Shigella

Shigellosis is a Class B Disease and must be reported to the state within one business day.

Shigellosis or bacterial dysentery is an acute infectious enteritis of humans caused by organisms of the *Shigella* bacterial genus.

Epidemiology

Shigella organisms have a human reservoir and are transmitted via the fecal-oral route. Person-to-person transmission is the most frequent mode of transmission, though less commonly, outbreaks may result from contaminated food or water. Foodborne outbreaks are usually traced to infected food handlers, and are associated with food eaten raw or handled after preparation.

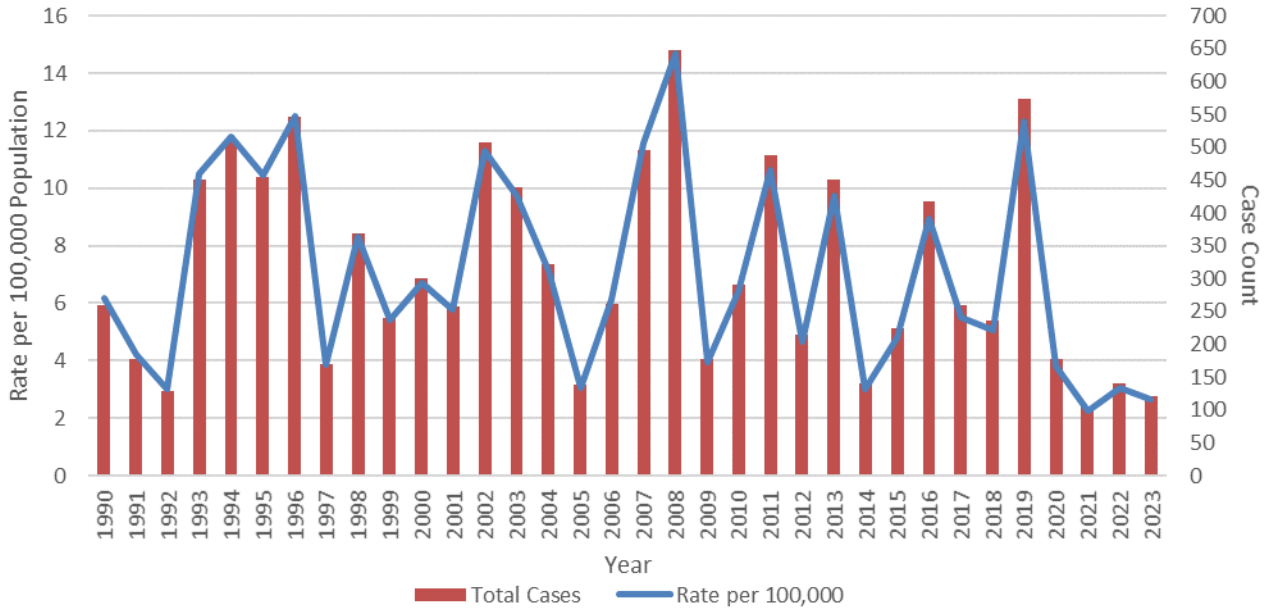
Ninety-nine percent of *Shigella* isolates received by the Louisiana Public Health Laboratory are derived from stools. Stool concentration in infected individuals may be very high, with anywhere from 100,000 to 100 million *Shigella* organisms per gram of feces. *Shigella* has a low infectious dose; ten to 100 organisms may cause illness. The communicable period includes the duration of a person's symptomatic illness up to a variable time (up to four weeks) after the person has recovered from the infection. The incubation period of shigellosis is usually one to three days, with a range of 12 hours to four days. Long-term carriage of *Shigella* is rare in industrialized countries.

Shigellosis can spread easily among closed or crowded populations, especially where close contact is common. Outbreaks have been reported in military barracks, cruise ships, long-term care facilities and child care settings. Shigellosis has become a significant problem in child care centers and can spread to household contacts. Secondary attack rates in household contacts range from 10% to 40%. Attack rates are higher in younger children than in adults. Additionally, individuals at increased risk for *Shigella* infection include travelers to areas with poor sanitation, gay, bisexual, and other men who have sex with men, and people experiencing homelessness.

Incidence

In 2023, the CDC reported national incidence rates of *Shigella* to be 6.2 cases per 100,000 population. Louisiana reported a significantly lower incidence rate of 2.67 cases per 100,000 population, with 122 cases reported in 2023 (Figure 1).

Figure 1: Shigellosis Cases and Incidence Rates - Louisiana, 1990-2023



The number of reported cases in 2005 was notably low, likely due to disruptions in disease surveillance following Hurricane Katrina. A similar dip in cases appears in 2020, likely due to the COVID-19 pandemic shifting public health resources and contributing to underreporting.

