

Rotavirus

Rotavirus is not a reportable disease in Louisiana. Data on surveillance is completely based on hospitalization reports.

Epidemiology

Rotaviruses are the most common cause of severe gastroenteritis in infants and young children in the United States. Group A rotavirus infects more than ninety percent of children worldwide by the age of three. Rotaviruses are non-enveloped, RNA viruses belonging to the family Reoviridae. The clinical manifestations of the illness range from mild, watery diarrhea of limited duration to severe, dehydrating diarrhea with vomiting and fever, which can result in death. Severe illness occurs primarily among children aged three months to thirty-five months. Diarrheal illnesses are not typically tested diagnostically due to their widespread and self-limiting nature. Treatment is generally supportive.

Rotaviruses are transmitted fecal-orally and infected children shed rotavirus in high concentrations in their stools. Therefore, day care centers are often common sites for widespread infections. Rotaviruses are also an important cause of nosocomial gastroenteritis and they may also be spread by respiratory droplets. Although the role of rotavirus in diarrhea outbreaks in adults has not been well studied, there have been documented outbreaks occurring in hospitals, nursing homes, isolated communities and in travelers. Parents of children infected with rotavirus have been reported to experience acute gastroenteritis as well. In the United States, rotavirus transmission exhibits seasonal patterns and infection rates are particularly high between November to May each year.

Limited data has shown that children from disadvantaged socioeconomic backgrounds and premature infants are at an increased risk for hospitalization from diarrheal disease, including rotavirus diarrhea. Immunocompromised persons may experience more severe, prolonged and sometimes fatal rotavirus diarrhea as well.

Hospitalization Surveillance

Hospitalization surveillance is based on the Louisiana Inpatient Hospital Discharge Data (LaHIDD). In 1997, the Louisiana legislature mandated the reporting of hospital discharge data. LaHIDD serves as the state registry containing hospital discharge data submitted to the Department of Health and Hospitals (DHH). The Office of Public Health (OPH) is responsible for making the data available to OPH sections as needed. The data is available with a delay of two years. The Infectious Disease Epidemiology Section uses these data sets for the surveillance of infectious diseases in hospitals. LaHIDD data sets contain demographic information (names, gender, age, date of birth, address, admit diagnosis, discharge diagnoses (main plus eight more

diagnoses), procedures (main plus five), charges, length of stay and hospital name. The diagnoses and procedures are coded with ICD-9 codes. Repeat hospitalizations are not included. The data are based on the years 1999 to 2007.

Records of patients with Rotavirus were extracted using the following ICD9 codes whether in the main diagnosis or in the eight additional secondary diagnoses.

