In the case of an ill food handler, follow up with the food facility may be warranted as part of the case investigation and to review/educate on safe food handling requirements.

Exclusions and Public Health Orders

- Food handlers, health care workers, childcare or other staff involved with personal care: Exclude until diarrhea has resolved² for
- Children below the age of five years in childcare, and older children and adults unable to maintain adequate standards of personal hygiene (i.e., have mental or physical disabilities): Exclude until diarrhea has resolved³ If the individual is living in an institution, follow contact precautions until diarrhea has resolved.
- Exclusion may be warranted where transmission from the infected individual to another person is demonstrated or considered very likely in an occupational setting. This may be evaluated on a case-by-case basis by the Medical Health Officer (MHO).
- If necessary, the case should be excluded through a public health order.

Referral

- Depending on the suspected source and information from the source investigation, involvement of public health inspection, local MHO, Ministry of Health, Public Health Agency of Canada (PHAC), Ministry of Agriculture, and/or Canadian Food Inspection Agency (CFIA) may be necessary.

Testing

- Testing is not routinely required for lifting exclusion requirements.

II. Contacts/Contact Investigation

Contact Definition

Contacts include:

- persons living in the same household;
- children and childcare workers in the same child care facility/day home;
- persons who have eaten food prepared by the case during the period of communicability;
- persons who have attended events where food was shared with the case (e.g., potluck);
- individuals exposed to the same source (if it is identified); and
- individuals practicing sexual activities that increases risk for fecal-oral transmission.

² Diarrhea is considered resolved when stools have been normal for that individual for 48 hours and antibiotics and/or antidiarrheal medication has stopped for at least 48 hours (if treatment provided).

- **Public Health Interventions**

Assessment

- Assess for symptoms.

Communication

- Individual follow-up of contacts in larger child care facilities, classrooms, schools, teams, workplaces, etc., is generally not recommended. These individuals should be informed by letter from public health, advising them to see their physician if they develop symptoms.

Education

- All contacts should be provided information on prevention and control measures including safe food handling and handwashing. See [Prevention Measures](#) section

Environmental Health

- If a common exposure is identified through the case and contact investigations, environmental health assessments may be required. See [Outbreak and Epidemic Measures](#).

Exclusion

- Contacts who are symptomatic should be investigated and managed as cases. Refer to [Case Investigation](#).
- Assess for outbreak criteria. Refer to [Outbreak or Epidemic Measures](#). **Referral**
- Depending on the suspected source, investigation/management may involve local Medical Health Officer, Ministry of Health, PHAC, Ministry of Agriculture, and/or CFIA.

Symptom monitoring

- Contacts should be asked to monitor for symptoms during the incubation period and be advised regarding testing and exclusion should symptoms develop.

Testing

- Symptomatic contacts should be assessed by a physician.

III. Environment

Child Care Centres Control Measures

Infection control measures, refer to the Saskatchewan Ministry of Health Infection Control Manual for Child Care Facilities.³

- Isolated cases are managed as per case and contact management above.
- Two or more cases: If there are epidemiologically linked cases in attendees or employees, staff, attendees and food handlers should be assessed for illness. Testing is not required. Educate parents and staff about salmonellosis and proper handwashing. Instruct parents and staff to watch for symptoms of diarrhea. Symptomatic individuals should be excluded as cases. See [Outbreak or Epidemic Measures](#) section.
- Implement other public health investigation measures as required, including public health inspections, coordinated education, sampling, and public communication.

Health Facility Control Measures

- For infection control measures refer to your Health Authority Infection Control Manual and supporting resources (e.g., transmission-based precautions guidelines).
- Isolated cases are managed as per case and contact management above.
- Two or more cases: If there are epidemiologically linked cases of salmonellosis in the institution's residents or employees, staff with direct contact and food handlers should be assessed for illness. Stool cultures may be done to identify additional cases. Investigate as an outbreak in consultation with the MHO. Refer to [Outbreak or Epidemic Measures](#) Section.

Other Communal Living or Similar Environment with Higher Risk of Transmission

- This may include facilities where care may or may not be provided but the communal living and shared facilities increase risk of transmission such as group homes, private seniors residences, work camps, dormitories, etc.
- Isolated cases are managed as per case and contact management above.
- Two or more cases: Refer to Outbreak and Epidemic Measures section.
- Residential care facilities should follow the [Outbreak Management](#)⁴ toolkit

³ <http://publications.gov.sk.ca/documents/11/96181-infection-control-manual-child-care-centres.pdf>

⁴ https://www.saswh.ca/wp-content/uploads/2023/01/Outbreak_Toolkit_December_2022-compressed-1.pdf

- The Health Authority Infection Control Manual and Residential Care Outbreak Management toolkit can be used to guide infection control measures in other settings.