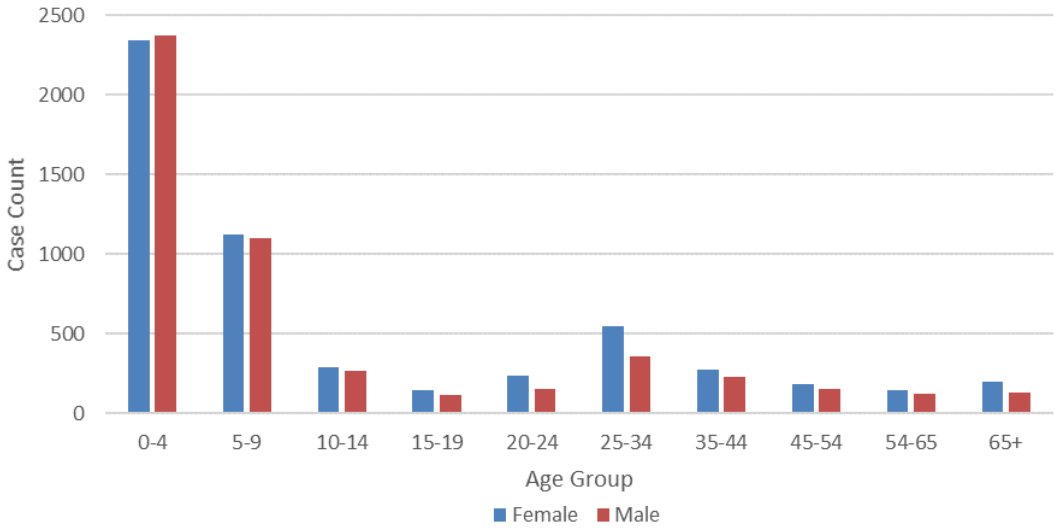
Shigella is divided into four major O antigenic groups:
S. dysenteriae,
S. flexneri,
S. boydii, and
S. sonnei.

Very large epidemics of *S. dysenteriae* with high morbidity and mortality were common before World War I. In 1920, *S. flexneri* progressively became the most common *Shigella*. After World War II, *S. sonnei* replaced *S. flexneri* in industrialized nations while *S. flexneri* remained predominant in the developing world. In the United States, *S. sonnei* accounts for over 90% of cases (Figure 2).

Age Group Distribution

Endemic shigellosis appears during infancy and becomes more common among toddlers and young children. In Louisiana, as in the rest of the U.S., children younger than 10 years of age show the highest incidence rate of shigellosis (Figure 3). Additionally, there is no observed difference in incidence rates of shigellosis among males and females.

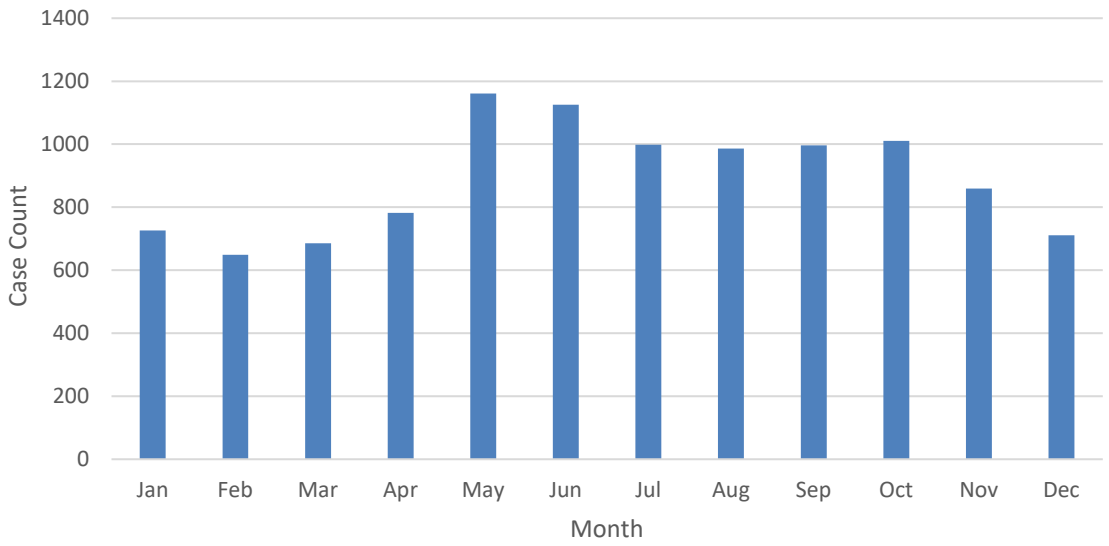
Figure 3: Shigellosis Incidence Rates by Age - Louisiana, 1990-2023



Seasonal Distribution

Shigella cases are reported throughout the year. There is an increase in the number of cases in the summer months (Figure 4).

Figure 4: Shigellosis Cases by Month - Louisiana, 1990-2023


1400
1200
1000
800
600
400
200
0
Case Count
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month