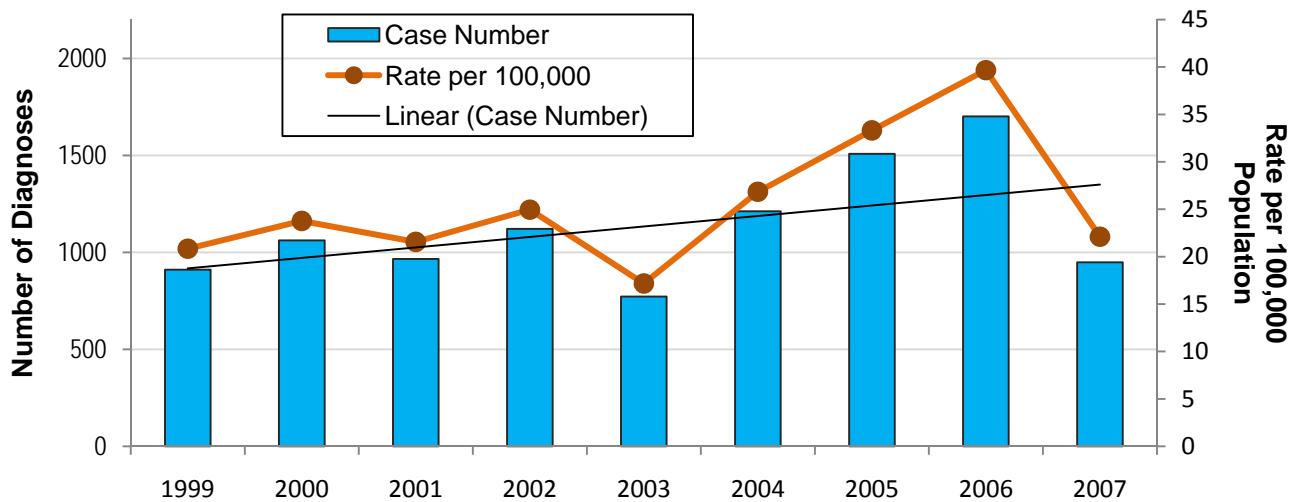
CODE DISEASE

00861 ENTERITIS DUE TO ROTAVIRUS

Rotavirus-Associated Hospitalizations

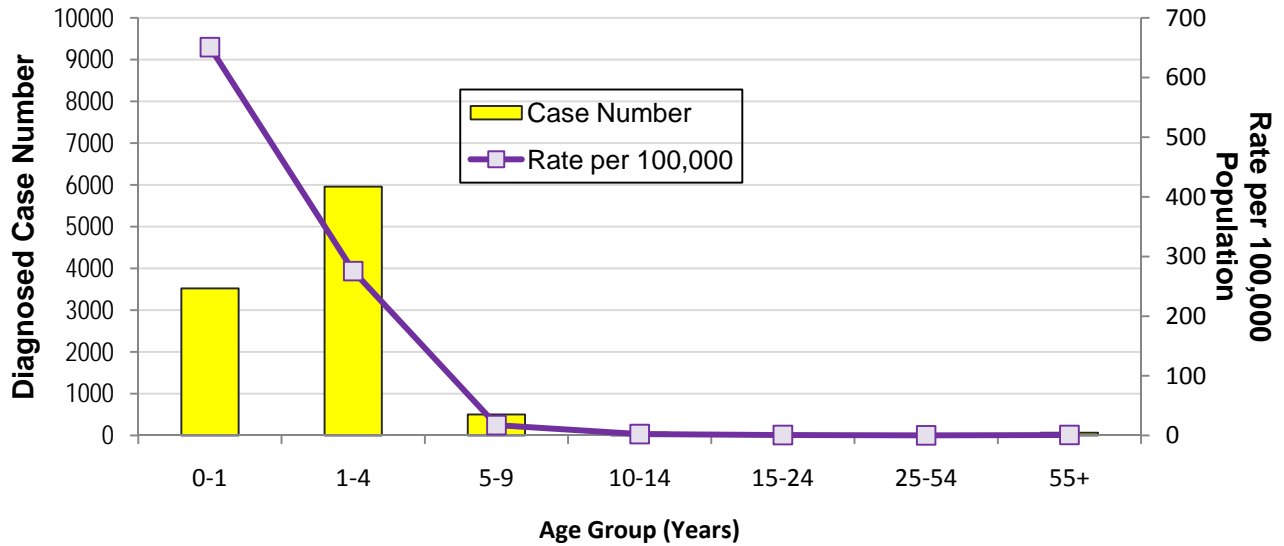
The following statistics are based on unduplicated patients. There have been approximately 1,000 to 1,500 diagnosed cases of rotavirus per year among hospitalized patients between 1999 and 2007. The rate of cases has been increasing. (Figure 1)

Figure 1: Incidence of rotaviral infections among hospitalized patients – Louisiana, 1999-2007



