

**What is shigellosis?**

Shigellosis is an infectious disease caused by a group of bacteria called *Shigella*. Most people who are infected with *Shigella* develop diarrhea, fever, and stomach cramps a day or two after they are exposed to the bacterium. The diarrhea is sometimes bloody. Shigellosis usually resolves in 5 to 7 days. In some persons, especially young children and the elderly, the diarrhea can be so severe that the patient needs to be hospitalized. Some persons who are infected may have no symptoms at all but may still pass the *Shigella* bacteria to others.

There are several different kinds of *Shigella* bacteria: *Shigella sonnei* accounts for over two-thirds of the shigellosis in the United States. A second type, *Shigella flexneri*, accounts for almost all of the rest. Other types of *Shigella* are rare in this country, although they continue to be important causes of disease in the developing world.

**How can *Shigella* infections be diagnosed?**

Many kinds of diseases can cause diarrhea and bloody diarrhea, and the treatment depends on which germ is causing the diarrhea. Determining that *Shigella* is the cause of the illness depends upon laboratory tests that identify *Shigella* in the stools of an infected person. These tests are sometimes not performed unless the laboratory is instructed specifically to look for the organism. The laboratory can also do special tests to tell which type of *Shigella* the person has and which antibiotics, if any, would be best to treat it.

**How can *Shigella* infections be treated?**

Persons with mild infections usually recover quickly without antibiotic treatment in 5-7 days. People with mild shigellosis may need only fluids and rest. Antidiarrheal agents such as loperamide (Imodium®) or diphenoxylate with atropine (Lomotil®) can make the illness worse and should be avoided because they cause the gut to slow down and interfere with the way the body digests food. Antibiotic treatment may be recommended in certain situations, such as for persons with severe disease, bloody diarrhea, or compromised immune systems. Persons who are ill should contact a healthcare provider to discuss specific treatment recommendations.

**Are there long-term consequences to a *Shigella* infection?**

Persons with diarrhea usually recover completely, although it may be several months before their bowel habits are entirely normal. Certain strains of *Shigella flexneri* can cause reactive arthritis, which causes joint pains, eye irritation, and painful urination. It can last for months or years and can lead to chronic arthritis, which is difficult to treat. Post-infectious arthritis is caused by a reaction to *Shigella* infection that happens only in people who are genetically predisposed by having HLA-B27 antigen.

Although rare, people with *Shigella* infection can develop bloodstream infections that 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.

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 (salts), but it is not well understood why the seizures occur.

Hemolytic uremic syndrome, or HUS, is a rare complication of *Shigella* infections. HUS occurs when bacteria enter the digestive system and produce a toxin that destroys red blood cells, which block kidneys' filtering function and can lead to kidney failure. Patients with HUS often have bloody diarrhea. HUS is only associated with Shiga toxin-producing *Shigella*, which is found most commonly in *Shigella dysenteriae*.

### **How common is shigellosis?**

Every year, about 450,000 cases of shigellosis are reported in the United States. Young children are the most likely to get shigellosis. Many cases are related to the spread of germs in child care settings and among families with small children. Shigellosis is more common in countries where resources for treatment of water or other sanitation measures are limited.

### **How is *Shigella* spread?**

*Shigella* germs are present in the stools of infected persons while they are sick and for a week or two after the diarrhea has gone away. *Shigella* is very contagious; exposures to even a tiny amount of contaminated fecal matter can cause infection. Most *Shigella* infections are the result of the bacterium passing from stools or soiled fingers of one person to the mouth of another person when basic hygiene and hand washing habits are inadequate. The bacteria can be spread through direct person-to-person contact, including during certain types of sexual activity. The bacteria can also be spread indirectly by touching surfaces contaminated with *Shigella* or eating food or swallowing water that is contaminated with *Shigella*. Infections are particularly likely to occur among toddlers who are not fully toilet-trained and spread among family members and playmates.

*Shigella* infections may be acquired from eating contaminated food. Contaminated food may look and smell normal. Food may become contaminated by infected food handlers who forget to wash their hands with soap after using the bathroom. Vegetables can become contaminated if they are harvested from a field with sewage in it. Flies can breed in infected feces and then contaminate food. *Shigella* infections can also be acquired by drinking or swimming in contaminated water. Water may become contaminated with *Shigella* bacteria if sewage runs into it or if someone with shigellosis swims in or plays with it (especially in splash tables, untreated wading pools, or shallow play fountains used by daycare centers). *Shigella* infections can then be acquired by drinking, swimming in, or playing with the contaminated water.

### **What can be done to prevent this shigellosis?**

Some prevention steps occur daily, without you thinking about it. Making municipal water supplies safe and treating sewage are highly effective prevention measures that have been in place for many years.