IV. Outbreak or Epidemic Measures

When cases occur among a group of individuals that are known to each other, searching for possible common exposures such as travel or shared food sources. A history of food handling errors, use of unsafe raw ingredients, inadequate cooking, time-temperature abuses and cross-contamination may be the likely source.

When two or more cases are linked through genetic identification (such as PFGE or whole genome sequencing), but have not named each other as contacts, the risk of a common source is heightened. In such cases, further investigation is warranted into what and where the exposure sources are. Food sampling and inspection of implicated sources, including food facilities, may be warranted. See Saskatchewan FIOIP for protocol related to foodborne illness outbreaks in Saskatchewan (expected to be available in spring 2024).

When laboratories identify interprovincial or international linkages, a multi-jurisdictional Outbreak Incident Command Center may be activated to coordinate investigation. The CFIA would become involved with the goal to identify the implicated source and implement appropriate interventions such as product recalls to reduce further spread. See the national [FIORP](#) for foodborne illness outbreaks involving multiple Provinces

Prevention Measures

Refer to the [Enteric Introduction and General Considerations](#) and [Appendix F](#) within that highlight topics for client education that should be considered as well as provide information on high-risk groups and activities.

Education

- Provide prevention information and education to case or caregiver, child care or institution workers about personal hygiene and hand hygiene.
- Educate food handlers regarding proper food and equipment handling and personal hygiene, especially in avoiding cross-contamination of food products, and emphasize thorough hand washing. Recommend staying home when sick and taking a food

safety training course. Information on Safe Food Handling at Home can be found in [Appendix F](#).

- Educate eating establishment operators regarding safe food handling and management and cleaning of equipment and to monitor practice within their establishments frequently. Ensure employees stay home when sick (workplace policy recommended).
- Avoid using dirty or cracked eggs, thoroughly cook all food derived from animal sources, particularly poultry and eggs. Wash fruits and vegetables prior to peeling and/or consuming. Clean and sanitize work surfaces thoroughly before and after preparing raw meat, poultry and other foods
- Advise individuals to avoid food preparation and care of hospitalized patients, the elderly and children when ill with diarrhea. Emphasize the importance of this to prevent severe illness in these high risk populations.
- Educate about the risk of sexual practices that permit fecal-oral contact.
- Ensure water is sourced from supplies that are appropriate and properly treated (i.e. municipal water, properly treated private water, etc.).
- Wash hands thoroughly after handling animals, animal treats, toys, and food and after cleaning animal enclosures and handling animal waste.
- Wash hands thoroughly after using the bathroom or changing diapers.

Revisions

Date	Change
April 1, 2024	<ul style="list-style-type: none"> Surveillance Case Definition table- updated to align with PHAC December 2023 updates. Epidemiology and Occurrence section completed. Causative agent section- removed <i>S. subterranean</i> species. Signs and symptoms- added chills and cramping; removed myalgia. Incubation period revised to 12 to 96 hours and up to 7 days (previously 12-36 hours with range 6-72 hours). Figure 1- updated with revised incubation period. Mode of Transmission- added contaminated food (raw fruits and vegetables). Lab Reports and Interpretation section completed, including Interpretation of Test Results table. Case History- added chronic medical condition that increases risk of acquisition; revised timeline of exposure questions to 7 days (previously 3 days); added exposure to chicks/chickens; added history of institution and communal living (i.e. camps, dorms); added travel companions. Case and Contact Education- added reference to CDC Manual Appendix F. Exclusions- removed requirement for two consecutive negative stool cultures; added discontinuation of anti-diarrheal medication to definition of resolved diarrhea. Public health order- revised to “If necessary, the case should be excluded through a public health order” (previously “if a food handler..” . Referral- standardized statement to be included in all enteric illness chapters. Testing- revised to not routinely required for lifting exclusion requirements. Contact Definition- added sexual activity that increases risk for fecal-oral transmission.

