Pertussis

Pertussis is a Class A Disease and must be reported to the state within 24 hours.

Pertussis (Whooping Cough) is an acute bacterial disease caused by *Bordetella pertussis*. Humans are the only known host. Pertussis is highly contagious.

Pertussis often characterized by intense coughing fits, and sometimes followed by vomiting or a "whooping" sound when breathing in. Pertussis can also present as a mild to moderate cough illness in individuals who have been vaccinated. In the U.S., infants under one year old are most likely to be hospitalized or die from pertussis, but pertussis can still cause serious complications in other age groups.
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Pertussis is a vaccine-preventable disease. Since the 1940s, infant and childhood vaccination in the U.S. has led to a more than 90% reduction in pertussis-related illness and death. Childhood vaccination rates have remained high, with over 90% of children receiving at least three doses of a pertussis-containing vaccine since 1994. Universal childhood vaccination is strongly recommended to protect against severe disease, particularly in infants. Despite widespread vaccination, there has been an increasing trend in reported pertussis cases in the United States. Pertussis is an epidemic disease often exhibiting increased incidence in three to five year cycles. While immunization has not eliminated these natural cycles, it has dramatically reduced the total number of cases and the severity of illness. This suggest that immunization controlled the disease, but not the transmission of infection in the human population.

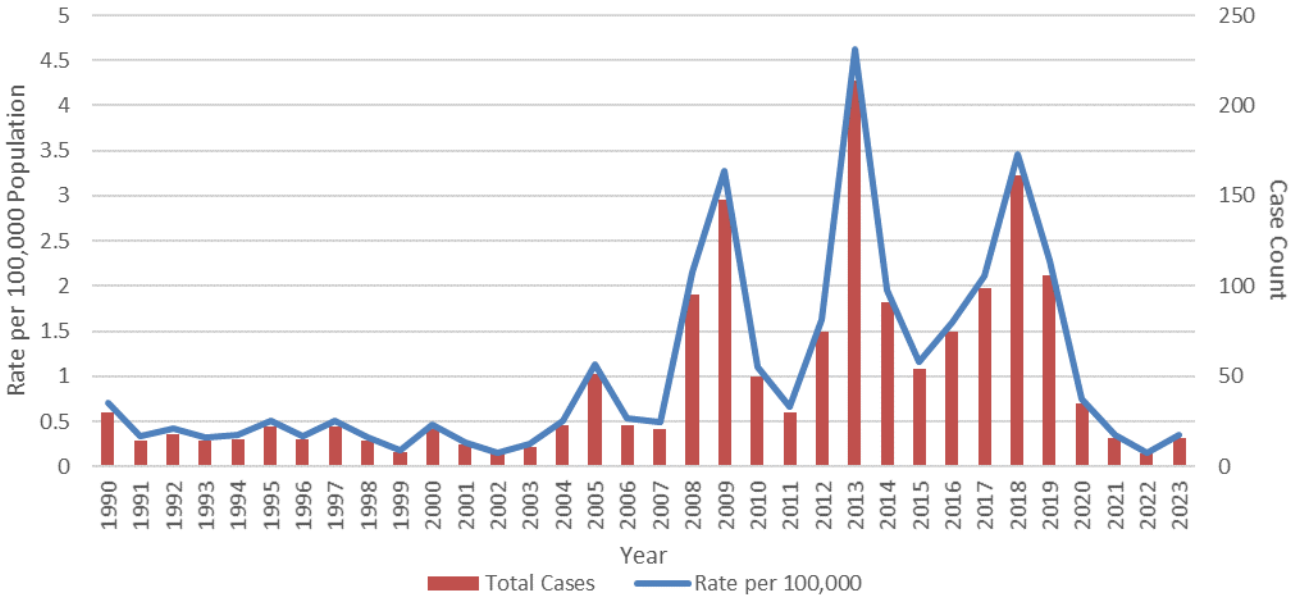
Recent studies support the hypothesis that pertussis infection is very common among adults. IgA antibodies to pertussis antigens are only produced after a natural infection and not after immunization. Prevalence studies of IgA antibodies show similar rates among adults in countries with generalized immunization (U.S.), and in countries with no systematic pertussis immunization (Germany in the 1970s).

Case, Rates and Trends

In the U.S. during the 1960s and 1970s, reported pertussis cases followed the expected cyclical pattern of peaks and declines. Cases reached their lowest levels in the late 1980s and 1990s but began rising steadily in the 2000s. A significant increase has been observed among adolescents, who become susceptible to pertussis again about six to ten years after childhood vaccination. More recently, booster vaccines for adolescents and adults combining pertussis antigens with tetanus and diphtheria toxoids (Tdap) were approved by the Food and Drug Administration (FDA). The Tdap is currently recommended for 11 to 12-year olds, with an additional dose administered every ten years thereafter to boost immunity.

