Cryptosporidiosis

Cryptosporidiosis is a Class C Disease and must be reported to the state within five business days.

Cryptosporidiosis is a parasitic disease of public health importance, causing gastro-intestinal disease and, in more severe cases, pulmonary disease. The CDC estimates that there are approximately 748,000 cases of Cryptosporidiosis in the United States, and only a small fraction are detected and reported. Annual incidence rates for the disease have been rising. Higher incidence rates may be related to more comprehensive diagnostic testing with the increase in use of gastro-intestinal panels.

Members of the *Cryptosporidium* genus, protozoan obligate intracellular organisms, are the causative agents. *Cryptosporidium* has been found in a variety of hosts, including mammals, birds and reptiles. The two species that most commonly affect humans are *C. parvum* and *C. hominis*.

Cryptosporidium may be found in drinking and recreational waters in all regions of the U.S. and throughout the world. *Cryptosporidium* theoretically can also be found on any food touched by a contaminated food handler. In humans, infection is sporadic with cases usually occurring either from the consumption of contaminated water or from exposure in daycare centers.

Oocysts, the infectious stage, appear in stool at the onset of symptoms and are infectious immediately upon excretion. Diagnosis is traditionally made by the identification of oocysts in feces. *Cryptosporidium* oocysts are resistant to most chemical disinfectants but are sensitive to ultraviolet radiation and desiccation. The oocysts are approximately three micrometers in diameter and may penetrate some larger pore filters.

Although the disease is often self-limiting, in immune-deficient individuals (especially those patients with CD4 counts greater than 200 per microliter), the disease can be more severe and persistent, leading to an increase of reporting from populations with immunocompromised individuals.

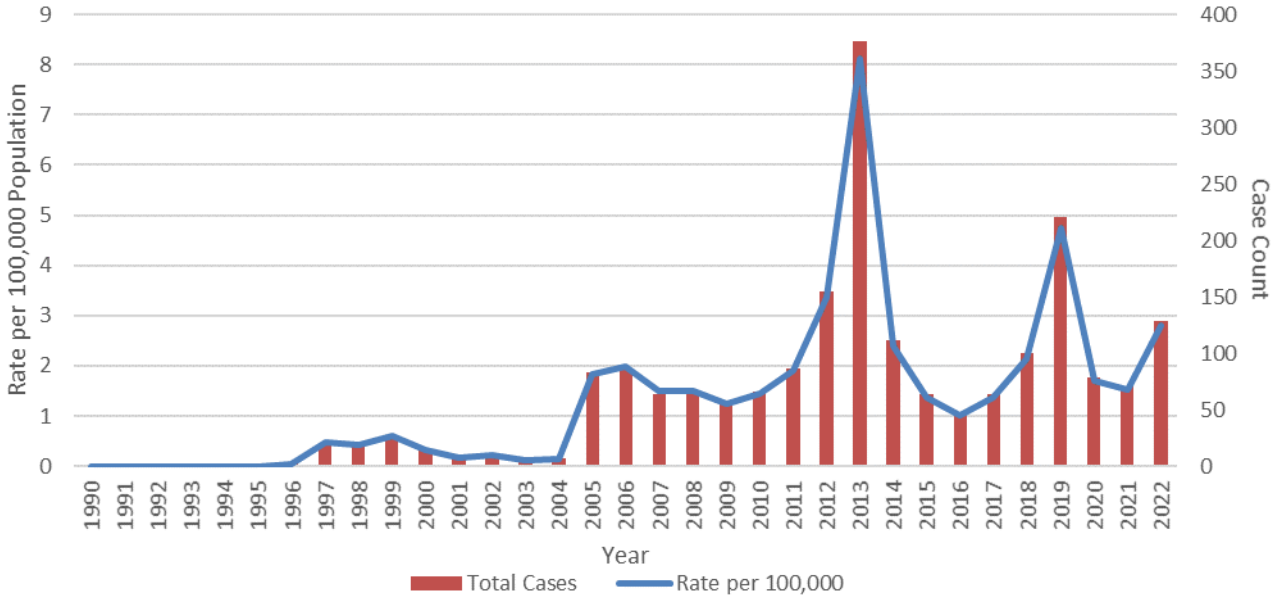
Numbers, Rates and Trends

From 1996 to 2020, Louisiana rates of cryptosporidiosis ranged from 0.05 to 8.19 cases per 100,000 population. The small rate of reported cases in earlier years is attributed to lack of testing and reporting. There was an increase in the number of cases reported to OPH in 2005 and 2006 partially due to two outbreaks, described further below.