	<ul style="list-style-type: none"> • Contact Testing- removed follow-up testing requirements. • Health Facility Control Measures- removed “Contact precautions for cases that are hospitalized patients and residents”; added refer to “supporting resources (e.g. transmission-based precautions guidelines)”; clarified wording within management of two or more cases “...staff with direct contact and food handlers should be assessed for illness. Stool cultures may be done to identify additional cases.” • Child Care Centres Control Measures- added bullet regarding implementation of other public health investigation measures such as public health inspections. • New section- Other Communal Living or Similar Environment with Higher Risk of Transmission • Outbreak and Epidemic Measures- referenced provincial FIRIP and national FIORP. • Prevention Measures Education- added: educate on hand hygiene and staying home when sick; added “Ensure employees stay home when sick (workplace policy recommended)”. • Throughout- consistent wording used for child care/facility (previously used both child care and daycare). • Updated references. • Updated Data Collection Worksheet.
September 2018	<ul style="list-style-type: none"> • Clarified the purpose for notification of cases to public health • Incorporated an Epidemiology and Occurrence section to the chapter. • Incorporated standardized Salmonellosis Data Collection Worksheet. • Added graphic to help calculate incubation and communicability. • Rearranged and updated the style into the new format of the Manual. • Updated exclusion and follow-up testing for cases and contacts to align with current recommendations outlined in Heymann (2015) • References reaffirmed or updated as necessary.

References

- American Academy of Pediatrics. (2018). *Red book: 2015 Report of the Committee on Infectious Diseases* (31st ed.). Elk Grove Village, IL: Author.
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Salmonellosis Data Collection Worksheet

Panorama QA complete: ☐ Yes ☐ No
Initials: _____

Please complete all sections.

Panorama Client ID: _____
Panorama Investigation ID: _____

A) CLIENT INFORMATION

LHN -> 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: CASE	Date	Classification: CONTACT	Date	LAB TEST INFORMATION: 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	YYYY / MM / DD	<input type="checkbox"/> Not a Contact	YYYY / MM / DD	Specimen type: <input type="checkbox"/> Blood <input type="checkbox"/> Urine <input type="checkbox"/> Stool
<input type="checkbox"/> Person Under Investigation	YYYY / MM / DD	<input type="checkbox"/> Person Under Investigation	YYYY / MM / DD	
<input type="checkbox"/> Probable	YYYY / MM / DD			
Disposition: FOLLOW UP: <div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> In progress <input type="checkbox"/> Incomplete - Declined <input type="checkbox"/> Incomplete - Lost contact <input type="checkbox"/> Incomplete - Unable to locate </div> <div> <input type="checkbox"/> Complete <input type="checkbox"/> Not required <input type="checkbox"/> Referred - Out of province (specify where) </div> </div>				
REPORTING NOTIFICATION Name of Attending Physician or Nurse:		Location:		
Physician/Nurse Phone number:		Date Received (Public Health): YYYY / MM / DD		
Type of Reporting Source: <input type="checkbox"/> Health Care Facility <input type="checkbox"/> Lab Report <input type="checkbox"/> Nurse Practitioner <input type="checkbox"/> Physician <input type="checkbox"/> Other _____				

Salmonellosis Data Collection Worksheet

Please complete **all** sections.

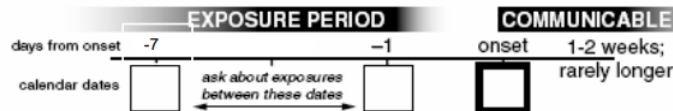
Panorama Client ID: _____
Panorama Investigation ID: _____

C) SIGNS & SYMPTOMS

LHN-> INVESTIGATION-> SIGNS & SYMPTOMS

Description	Yes Date of onset	Date of recovery	Description	Yes Date of onset	Date of recovery
Abdominal – cramping	YYYY / MM / DD	YYYY / MM / DD	Fever	YYYY / MM / DD	YYYY / MM / DD
Asymptomatic	YYYY / MM / DD	YYYY / MM / DD	Headache	YYYY / MM / DD	YYYY / MM / DD
Chills	YYYY / MM / DD	YYYY / MM / DD	Nausea	YYYY / MM / DD	YYYY / MM / DD
Dehydration	YYYY / MM / DD	YYYY / MM / DD	Pain – abdominal	YYYY / MM / DD	YYYY / MM / DD
Diarrhea	YYYY / MM / DD	YYYY / MM / DD	Sepsis (e.g. bacteremia, septicemia, etc.)	YYYY / MM / DD	YYYY / MM / DD
Diarrhea – bloody	YYYY / MM / DD	YYYY / MM / DD	Vomiting	YYYY / MM / DD	YYYY / MM / DD
Extra-intestinal infection	YYYY / MM / DD	YYYY / MM / DD			
Other Signs & Symptoms if applicable					

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



NOTE: If *Salmonella* was isolated from blood or urine, exposure period should be adjusted to reflect most likely onset of initial enteric symptoms.

