

## Pertussis

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

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

It is characterized by paroxysmal cough, post-tussive vomiting and inspiratory whoop. Pertussis also can occur as a mild or moderate cough illness in persons who are partially immune. In the U.S., most hospitalizations and nearly all deaths from pertussis are reported in infants younger than six months of age, but substantial morbidity does occur in other age groups.

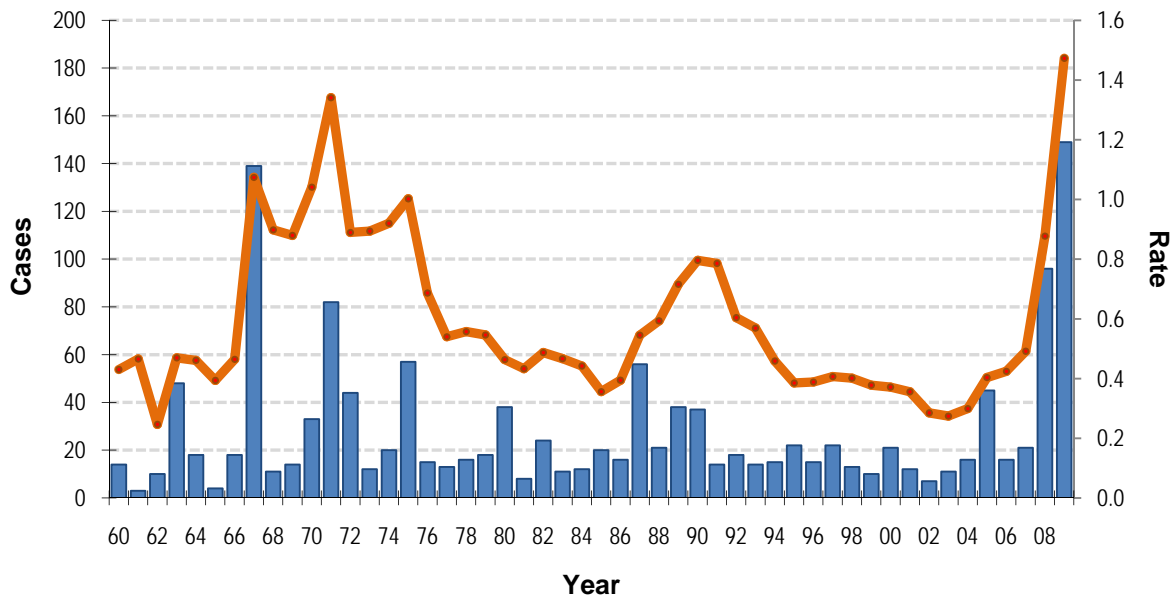
Pertussis is vaccine-preventable. Infant/childhood vaccination has contributed to a reduction of more than 90% in pertussis-related morbidity and mortality since the early 1940s in the United States. Estimates of childhood vaccination coverage with more than three doses of pertussis-containing vaccine have exceeded 90% since 1994. Pertussis is the only disease for which universal childhood vaccination is recommended, that has an increasing trend in reported cases in the United States. Pertussis is an epidemic disease with two- to five-year cycles. Immunization reduced the total number of cases but did not change the cycles, suggesting that immunization controlled the disease but not the propagation 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.) or in countries with no systematic pertussis immunization (Germany in the 1970's).

### Case, Rates and Trends

In the 1960's and 1970's pertussis showed the expected peaks and troughs in the United States. Reported pertussis cases reached a low in the late 1980's and 1990's. The number increased progressively in the 2000's. A large increase in reported cases has occurred among adolescents, who become susceptible to pertussis approximately 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). On June 30, 2005, the Advisory Committee on Immunization Practices (ACIP) recommended Tdap for all persons between the ages of 11 to 18 years.

