

Shigellosis

1. DISEASE REPORTING

A. Purpose of Reporting and Surveillance

1. To determine if there is a source of infection of public health concern (e.g., a food handler or day care facility) and to stop transmission from such a source.
2. To assess the risk of the case transmitting infection to others, and to prevent such transmission.
3. To identify other cases.

B. Laboratory And Physician Reporting Requirements

Laboratories and physicians are required to report within one working day of identification/diagnosis. Reports should not be delayed for serotyping or final laboratory confirmation. Labs must either report specific serotype information about any isolates or must forward them to the OSPHL.

C. Local Health Department Reporting and Follow-Up Responsibilities

1. Report all confirmed and presumptive (but *not* suspect) cases to OHS (see definitions below) by the end of the calendar week of initial physician/lab report. Use the standard case report form.
2. Begin follow-up investigation within one working day. Use the Shigellosis case investigation form. Send a copy of the completed form to OHS within seven days of initial report.
3. Ensure that labs forward the first isolate from each patient to the OSPHL for speciation as required by rule, unless the lab does serotyping.
4. As indicated, complete CDC summary forms (available from OHS) for waterborne or foodborne disease outbreaks when investigation is completed.

2. THE DISEASE AND ITS EPIDEMIOLOGY

A. Etiologic Agent

Shigella spp.—Gram-negative bacteria. There are four *Shigella* species: *S. sonnei* (Group D), *S. flexneri* (Group B), *S. dysenteriae* (group A), and *S. boydii* (Group C). *S. sonnei* is by far the most common type reported in Oregon. *S. dysenteriae* infections are rare in Oregon, but when they do occur are often serious, with a high fatality rate. *S. flexneri* is seen primarily in persons who have come from, or traveled to, developing countries, or who have had contact with such individuals. *S. boydii* infections are quite rare in Oregon.

B. Description of Illness

Shigellosis is characterized by acute onset of diarrhea, usually accompanied by moderate to high fever and cramping abdominal pain; sometimes with nausea and vomiting. Illness is self-limited, usually lasting 3-10 days. Persistent (asymptomatic) carriage lasting weeks or months may occur, although less often than with *Salmonella* infections. Diarrhea is often marked by blood, mucus, or pus in the stools. Infections can be severe, particularly in young children and the elderly. Mild and asymptomatic infections also occur.

C. Reservoirs

Infected humans only.

D. Modes of Transmission

Fecal-oral. The infectious dose is very small; as few as 10–100 organisms may be sufficient. Commonly recognized vehicles or mechanisms include:

1. Person-to-person transmission within households and day care facilities or to other close contacts whenever hand washing after defecation is inadequate. Care givers are also at risk of infection due to fecal contamination of hands.

Shigellosis

2. Sexual contact, including oral-anal contact.
3. Fecally contaminated inanimate objects (fomites).
4. Food that is contaminated during harvest, transportation, preparation, or serving—most commonly food served without cooking (e.g., lettuce, cold sandwiches).
5. Contaminated and inadequately treated drinking water.
6. Ingestion of contaminated and untreated recreational water.
7. While there are no natural animal reservoirs, some non-human primates can be infected and could become sources for animal handlers or exotic pet owners.

E. Incubation Period

1- 4 days, rarely, as short as 12 hours or as long as 7 days.

F. Period of Communicability

As long as organisms are excreted in feces, typically for about 1–4 weeks after onset. Some individuals may remain carriers for several months. The period of excretion is usually shortened by appropriate antibiotic therapy.

G. Treatment

1. Fluid and electrolyte replacement, if indicated.
2. Antibiotic therapy, using antibiotics to which the isolated strain is susceptible, will shorten the duration of illness and period of communicability.
3. High level of resistance to Ampicillin and trimethoprim/sulfamethoxazole (TMP/SMX) has been found in Oregon. Treatment should be based on susceptibility result.
4. Antimotility agents are contraindicated, as they may prolong the illness and increase the risk of invasive disease.

3. CASE DEFINITIONS, DIAGNOSIS, AND LABORATORY SERVICES

A. Confirmed Case Definition

Anyone with *Shigella* cultured.

B. Presumptive Case Definition

Compatible illness in someone epidemiologically linked to a confirmed case.

C. Suspect Case (*not* reportable to OHS)

Anyone with an undiagnosed febrile diarrheal illness.

D. Services Available at the Center for Public Health Laboratories

The OSPHL provides isolate identification, serotyping, and stool culturing for *Shigella* species. For isolate identification, submit a pure isolate of the organism growing on an agar slant that will support growth (e.g., nutrient or blood agar). A swab with stool on it, completely submerged in a Cary-Blair tube, is required for stool culturing. Both specimens may be sent without a cold pack. All specimens must be properly packaged in double containers with absorbent material around them. Use the Bacteriology/Parasitology form (#75).

N.B. —Stool specimens will not be cultured unless obtained before initiation of therapy, or after 48 hours have passed since discontinuation of antimicrobials. For follow-up cultures, refer to §5F.

4. ROUTINE CASE INVESTIGATION

A. Case Interview

1. Identify Possible Sources of Infection

For the 1 to 4 days before onset, determine:

- a. Name, diagnosis, and telephone number or address of any acquaintances or household members with a similar illness. (Anyone meeting the presumptive case definition should be reported and investigated in the same manner as a confirmed case.)