Exposure period:

D) 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	
<i>Exposure Calculation details:</i>			
Communicability for Case (period for transmission): Earliest Possible Communicability Date: YYYY / MM / DD		Latest Possible Communicability Date: YYYY / MM / DD	
<i>Communicability Calculation Details:</i>			

E) 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 - Pet treats and raw food (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	
Animal Exposure - Other Animal Exposure (Add'l Info)_			YYYY / MM/DD	
Chronic Medical Condition - Other (Add'l Info)_			YYYY / MM/DD	
Contact - Persons with diarrhea/vomiting			YYYY / MM/DD	
Contact to a known case (Add'l Info)			YYYY / MM/DD	
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			YYYY / MM/DD	
Occupation - Personal Care Worker	TE		YYYY / MM/DD	
Travel - Outside of Canada (Add'l Info)_	AE		YYYY / MM/DD	

Salmonellosis Data Collection Worksheet

Please complete all sections.

Panorama Client ID: _____
Panorama Investigation ID: _____

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

F) USER DEFINED FORM
(SEE ATTACHED)

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

G) TREATMENT

LHN-> INVESTIGATION-> MEDICATIONS->MEDICATIONS SUMMARY

Medication (<i>Panorama = Other Meds</i>) : _____	
Prescribed by: _____	Started on: YYYY / MM / DD

H) INTERVENTION

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

Intervention Type and Sub Type:				
Assessment: Investigator name <input type="checkbox"/> Assessed for contacts YYYY / MM / DD		Exclusion: Investigator name <input type="checkbox"/> Daycare YYYY / MM / DD <input type="checkbox"/> Preschool YYYY / MM / DD <input type="checkbox"/> School YYYY / MM / DD <input type="checkbox"/> Work YYYY / MM / DD		
Communication: <input type="checkbox"/> Other communication (See Investigator Notes) YYYY / MM / DD Investigator name <input type="checkbox"/> Letter (See Document Management) YYYY / MM / DD Investigator name		Outbreak Declared YYYY / MM / DD Investigator name		
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		Public Health Order: <input type="checkbox"/> Order (specify) _____ YYYY / MM / DD Investigator name		
Education/counselling: <input type="checkbox"/> Prevention/Control measures YYYY / MM / DD <input type="checkbox"/> Disease information provided YYYY / MM / DD Investigator name		Referral: <input type="checkbox"/> Canadian food inspection agency YYYY / MM / DD Investigator name		
Environmental Health: YYYY / MM / DD <input type="checkbox"/> Restaurant inspection Investigator name		Testing: Investigator name <input type="checkbox"/> Stool testing recommended (e.g. for follow-up) YYYY / MM / DD <input type="checkbox"/> Laboratory testing recommended YYYY / MM / DD		
Immunization: Investigator name <input type="checkbox"/> Eligible immunizations recommended YYYY / MM / DD		Other Investigation Findings: <input type="checkbox"/> Investigator Notes <input type="checkbox"/> Document Management Notes		
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	

Salmonellosis Data Collection Worksheet

Please complete all sections.

Panorama Client ID: _____
Panorama Investigation ID: _____

I) 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) _____

J) 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

- ☐ Travel ☐ Exposure or consumption of potentially contaminated food or water ☐ 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"/> Food service establishment <input type="checkbox"/> Health Care setting <input type="checkbox"/> Public facilities <input type="checkbox"/> Household Exposure		
		<input type="checkbox"/> Food service establishment <input type="checkbox"/> Health Care setting <input type="checkbox"/> Public facilities <input type="checkbox"/> Household Exposure		
		<input type="checkbox"/> Food service establishment <input type="checkbox"/> Health Care setting <input type="checkbox"/> Public facilities <input type="checkbox"/> Household Exposure		
		<input type="checkbox"/> Food service establishment <input type="checkbox"/> Health Care setting <input type="checkbox"/> Public facilities <input type="checkbox"/> Household Exposure		
	Salmonella Contacts – Inv ID# _____	<input type="checkbox"/> Multiple Settings	YYYY / MM / DD to YYYY / MM / DD	

K) 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



Salmonellosis Routine Questionnaire - June 2024



Record type: Investigation
Record ID: 23
Record Name: UDF Investigation

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 7 days prior to onset, did you eat...

Any chicken meat?

- ☐ Yes
☐ Probably
☐ No
☐ Don't know

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

Any whole chicken pieces/parts (e.g. whole chicken, breasts, wings, thighs, in soups or as part of a dish, not including deli-meal)?

- ☐ Yes
☐ Probably
☐ No
☐ Don't know

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

Any breaded chicken (e.g. chicken nuggets, strips or burgers)?

- ☐ Yes
☐ Probably
☐ No
☐ Don't know

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

Any other chicken or poultry meat (e.g. deli meat, ground chicken, turkey, quail, etc.)?