In the past ten years, the number of pertussis cases in Louisiana has oscillated from 10 to 20 cases per year, with peaks at 45 cases in 2005, 96 in 2008 and 149 cases in 2009. Incidence rates have ranged between 0.2 and 2.2 per 100,000 population. All rates are below the national average of 2.88 per 100,000 population. (Figure 1)

Figure 1. Pertussis cases and incidence rates - Louisiana, 1980-2009

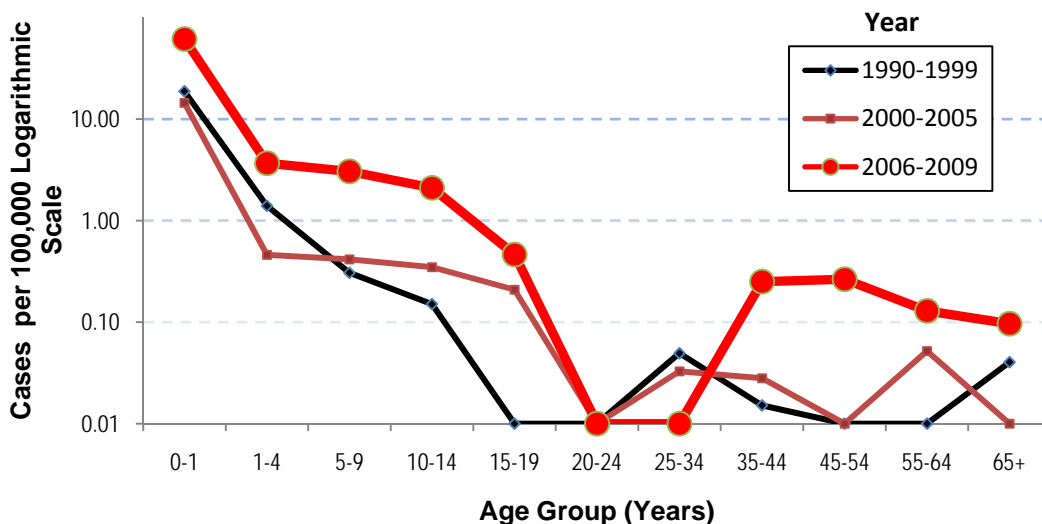


### Age group, Sex and Race Distribution

There is no significant difference between males and females.

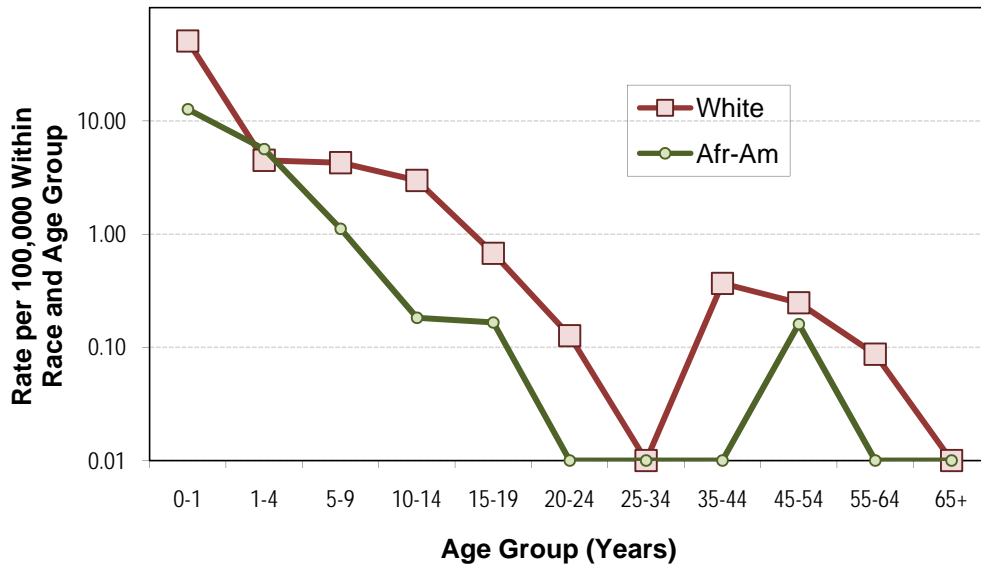
The age group distribution shows that pertussis in Louisiana is mostly affecting infants (0 to 1 year olds), and young children more than adolescents and adults. However rates in adolescents and adults have increased in past few years. Adult cases are under-reported because they are not being diagnosed. (Figure 2)

Figure 2. Pertussis average annual incidence rates by age - Louisiana, 1987-2009



The distribution by race shows rates higher in Whites than in African-Americans. (Figure 3)

Figure 3. Pertussis average annual incidence rates by race and age - Louisiana, 2005-2009



The geographical distribution does not show any remarkable trends or differences.