Post 2006, the number of cases remained higher than years prior to 2005. The peak in 2019 was due to several small clusters throughout the state. Other reasons for the upswing involve an increase in laboratory diagnostic testing and diagnosis of *Cryptosporidium* in addition to an increase in the reporting of cryptosporidiosis.

In 2020 and 2021, there was a large decrease in the number of cases reported due to the COVID-19 pandemic. During the COVID-19 pandemic, there was a decrease in reporting of non-COVID-19 diseases due to individuals being less likely to seek care for non-COVID-19 illnesses, providers testing for fewer diseases, and many individuals not congregating or being exposed to other illnesses in general (Figure 1).

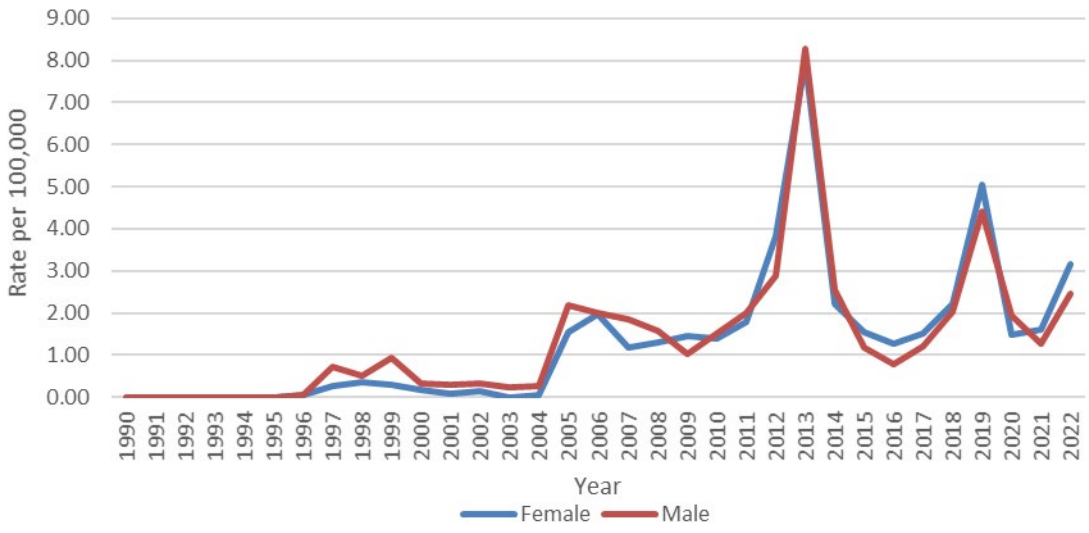
Figure 1: Cryptosporidiosis Rate per 100,000 Population and Case Count, Louisiana: 1996-2022



Sex

The average rate of reported cryptosporidiosis cases for males and females have been similar since 1996 (Figure 2).

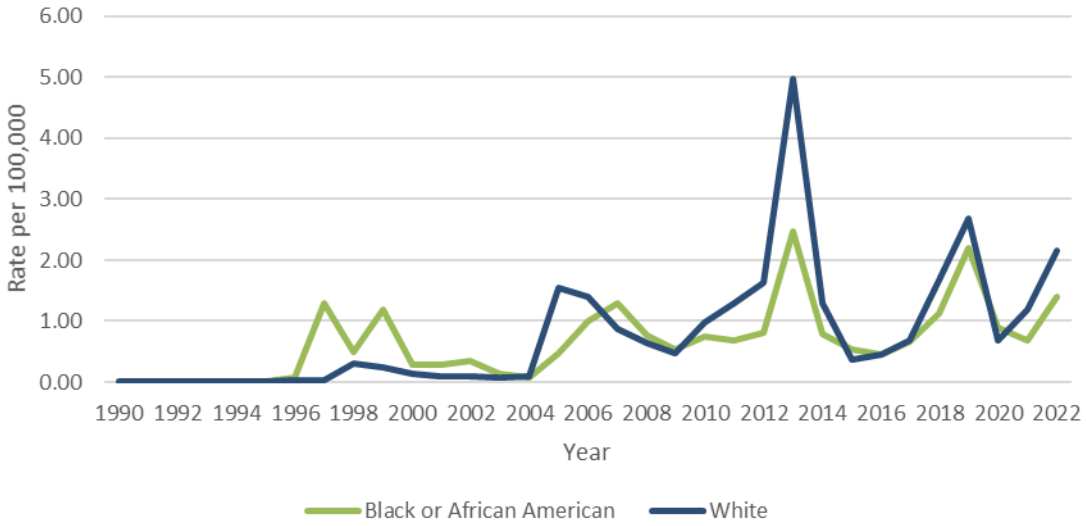
Figure 2: Cryptosporidiosis Rate per 100,000 Population by Sex, Louisiana: 1996-2022



Race

Rates based on race are underestimates of real rates since a proportion of cases do not have race reported (Figure 3).