- ☐ Yes
☐ Probably
☐ No
☐ Don't know

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

Any eggs?

- ☐ Yes
☐ Probably
☐ No
☐ Don't know

* Were the eggs raw, soft or undercooked?

- ☐ Yes
☐ Probably
☐ No
☐ Don't know

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

Any foods or beverages that contain raw, soft, undercooked eggs (raw cookie dough, desserts, drinks, dressings, stir fry, hot pot)?

- ☐ Yes
☐ Probably
☐ No
☐ Don't know

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

Any pork, including sausage?

- ☐ Yes
☐ Probably
☐ No
☐ Don't know

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

Any beef, including hamburger patties, other ground beef (meatballs, chili, spaghetti sauce), steak, roast, donair?

- ☐ Yes
☐ Probably
☐ No
☐ Don't know

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

Any seafood, including fish or shellfish (cooked / raw / smoked)?

- ☐ Yes
☐ Probably
☐ No
☐ Don't know

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

- ☐ Yes
- ☐ Probably
- ☐ No
- ☐ Don't know

Any sprouts (e.g. bean or alfalfa or any other kind), including sprouts on a sandwich or salads?

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

- ☐ Yes
- ☐ Probably
- ☐ No
- ☐ Don't know

Any lettuce or leafy greens (including pre-packaged greens)?

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

- ☐ Yes
- ☐ Probably
- ☐ No
- ☐ Don't know

Any cucumbers?

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

- ☐ Yes
- ☐ Probably
- ☐ No
- ☐ Don't know

Any tomatoes?

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

- ☐ Yes
- ☐ Probably
- ☐ No
- ☐ Don't know

Any cantaloupe?

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

Any Honeydew?

- ☐ Yes
- ☐ Probably
- ☐ No
- ☐ Don't know

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

Any Watermelon?

- ☐ Yes
- ☐ Probably
- ☐ No
- ☐ Don't know

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

Any papaya?

- ☐ Yes
- ☐ Probably
- ☐ No
- ☐ Don't know

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

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

- ☐ Yes
- ☐ Probably
- ☐ No
- ☐ Don't know

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

Any nuts, (either on their own, in granola bar, as a garnish or as part of a dish)?

- ☐ Yes
- ☐ Probably
- ☐ No
- ☐ Don't know

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

Any peanut butter or other nut butter or spread?

- ☐ Yes
- ☐ Probably
- ☐ No
- ☐ Don't know

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

Any seeds (e.g. sunflower, sesame, chia, flax, hemp, sprouted seeds)?

- ☐ Yes
- ☐ Probably
- ☐ No
- ☐ Don't know

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

Any tahini, halva, or other products made from sesame seeds?

- ☐ Yes
- ☐ Probably
- ☐ No
- ☐ Don't know

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

Any cheese made with unpasteurized (raw) milk?

- ☐ Yes
- ☐ Probably
- ☐ No
- ☐ Don't know

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

In the 7 days prior to onset, did you handle or prepare...

Any eggs or foods containing raw eggs?

- ☐ Yes
☐ Probably
☐ No
☐ Don't know

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

Did you handle or prepare any raw chicken?

- ☐ Yes
☐ Probably
☐ No
☐ Don't know

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

Social Functions

[Show/Hide](#)

In the 7 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

Event/social gathering name

Location

Date

Foods eaten

Delete

Add

Restaurants

Show/Hide

In the 7 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

Restaurant Name

Location

Date

Food eaten

Delete

Add

Grocery Stores

[Show/Hide](#)

In the past 7 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

Grocery store name

Location

Foods purchased

Brands/other details

Delete

Add

Consent for Re-interview by PHAC (Public health to obtain client's consent at the initial interview. Ministry to use the information if case becomes a part of outbreak investigation.)

[Show/Hide](#)

Has the client given consent (written or verbal)?

☒ Yes
☐ No

Name and contact phone number:



Loyalty card/store issued card (Public health to obtain client's consent at the initial interview. Ministry to use the information if case becomes a part of outbreak investigation.)

[Show/Hide](#)

If you are comfortable providing consent, retailers is able to send us a list of foods that were purchased by you, prior to your illness. We can then take this information and compare it to other ill people's purchases to look for commonalities. All personal information is removed from these records and is kept confidential. These kinds of details are often very helpful as we continue with our investigation. So, may we have permission to retrieve purchases based on your member card information?

Has the client given consent (written or verbal)?

- ☒ Yes
☐ No

Loyalty card details (Card names and numbers)

Interviewer Details and Notes

[Show/Hide](#)

Interviewer Name

Interview date

6/5/2024

Any special notes regarding this interview

Save as Draft

Submit

Clear