

PUBLIC HEALTH REFERENCE SHEET

Shigellosis



Name	<i>Shigella</i> species
Reservoir & Transmission	Humans Direct or indirect fecal-oral transmission
Incubation Period	Average 1–3 days. Range 12–96 hours
Common Symptoms	Diarrhea (may be bloody), fever, nausea, cramps, tenesmus
Gold Standard Diagnostic Test	Culture
Risk Groups	Children less than 10 years old
Geographic Significance	Worldwide

What is shigellosis?

Shigella bacteria cause Shigellosis, which is an extremely contagious diarrheal disease. There are four different species: *Shigella sonnei*, *Shigella flexneri*, *Shigella boydii*, and *Shigella dysenteriae*.

What is the occurrence of shigellosis?

The CDC estimates about 450,000 cases of shigellosis occur in the U.S. every year, making it the third most common bacterial enteric disease. Shigellosis does not have a marked seasonality, likely reflecting the importance of person-to-person transmission. Shigellosis is particularly common in settings where hygiene is poor. *S. sonnei* is the most common in U.S. Although *S. boydii* and *S. dysenteriae* are rare in the U.S., they are important causes of disease in areas with less access to resources. *S. dysenteriae* type 1 can cause death.

How is shigellosis transmitted?

Shigella resides in the stool of infected individuals while they have diarrhea and up to 2 weeks after diarrhea has subsided. *Shigella* is transmitted by direct or indirect contact of fecal matter from an infected individual via the fecal-oral route. A microscopic amount of *Shigella* bacteria in fecal matter can infect someone. Transmission may occur by eating contaminated food, drinking contaminated water, swimming in contaminated water, or swallowing something contaminated with the bacteria. *Shigella* can be transmitted by exposure to feces through sexual contact.

Who is at risk for shigellosis?

Anyone can get shigellosis, but it occurs most often in toddlers aged 2 to 4. Outbreaks of shigellosis have occurred among men who have sex with men, HIV-infected persons, travelers, and orthodox Jewish communities. Outbreaks can occur in crowded conditions where exposure to fecal matter may be higher, such as prisons, daycare centers, refugee camps, and disaster areas. Service members under operational and field conditions are at risk when flies transfer fecal matter from latrines to unprotected foods.

What are the signs and symptoms of shigellosis?

Some people may be asymptomatic. Others may experience mild to severe symptoms, typically starting 1–2 days after exposure. The symptoms of shigellosis include diarrhea, which may be bloody, fever, stomach cramps, and tenesmus (frequent urge have a bowel movement in the absence of stool). Young children and the elderly may need to be hospitalized due to severe diarrhea. Symptoms usually last 5 to 7 days but may last for 4 or more weeks. In some cases, bowel habits (frequency and consistency of stool) do not return to normal for several months.

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What are potential complications of shigellosis?

- Post-infectious arthritis: Also called Reiter's syndrome, this is a syndrome of joint pain, eye irritation, and painful urination that can happen in about 2% of people who are infected with *S. flexneri*. Few cases have been reported in association with *S. sonnei* or *S. dysenteriae* infection. Symptoms can last for months or years and can lead to chronic arthritis. Post-infectious arthritis is caused by a reaction to *Shigella* infection that happens only in people who are genetically predisposed to it.
- Bloodstream infections. Although rare, bloodstream infections are caused either by *Shigella* organisms or by other germs in the gut that get into the bloodstream when the lining of the intestines is damaged during shigellosis. Bloodstream infections are most common among patients with weakened immune systems, such as those with HIV, cancer, or severe malnutrition.
- Seizures. Generalized seizures have been reported occasionally among young children with shigellosis and usually resolve without treatment. Children who experience seizures while infected with *Shigella* typically have a high fever or abnormal blood electrolytes, but it is not well understood why the seizures occur.
- Hemolytic-uremic syndrome (HUS). HUS occurs when bacteria enter the digestive system and produce a toxin that destroys red blood cells. Patients with HUS often have bloody diarrhea. When infected with *Shigella*, HUS is only associated with Shiga-toxin producing strains, most commonly *S. dysenteriae*.

How is a shigellosis diagnosed?

The diagnosis of shigellosis is confirmed by a stool culture. A stool specimen may be tested by a culture-independent diagnostic test (CIDT), which can detect the presence of a gene or antigen associated with the bacteria. However, CIDTs usually do not provide important information such as whether the pathogen is a particularly harmful strain, how it will respond to antimicrobial agents, or if it recently has been found in others who are sick, which suggests an outbreak might be occurring. Clinical diagnostic laboratories can submit *Shigella* isolates to state and territorial public health laboratories to be confirmed, speciated, and subtyped.

How is shigellosis treated?

Persons with mild infections usually recover within 5 to 7 days without antibiotic treatment but may need hydration and rest. More severe cases, however, can be treated with antibiotics. Some *Shigella* bacteria have become resistant to antibiotics. Antidiarrheal agents such as bismuth subsalicylate (e.g., Pepto-Bismol®) may be helpful. However, loperamide (e.g., Imodium®) or diphenoxylate with atropine (e.g., Lomotil®) are likely to make the illness worse and should be avoided.

How can shigellosis be prevented?

The most important precaution is to wash hands with soap and water notably with supervised handwashing of all children in childcare centers. Follow all food safety practices. Water filters may not be effective against *Shigella* and may need to be chlorinated or boiled. Avoid swallowing water from ponds, lakes, or untreated swimming pools. When traveling internationally, adhere to food and water precautions and thoroughly wash hands with soap and water frequently.

What are some public health considerations?

- Specify the serotype characterization (O antigen) if known.
- Document the source of infection if known.

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- Document if the case patient works in, lives in, or attends a high transmission setting such as food handling, daycare, school, group living, healthcare, training center, or ship.
- Identification of Shiga toxin is presumptive for *E. coli* and should not be reported as shigellosis.
- Refer to the Centers for Disease Control and Prevention for current information about extensively drug-resistant *Shigella* infection (shigellosis) in the U.S.

References:

Defense Health Agency. 2022. *Armed Forces Reportable Medical Events: Guidelines and Case Definitions*.

<https://www.health.mil/Reference-Center/Publications/2022/11/01/Armed-Forces-Reportable-Medical-Events-Guidelines>

Heymann, David L. ed. 2022. *Control of Communicable Diseases Manual*. 21st Edition. Washington, DC: APHA Press.

“Shigella,” Centers for Disease Control and Prevention (CDC), last reviewed March 30, 2023.

<https://www.cdc.gov/shigella/>

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