



Section 3

Enteric Illness

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Shigellosis

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Notification Timeline:

From Lab/Practitioner to Public Health: Immediately.

From Public Health to Saskatchewan Health: Within 72 hours.

Public Health Follow-up Timeline: Initiate within 24-48 hours.

Information

Case Definition (Public Health Agency of Canada, May 2008)

Confirmed Case	Laboratory confirmation of infection with or without clinical illness: <ul style="list-style-type: none">isolation of <i>Shigella sp.</i> from an appropriate clinical specimen (e.g., sterile site, deep tissue wounds, stool, vomit or urine)
Probable Case	Clinical illness ¹ in a person who is epidemiologically linked to a confirmed case
¹ Clinical illness is characterized by diarrhea, fever, nausea, vomiting cramps and tenesmus. Asymptomatic infections may occur.	

Causative Agent

Shigella species are aerobic, gram negative bacilli. There are 4 species or serogroups: *S. dysenteriae* (Group A), *S. flexneri* (Group B), *S. boydii* (Group C), and *S. sonnei* (Group D). The infectious dose for humans; can be as low as 10 to 100 bacteria.

Symptoms

- An acute bacterial disease involving the large and distal small intestine, characterized by diarrhea which may contain blood and mucus or be watery, accompanied by fever, nausea, vomiting, cramps, tenesmus and sometimes toxemia.
- Convulsions may be an important complication in young children.
- Bacteremia is uncommon.
- Mild and asymptomatic infections occur.
- Illness is usually self-limited, lasting an average of 4 to 7 days.
 - S. dysenteriae*: is often associated with serious disease and severe complications, including toxic megacolon and the haemolytic-uremic syndrome; case-fatality rates have been as high as 20% among hospitalized cases, even in recent years.

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- *S. sonnei*: often results in a short clinical course and an almost negligible case-fatality rate, except in immune-compromised hosts.
- *S. flexneri*: Certain strains can often cause a reactive arthropathy (Reiter's syndrome) in persons who are genetically predisposed, although Reiter's syndrome can occur with any *Shigella* strain. Post-infectious arthritis can last for months or years, and can lead to chronic arthritis.

Incubation Period

Usually 1 to 3 days, but may range from 12 to 96 hours; up to 1 week for *S. dysenteriae* type 1.

Reservoir/Source

Humans are the only significant reservoir.

Mode of Transmission

Person-to-person, fecal-oral transmission:

- Direct transmission is common in children and individuals who do not thoroughly clean their hands, including under their fingernails following defecation.
- Indirect transmission is usually via ingestion of contaminated food or water.

Less commonly inanimate objects and houseflies act as vectors.

Risk Factors/Risk Groups

The elderly, the debilitated and the malnourished of all ages are particularly susceptible to severe disease and death.

Period of Communicability

- During acute infection and until the infectious agent is no longer present in feces, usually for 4 weeks after illness.
- Asymptomatic carriers may transmit infection; very rarely, the carrier state may persist for months or longer.
- The duration of carriage may be reduced with the use of an appropriate antibiotic.

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Specimen Collection and Transport

Shigella remains viable outside the human body for only a short period of time hence, specimens must be processed rapidly after collection, preferable within 24 hours.

Stool specimens should be taken early in the course of the illness, when the causative agent is likely to be found in largest numbers. Freshly passed stool is better than rectal swabs, since there is less chance for improper collection, and mucus and blood stained portions can be selected for culture. Use the Cary-Blair transport media. Submit three or four spoonfuls (using the built-in 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 to more than three-quarters full.

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.

Education

- Educate the public about the importance of personal hygiene including handwashing, safe food handling and safe drinking water.
- Educate about control of flies to decrease contamination of food.
- Encourage breast feeding of infants and young children as breast feeding is protective.
- Educate parents about the importance of keeping children with diarrheal illness home from daycares.
- Educate about safe recreational water sources and the importance of avoiding swallowing water from ponds, lakes, or untreated pools.
- Educate about safe sexual practices and those that permit fecal-oral contact.



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Management

I. Case

History

- Identify travel history especially to areas with inadequate sanitation, water and sewage treatment.
- Determine occupation and risk of possible exposure and transmission.
- Obtain a history of food, water and milk supplies.
- Determine history of institutionalization.
- Determine history of high risk sexual practices, especially contact with feces.

Education

- Provide prevention information and education to case or caregiver, daycare or institution workers about personal hygiene.
- Educate food handlers about proper food and equipment handling and hygiene, especially in avoiding cross-contamination of food products, and emphasize thorough hand washing.
- Educate about the risk of sexual practices that permit fecal-oral contact.
- Educate about control of flies to decrease contamination of food.

Immunization

- Not applicable.

Treatment/Supportive Therapy

- Fluid and electrolyte replacement is important when diarrhea is watery or there are signs of dehydration.
- Antibiotic treatment, depending on the severity of the illness may be recommended. Multidrug resistance is common; therefore the choice of antibiotic will depend on the susceptibility of the isolated strain or on local antimicrobial susceptibility patterns. Use of antibiotics will shorten the duration and severity of illness and the duration of fecal excretion.

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Exclusion

- Food handlers, health care workers, childcare or other staff involved with personal care, children below the age of five years in childcare, and older children and adults unable to maintain adequate standards of personal hygiene: exclude until diarrhea has cleared and 2 consecutive negative stool cultures are obtained at least 24 hours apart and at least 48 hours after discontinuation of antibiotics.
- Use of recreational water (e.g., swimming pools, whirlpools, etc.): exclude until 2 weeks after symptoms resolve (American Academy of Pediatrics, 2009).

Referrals

- None.

II. Contacts/Contact Investigation

Contact Definition

Contacts include:

- persons living in the household;
- children and childcare workers in a daycare/dayhome;
- healthcare workers who have provided care for a case.

Testing (serology, swabs, as applicable)

- Symptomatic contacts should be assessed by a physician and tested.

Prophylaxis/Immunization

- None.

Exclusion

Symptomatic contacts that fall into one of the following categories should be excluded until diarrhea has cleared and 2 consecutive negative stool cultures are obtained at least 24 hours apart:

- food handlers;
 - health care, childcare or other staff involved with personal care who are symptomatic;
 - children below the age of five years in childcare who are symptomatic;
 - older children and adults unable to maintain adequate standards of personal hygiene;
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- contact precautions should be followed for individuals who live in an institution until two negative stool cultures have been obtained.

Symptomatic individuals should not use of recreational water (e.g., swimming pools, whirlpools, etc.) until 2 weeks after symptoms resolve.

III. Environment

Child Care Centre/Schools Control Measures

- Strict enforcement of infection control measure. Refer to Infection Control Manual for Day Care Providers, Saskatchewan Health.

Health Facilities Control Measures

- Strict enforcement of infection control measures. Refer to your Health Authority Infection Control Manual.
- Contact precautions should be used while case is symptomatic.
- For hospitalized patients, contact precautions in the handling of feces, contaminated clothing and bed linen.

Epidemic Measures

- Report at once to the chief medical health officer any group of cases of acute diarrheal disorder, even in the absence of specific identification of the causal agent.
- Investigate water, food, and milk supplies, and use general sanitation measures.
- Prophylactic administration of antibiotics is not recommended.
- Publicize the importance of handwashing after defecation; provide soap and individual paper towels in public venues if otherwise not available.



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