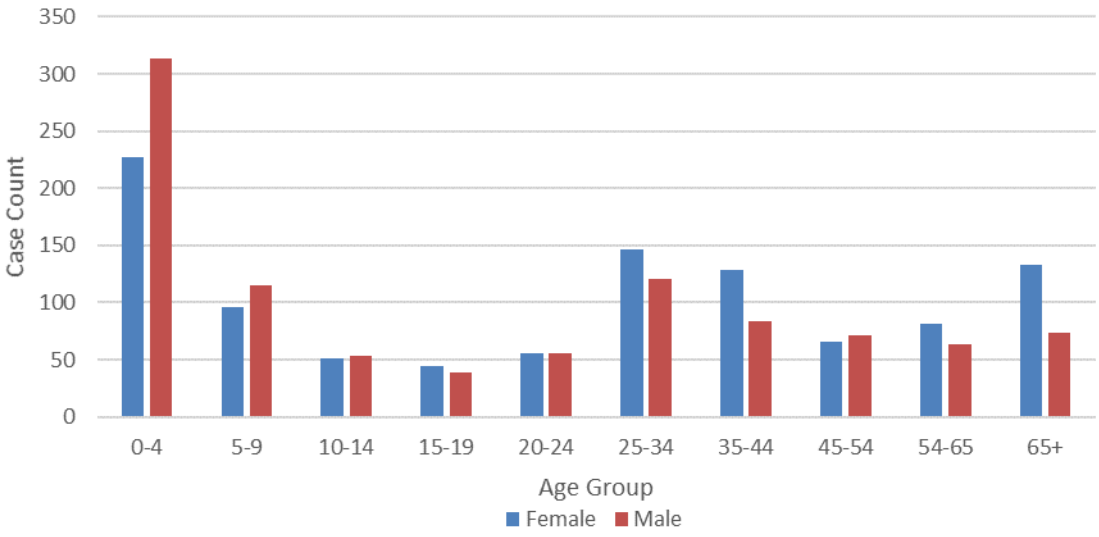
Figure 3: Cryptosporidiosis Rate per 100,000 Population by Race, Louisiana: 1996-2022



Age

The highest number of cases of cryptosporidiosis were reported among very young children, newborn to four years of age (Figure 4).

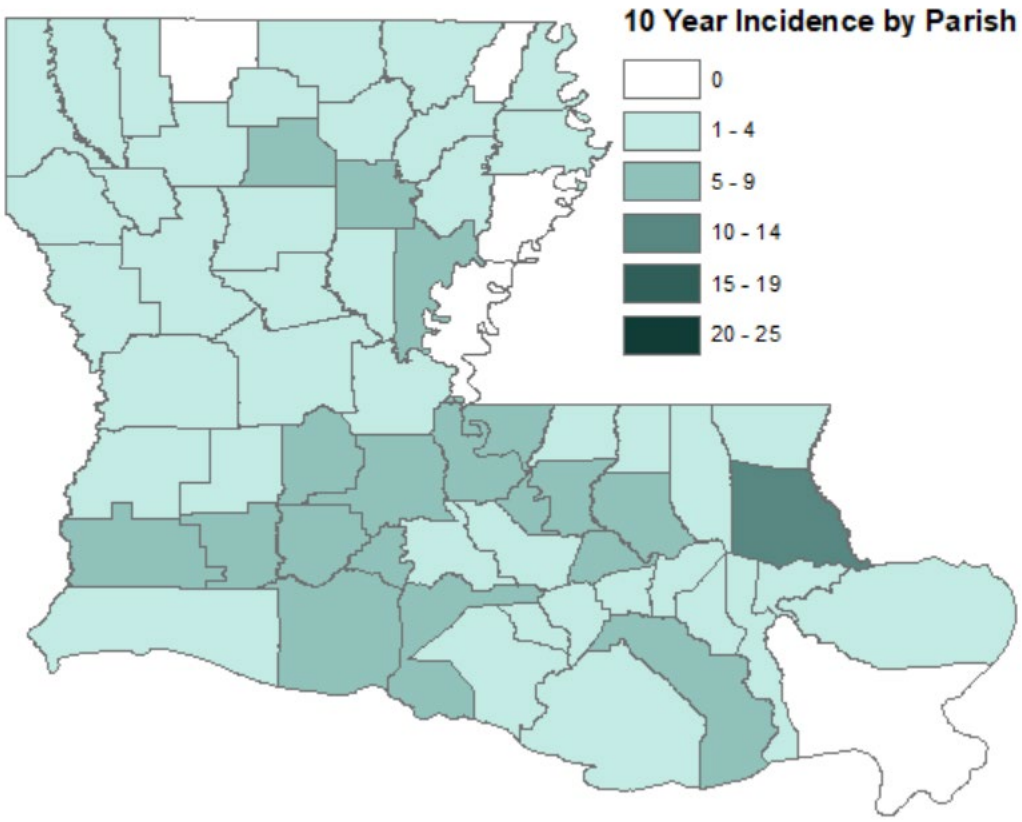
Figure 4: Cryptosporidiosis Case Count by Age Group and Sex, Louisiana: 1996-2022