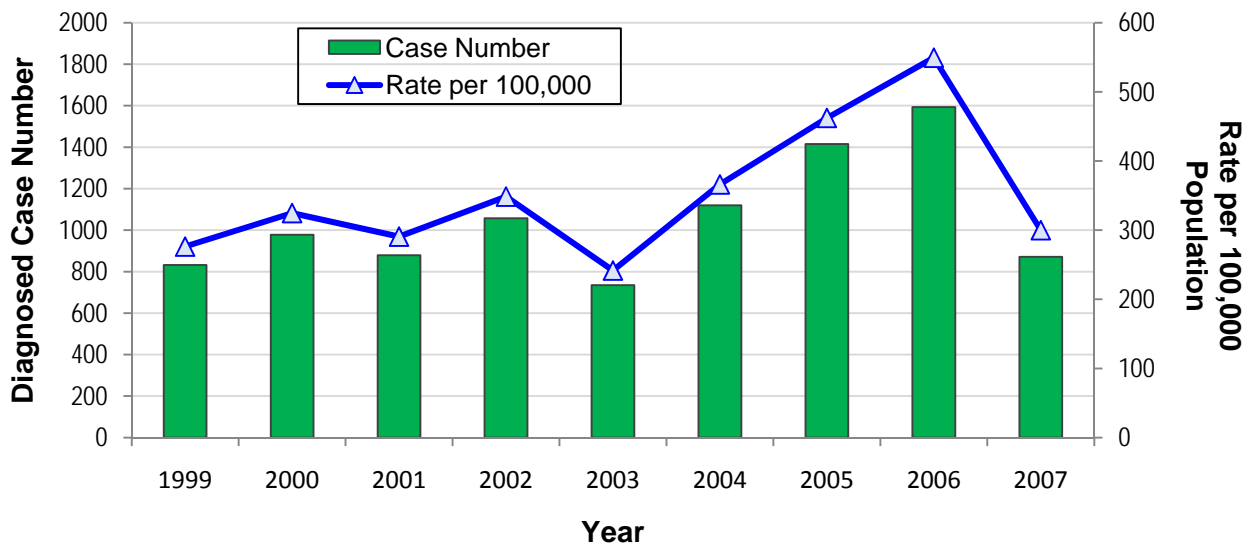
Young children are the most vulnerable for acquiring more severe cases of enteric disease and rotavirus is a prime example. Children aged newborn to one year of age constitute thirty-five percent of all diagnosed cases of rotavirus between 1999 and 2007 in Louisiana; children one to four years of age accounted for fifty-eight percent of all diagnosed cases. (Figure 2)

Figure 2: Diagnosed cases among hospitalized patients, by age group – Louisiana, 1999-2007



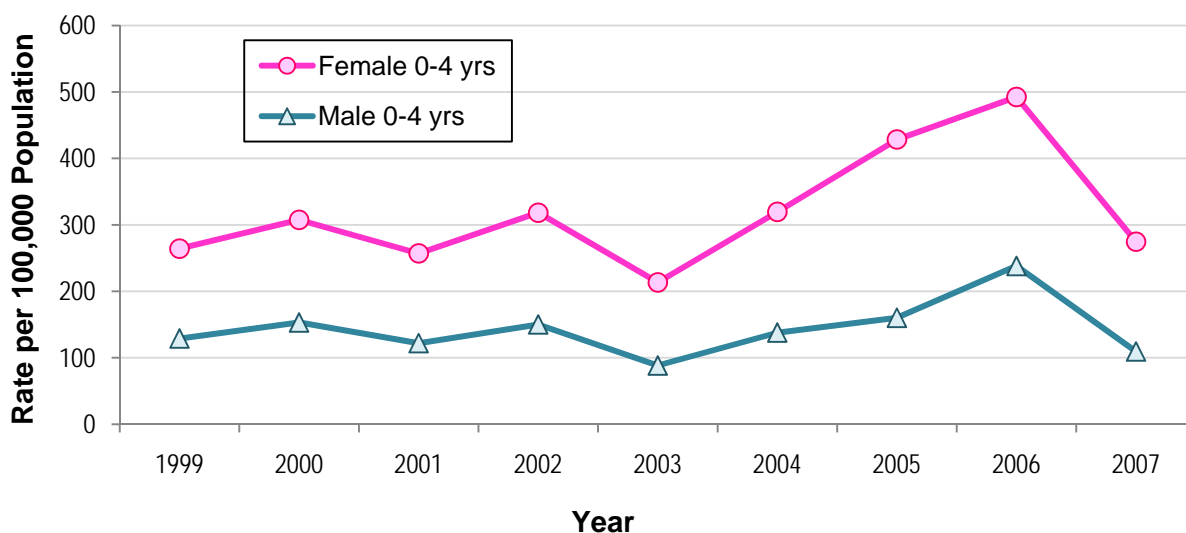
There was a yearly average of 1050 diagnosed cases of rotavirus among children in the newborn to four year old age group between 1999 and 2007 in Louisiana and an average rate of 350 cases per 100,000 population per year. Among persons aged five years and older, the average number of diagnosed cases was eighty per year with an average rate of two cases per 100,000 population per year. (Figure 3)