Currently, there is no vaccine to prevent shigellosis. However, there are other steps individuals can take to help prevent the spread of shigellosis, including:

- Wash hands with soap carefully and frequently, especially after going to the bathroom, after changing diapers, and before preparing foods or beverages.
- Dispose of soiled diapers properly.
- Disinfect diaper changing areas after using them.
- Keep children with diarrhea out of child care settings.
- Supervise hand washing of toddlers and small children after they use the toilet.
- Do not prepare food for others while ill with diarrhea.
- Do not swim while ill with diarrhea.
- Avoid swallowing water from ponds, lakes, or untreated pools.

- If you are traveling, follow safe food and water habits and wash hands often with soap and water.
- Wait at least two weeks after diarrhea ends to engage in sexual activity.
- Frequent and careful hand washing is important among all age groups.

If a child in diapers has shigellosis, everyone who changes the child's diapers should be sure the diapers are disposed of properly in a closed-lid garbage can and should wash his or her hands and the child's hands carefully with soap and warm water immediately after changing the diapers. After use, the diaper changing area should be wiped down with a disinfectant such as diluted household bleach, Lysol, or bactericidal wipes. When possible, young children with a *Shigella* infection who are still in diapers should not be in contact with uninfected children.

Basic food safety precautions and disinfection of drinking water prevents shigellosis from food and water. However, people with shigellosis should not prepare food or drinks for others until they have been shown to no longer be carrying the *Shigella* bacterium, or if they have had no diarrhea for at least two days.

At swimming beaches, having enough bathrooms and hand washing stations with soap near the swimming area helps keep the water from becoming contaminated. Daycare centers should not provide water play areas.

Simple precautions taken while traveling can prevent shigellosis. Drink only treated or boiled water and eat only cooked hot foods or fruits you peel yourself. The same precautions prevent other types of traveler's diarrhea.

It is important for the public health department to know about cases of shigellosis. If many cases occur at the same time, it may mean that a restaurant, food, or water supply has a problem, which the public health department can help address. If a number of cases occur in a child care center, the public health department may need to coordinate efforts to improve hand washing among the staff, children, and their families. When a community-wide outbreak occurs, a community-wide approach to promote hand washing and basic hygiene among children can stop the outbreak.

**For more information, please visit these websites:**

- CDC Shigellosis: [www.cdc.gov/shigella](http://www.cdc.gov/shigella)

## SAMPLE LETTER TO PARENTS/GUARDIANS

Dear Parents/Guardians:

A case of shigellosis has occurred in your child's classroom. Shigellosis is a highly infectious diarrheal disease caused by a certain type of bacteria. The *Shigella* bacteria are present in the bowel movements of infected persons.

Persons become infected only by swallowing the bacteria. Spread occurs easily among groups of small children because of their close contact and lack of well-developed personal hygiene skills. Shigellosis usually begins about 1-7 days after the bacteria are swallowed. Frequent and thorough hand washing is helpful in preventing spread of shigellosis.

We have made arrangements with the Ohio Department of Health for free shigellosis screening of symptomatic children in his or her classroom. We urge you to take advantage of this opportunity because it will help prevent further spread of the illness in your household and at the school.

In order to find out if your child has shigellosis, please collect a stool specimen from your child, which will be submitted to the laboratory. The materials needed to do this are included with this letter. You should have a screw-capped tube partially filled with liquid.

### Directions:

- Make sure the patient information section on the side of the vial is completed.
- Pass the stool into a clean, dry, container such as a margarine tub, wide mouth jar, milk carton with the top cut off, or if available a bedpan.
- Use the collection spoon built into the lid of the vial to place small scoops of the stool into the vial until the contents of the vial rise to the "FILL LINE" on the vial label.
- For best results, select areas of the stool that appear bloody or watery. If the stool is formed (hard), sample small amounts from each end and the middle.
- When sufficient stool is added to raise the level to the "FILL LINE", replace and twist the cap onto the vial to tightly close.
- Once the cap is tight, shake the vial vigorously until the contents are well-mixed.
- Wash your hands thoroughly after collection of the specimen.
- Place the properly labeled vial into a zip-lock plastic specimen bag or other leak-proof container. Do not place the specimen paperwork unprotected within the same zip-lock bag or container with the vial to prevent contamination should the sample leak.
- Return the sample and paperwork immediately to your local health department or location as instructed when you were given the collection kit.
- Store and transport at room temperature.

A video can be found at the link below that reviews how to collect, package, and submit a stool specimen to your local health department for testing.

<https://www.youtube.com/watch?v=Cg5qrqeFFN8>

Thank you for your cooperation. If you have any questions, please contact (RN) at the (local) Health Department, (telephone number).

Sincerely,

\_\_\_\_\_ Child Care Center \_\_\_\_\_ Local Health Department