Geography

The highest incidence rates of Cryptosporidiosis were among the following Louisiana parishes: Lafayette, Ascension, Iberia, Lafourche, Tangipahoa, and Livingston (Figure 5).

Figure 5: Cryptosporidiosis 10 Year Incidence by Parish, Louisiana: 2013-2022



Outbreaks

2005 Outbreak

In August 2005, the Louisiana OPH was contacted by a concerned parent reporting severe diarrheal illness in her two-year old child. The parent suggested the child may have contracted the illness while playing at the water-splash playground of a local municipal park. Several additional children that had been at the playground were also reported ill. The children were diagnosed with laboratory-confirmed cryptosporidiosis. In total, 31 cases were considered part of the outbreak. All but two were children, with an average age of seven years.

It was determined that the event most likely resulted from a fecal accident on the splash play-ground. Even though a report of such an accident was not obtained, it is almost certain that the water-splash grounds were contaminated with fecal material of either a pet that strayed onto the grounds or from an already sick child (possibly one of the smaller children in diapers). The park was thoroughly disinfected and reopened shortly after.

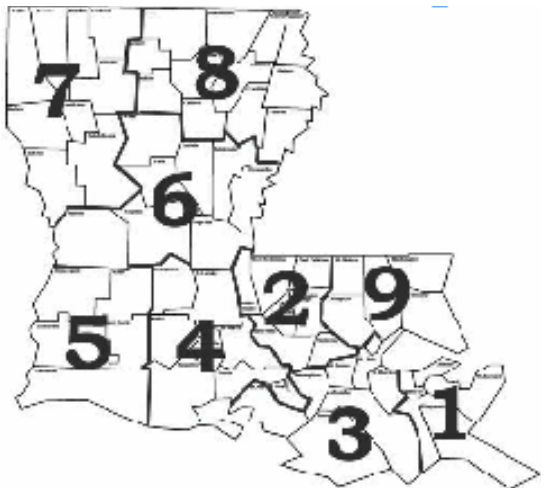
2006 Outbreak

From July to August 2006, 35 laboratory-confirmed cases of cryptosporidiosis were reported in the greater Baton Rouge area. An additional 38 probable cases (not included in the total of confirmed cases) were identified. After an epidemiologic investigation, it was determined that this outbreak was linked to attendance at a water park in the area. The average age of affected persons was 10.8 years with a range of one year through 66 years of age.

2013 Outbreak

Compared to previous years, there was a significant increase in reported cases of cryptosporidiosis in 2013 starting in mid-July and lasting until December. Most of the cases were residing in OPH regions 2, 4 and 9 (Figure 6).

Figure 6: Louisiana Department of Health Regional Map



A case control study was performed from August to September, 2013. It was found that over 50% of Cryptosporidiosis cases reported exposure to surface or recreational water in the two weeks prior to onset compared to 20% of controls. Those having a diagnosis with Cryptosporidiosis were five times more likely to have been exposed to surface or recreational water prior to onset compared to those without a diagnosis of Cryptosporidiosis.

Although water exposure was significantly associated with illness, this does not appear to be a point source outbreak, but a continuous community outbreak involving multiple water venues including public and private recreational water venues. Because Cryptosporidium is resistant to chlorine, the following recommendations were made:

- Avoid swimming in pools, splash parks, and other recreational water facilities until two weeks after cessation of diarrhea.
- Change diapers in the bathroom, not at the poolside.
- Wash children thoroughly (especially their bottoms) with soap and water after they use the toilet, or after their diapers are changed and before they enter the water; shower before entering the water.