Shigellosis

- b. Attendance or employment at a day care facility by the case or a household member of the case. (If the case or a household member attends or works at a day care facility, see §6.)
- c. Name, date, and location of meals eaten at restaurant or public gatherings.
- d. Source(s) of drinking water, including at home and work, as well as water from streams, lakes or fountains (either consumed purposefully or accidentally during work or sports activity) and incidental sources (for example, communities visited during a vacation). Water used only after boiling need not be included. If a public water supply is implicated, consult with the Communicable Disease Section.
- e. Travel outside the United States or contact with others known to have traveled outside the U.S.
- f. Sexual contact involving potential fecal exposure.

B. Identify Potentially Exposed Persons

Determine if the case or any household members attend or work at a day care facility, or work as food handlers, health care workers, or residential care providers. If so, refer to §6.

C. Environmental Evaluation

If the source of infection appears to be associated with a day care facility, restaurant, dairy, or public drinking water supply; or, if the case attends, or works at, a day care facility or works as a food handler, health care provider, or residential care provider, see §6.

5. CONTROLLING FURTHER SPREAD

A. Patient/Household Education

1. Basic instruction about hand washing after defecation or diaper changing and before food preparation should be provided to cases and potentially exposed contacts.
2. As indicated, provide other pointers about minimizing fecal exposure in daily life.

B. Isolation of Cases

Standard precautions are adequate to prevent transmission of shigellosis.

C. Children in Day Care

Children with confirmed or presumptive *Shigella* infections may not attend a school or day care facility unless special exemption is granted by the local health officer. An exemption should be granted only if cohorting (separating infected children from uninfected children) and special care with hand washing after diaper changing and before food handling can be implemented. Exemption may also be considered if the affected child is of school age. Exclusion can be ended after two consecutive negative stool cultures (see below).

D. Occupational Restrictions

Persons with confirmed or presumptive *Shigella* infections may not work as food handlers, or in a school, day care, health care, or residential facility unless special exemption is made by the local health officer. In general, restrictions on confirmed cases shall not be lifted until results of licensed laboratory tests of two consecutive approved fecal samples collected not less than 24 hours apart show no identifiable pathogens. Exemptions can be considered for asymptomatic food handlers if they are being treated with an antibiotic to which the isolate is susceptible, and they have excellent personal hygiene. The food service facility should have a system in place of monitored handwashing. Individuals may return to work without restrictions after two consecutive negative stool cultures (see below).

E. Restrictions on Household Contacts

None.

F. Follow Up Stool Cultures

Routine follow-up cultures are not indicated unless the case or a household contact is a day care attendee, food handler, or works in a day care, health care, or residential facility (“high risk individuals”). Other symptomatic household members should be encouraged to seek medical attention from their regular providers.

Shigellosis

High risk individuals are excluded from work or day care until they have two consecutive negative stool cultures, bearing in mind that:

1. No follow-up specimens shall be collected until the person is asymptomatic and at least 48 hours have passed since completion of antibiotic therapy (if any).
2. Serial specimens must be collected at least 24 hours apart.

G. Protection of Contacts

Generally, via education only. Under extraordinary circumstances, antibiotic prophylaxis may be warranted. Consult with the Communicable Disease Section before seriously entertaining this strategy.

H. Environmental Measures — As indicated (see below)

6. MANAGING SPECIAL SITUATIONS

A. Case Attends or Works at a Day Care Facility

1. Interview the operator and check attendance records to identify other possible cases during the previous month.
2. Instruct the operator and other staff in proper methods for food handling and hand washing, especially after changing diapers.
3. If other confirmed or suspected cases have occurred, collect stool specimens from all staff members and children who are symptomatic or who have had diarrhea during the previous two months.
4. If other possible cases are identified, do an environmental evaluation.
5. Instruct the operator to notify the LHD immediately if new cases of diarrhea occur. Call or visit once each week for two weeks after onset of the last case to verify that surveillance and appropriate preventive measures are being carried out. Manage newly symptomatic children as outlined above.
6. If more children or staff members are found to be infected than realistically can be excluded, work with the operator to develop a plan to physically separate (cohort) infected and uninfected children *and* staff. Such a program will have to be closely monitored.

B. Case is a Food Handler or a Commercial Food Source Implicated

1. Visit the facility for a brief environmental evaluation and verify, by interviewing the operator and reviewing worker attendance records, if any employees have had a diarrheal illness within the past month. Ask about any complaints of illness from patrons during the past month.
2. Employees with a history of diarrhea within the past month must submit a single stool specimen for culture. (Symptomatic employees should of course be excluded.)
3. The extent of further investigation depends on circumstances. Consult with the Communicable Disease Section.

C. Food Served at a Public Gathering Implicated

1. Determine if anyone who prepared food for the gathering had diarrhea at any time during the previous month. Determine if any other food preparers or attendees developed diarrhea within 7 days after the gathering.
2. Collect stool specimens for culture from any food handlers with such histories. (This is mandatory if the individual works for a commercial food service facility.)
3. The extent of further investigation depends on circumstances. Consult with the Communicable Disease Section.

D. Public Water Supply Implicated

Consult with the Communicable Disease Section.