Shigellosis
Frequently Asked Questions

1. What is Shigellosis?

Shigellosis is a highly contagious diarrhoeal disease caused by a group of gram negative bacteria called *Shigella. Shigella* are a leading cause of childhood diarrhoea in resource-limited settings. There are 4 species of *Shigella: Shigella sonnei; Shigella flexneri, Shigella boydii* and *Shigella dysenteriae* which are further divided into serotypes and subserotypes. In South Africa, the predominant serotypes are S. sonnei and S. flexneri type 2a. *Shigella boydii* and *Shigella dysenteriae* are uncommon in South Africa. Globally, *Shigella* bacteria are increasingly becoming resistant (less responsive) to commonly used antimicrobial agents.

2. Who can get Shigellosis?

Anyone can get sick from *Shigella* infection; but shigellosis occurs predominantly in children aged 1-4 years residing in low- and middle-income countries. Other groups that may be at particular risk for shigellosis include travellers to areas with poor sanitation or hygiene systems, men who have sex with men, and persons with weakened immune systems (eg due to HIV or chemotherapy). Disease is easily transmitted from person-to-person, due to a low infectious dose (10 – 100 organisms). Outbreaks commonly occur in closed population settings, including institutions, long-term care facilities, day-care centres and primary/elementary schools. Acquiring *Shigella* infection during travel can introduce antimicrobial-resistant Shigella into new populations.

3. How is Shigellosis transmitted?

Humans are the only natural host for *Shigellae***.** Shigellosis is transmitted via the faecal-oral route. Person-to-person spread is the commonest mode of transmission. Infection and outbreaks can also be caused by contaminated food or water, and flies may transmit disease in settings of inadequate disposal of human stool (poop). ***S****higella* can spread easily because even a small number of bacteria can make a person sick
Shigellosis is caused by swallowing material contaminated with stool (poop) from someone infected with *Shigella.* People infected with *Shigella* can spread the infection to others for several weeks after their diarrhoea has stopped.
Some of the ways *Shigella* can get into your mouth include getting *Shigella* onto your hands then touching your mouth, or eating food prepared by someone infected with *Shigella;* swallowing drinking water contaminated by sewerage or by flood water; swallowing recreational water (e.g. lake water or swimming pool water) that has not been properly chlorinated, or exposure to stool (poop) or soiled fingers during sexual contact with someone infected with or recently recovered from shigellosis. Shigella can get onto your hands when changing a nappy of a child with *Shigella* infection, taking care of a person with *Shigella* infection including cleaning up after they use the toilet, or touching surfaces (e.g. toys or bathroom taps) that have been contaminated by *Shigella* bacteria from an infected person.

4. What are the signs and symptoms of Shigellosis in humans?

Following an incubation period of one to four days, infection with *Shigella* can result in a range of disease from asymptomatic infection to severe bloody diarrhoea. Fever, headache, malaise and vomiting are often the initial symptoms, followed by the onset of watery diarrhoea (indicating invasive infection of the small bowel). Most illnesses in otherwise healthy individuals are mild, and people recover approximately within 7 days. In some cases, the infection progresses to involve the colon, resulting in diarrhoea with bloody mucoid stools, abdominal cramps and tenesmus (a repeated, painful urge to pass stool without excreting stool).

5. How is Shigellosis diagnosed?

Shigella infection is diagnosed when the laboratory identifies *Shigella* in the stool (poop) of a sick person. The test could be a culture that isolates (grows) the bacteria or a rapid diagnostic test that detects genetic material of the bacteria. Laboratory tests on the cultured bacteria can help to identify the antibiotics that are likely to work against the infection.

6. How is Shigellosis treated?

Most people with shigellosis get better without antibiotic treatment within 5 to 7 days. Mild cases may only require fluids and rest. All patients with diarrhoea should drink plenty of fluids to prevent dehydration. People infected with bloody diarrhoea should NOT use anti-diarrhoeal medications such as loperamide (eg Imodium). Healthcare providers may prescribe antibiotics for patients with bloody diarrhoea and severe shigellosis to help them get better faster and reduce the risk of serious complications. Some antibiotics may not work against certain types of *Shigella* because of antimicrobial resistance. Laboratory tests can help the healthcare provider to identify the antibiotics are likely to work.

7. What are the possible complications of Shigellosis?

Shigellosis is usually self-limiting, but severe disease may be associated with complications including dehydration, seizures in infants and young children, encephalopathy, and occasional focal infections such as meningitis, osteomyelitis or vaginitis. Blood stream infections are rare in otherwise healthy patients and occurs most commonly in young or malnourished infants and children or people with weakened immune systems. *Shigella flexneri* infections may cause a reactive arthritis in patient with genetic susceptibility; while haemolytic uraemic syndrome can be associated with infection by Shiga toxin-producing strains of *Shigella.* Intestinal complications are uncommon but usually severe, including rectal prolapse, intestinal obstruction, toxic megacolon and perforation; these are seen more frequently in S. *dysenteriae* type 1 infections. In high income settings, *shigella* infections have been linked to irritable bowel syndrome in adults. In young children repeated infections can result in malnutrition and stunting, causing long term adverse effects on physical and cognitive development.

8. How can Shigellosis be prevented?

There is currently no licenced vaccine for *Shigella*. Several candidate vaccines are being evaluated. The main preventive measure is to always ensure that good basic hygiene is followed. This includes:

- Frequent handwashing with soap and water especially before preparing food, before eating, after using the toilet or after changing a diaper or helping to clean another person who has pooped and when travelling internationally
- Strict adherence to standard food and water safety precautions such as washing of fruits and vegetables.
- In the event of an outbreak, cleaning of exposed surfaces e.g. outside of toilets, basins, kitchen counters etc and fomites (e.g. cloths, towels, soiled clothing) is mandatory in controlling the spread of infection.
- Try not to swallow water from ponds, lakes or untreated swimming pools
- Avoid having sex for one week after your partner recovers from diarrhoea
- Stay at home from childcare, school or food service facilities when sick
- Don't prepare food for other people when you are sick
- Avoid swimming until you are fully recovered

9. Where can I find out more information

For the public:

US Centre for Disease Prevention and Control. Available at https://www.cdc.gov/shigella/index.html

US Centre for Disease Prevention and Control. Shigella- Shigellosis. Information for specific groups. Available at**: https://www.cdc.gov/shigella/shigella-toolkit.html**

For Healthcare professionals:

- Medical / clinical related queries: NICD Hotline +27 800 212 552
- Results inquiries: NICD Specimen Receiving Laboratory: +27 11 386 6404.
- Contact the Outbreak Response Unit (Outbreak@nicd.ac.za)
- US Centres for Disease Prevention and Control. March 2021. *Shigella* Prevention and Control Toolkit**.** Available at**: https://www.cdc.gov/shigella/shigella-toolkit.html**
- US Centres for Disease Prevention and Control. Shigella- Shigellosis. Information for specific groups. Available at**: https://www.cdc.gov/shigella/shigella-toolkit.html**
- (includes information for food service workers and managers)
- World Health Organization. 2005. Guidelines for the control of shigellosis, including epidemics due to Shigella dysenteriae type 1. Available at: https://apps.who.int/iris/handle/10665/43252