Figure 3: Yearly trend of diagnosed cases of rotavirus among patients in high-risk age group (0-4 years) – Louisiana, 1999-2007



Although both genders have experienced similar trends of rotavirus diagnoses, the incidence rates for females is almost twice as high as rates for males in the newborn to four year-old age group. Females account for seventy percent of the cases in this age group. There is an average yearly incidence rate of 320 and 140 cases per 100,000 population for females and males, respectively. (Figure 4)

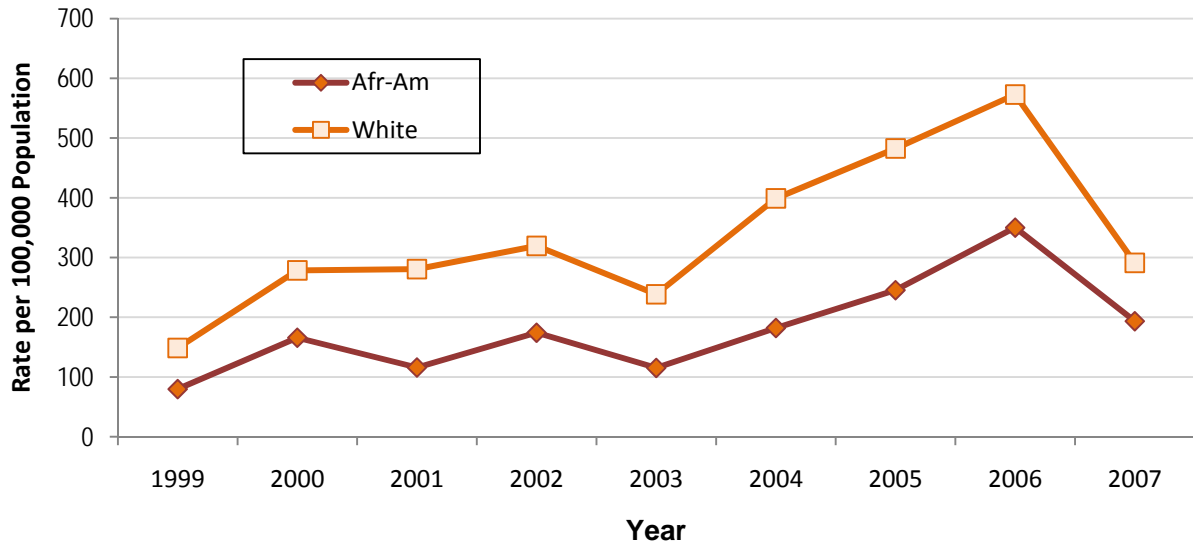
Figure 4: Yearly trend of rotavirus diagnoses among patients aged newborn to four years, by gender - Louisiana, 1999-2007



In comparison, the average yearly incidence rates in the five year and older age group are two cases per 100,000 population for both females and males; there is no significant gender difference in this age group.

Rotavirus diagnoses among White patients and African-American patients have relatively followed the same trend during the 1999 to 2007 period. However, there have been a greater number of diagnoses among White patients than African-Americans, which may be due to differences in the ease of access to health care services. (Figure 5)

Figure 5: Yearly trend of rotavirus diagnoses among patients aged newborn to four years, by race – Louisiana, 1999-2007



The majority of hospitalized patients with rotaviral infections were as primary diagnoses; fifty-six percent of primary diagnoses were specified as rotaviral infections and an additional twenty-nine percent of primary diagnoses were related (volume depletion and dehydration). The remaining primary diagnoses were due to other various conditions and infections.

Mortality

Deaths due to rotavirus are relatively uncommon in Louisiana. Out of 10,200 diagnosed cases of rotavirus between 1999 and 2007, there were four deaths; two of these cases had primary diagnoses other than rotavirus infection.