For the past 20 years in Louisiana, pertussis cases have peaked every 4 to 5 years, with reported highs of 148 cases in 2009, 218 cases in 2013, and 161 cases in 2018 (Figure 1).

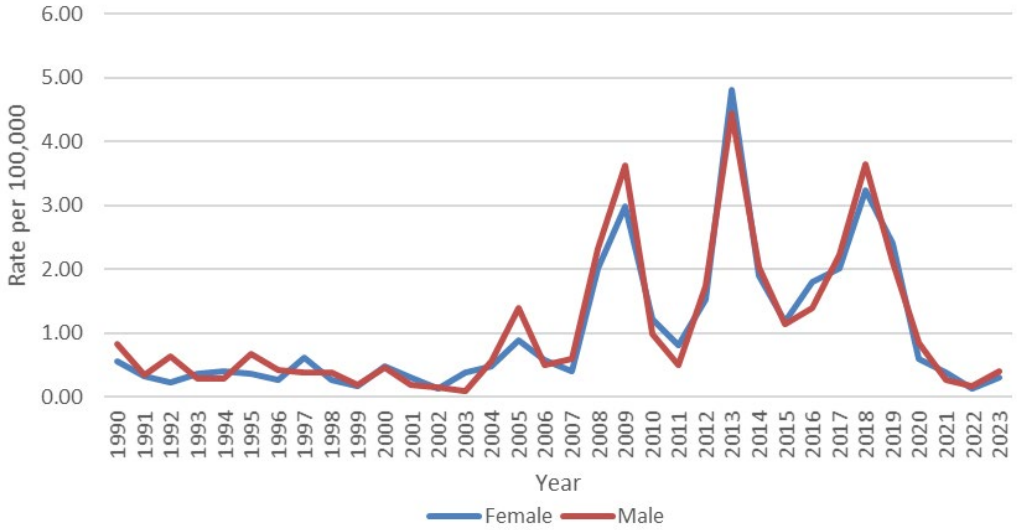
Figure 1: Pertussis Cases and Incidence Rates - Louisiana, 1990-2023



Sex, Age group and Race Distribution

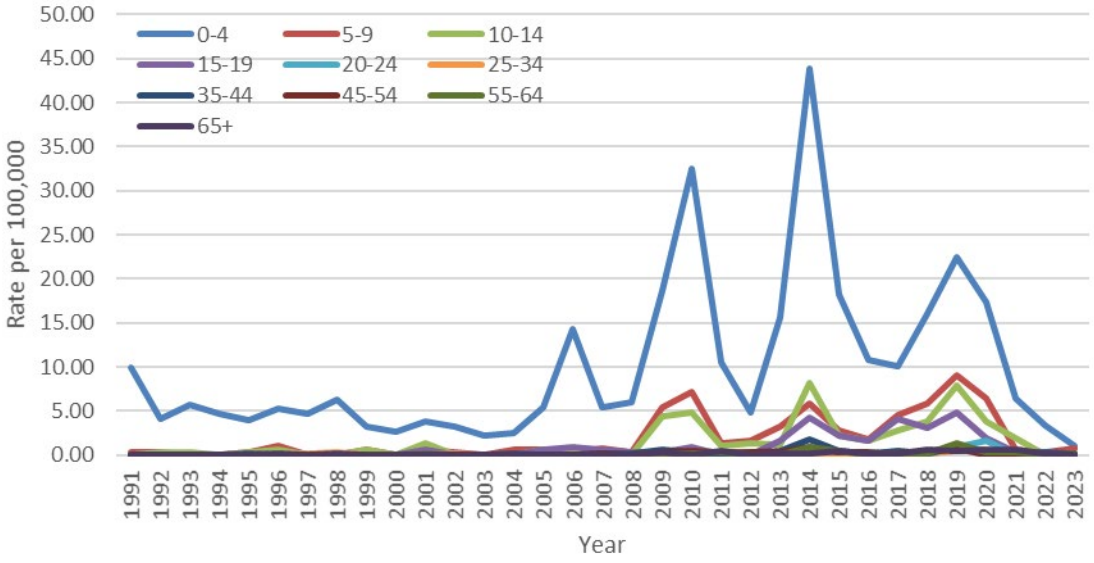
There is no significant difference of pertussis cases between males and females (Figure 2).

Figure 2: Pertussis Annual Incidence Rates by Gender – Louisiana 1990 - 2023



The age group distribution shows that pertussis mostly affects infants (newborns to one year of age) and young children, while cases in teens and adults are less common (Figure 3). However, in recent years there has been a slight increase in adult cases. Since symptoms in adults are usually mild, many cases go undiagnosed and are underreported.

Figure 3: Pertussis Incidence Rates by Age Group - Louisiana, 1991-2023



The racial distribution shows that in recent years, pertussis rates have been slightly higher among White people compared to Black people (Figure 4).

Figure 4: Pertussis Average Incidence Rates by Race - Louisiana, 1990-2023