

PERTUSSIS (WHOOPING COUGH)

CRUDE DATA	
Number of Cases	237
Annual Incidence ^a	
LA County	2.6
California	3.4
United States	2.7
Age at Onset	
Mean	5 yrs
Median	3 mos
Range	5 days-77 yrs
Case Fatality	
LA County	0.8%
United States	N/A

^aCases per 100,000 population.

ETIOLOGY

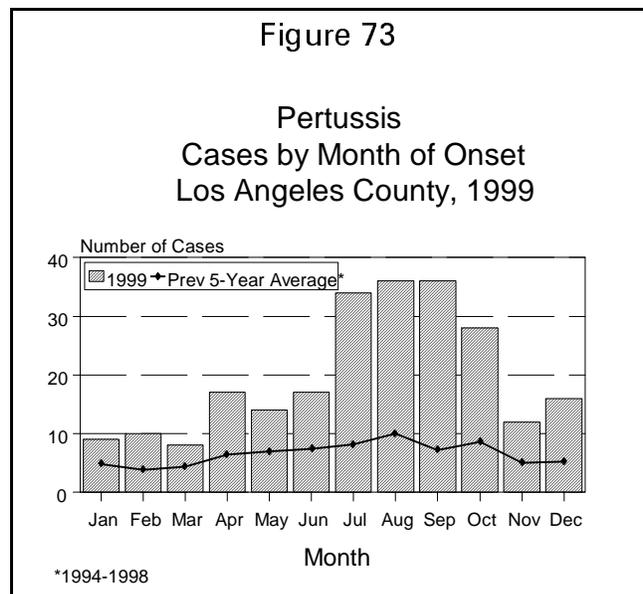
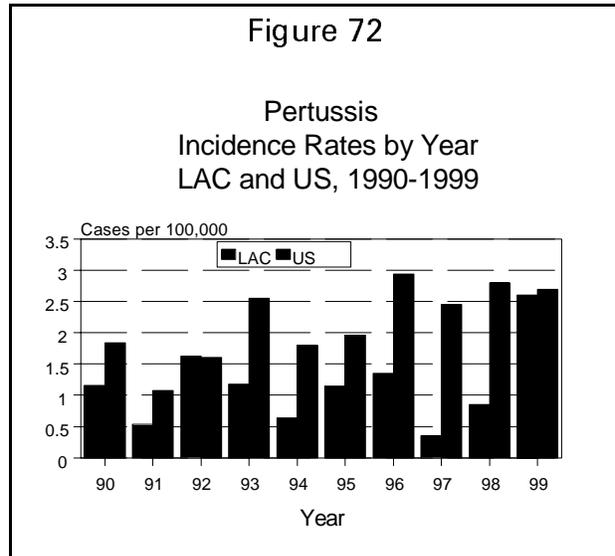
Bordetella pertussis, a fastidious, gram-negative, pleomorphic bacilli.

DISEASE ABSTRACT

Pertussis incidence increased dramatically in 1999, with 237 cases reported. This is the highest number of reported pertussis cases since 1971 and a 206% increase from the previous year. The 1999 incidence of 2.6 cases of pertussis per 100,000 has not been exceeded since 1974. The pertussis rate was highest among infants. Age-adjusted rates were highest among Hispanics. The complications of pneumonia, seizures, and encephalopathy were reported and there were two deaths. Sixty-eight percent (n=162) of the cases were confirmed by a nasopharyngeal swab culture positive for *Bordetella pertussis*. The other 32% (n=75) met the clinical criteria for pertussis: a cough lasting at least two weeks with either paroxysms of coughing or inspiratory "whoop," or post-tussive vomiting, without other apparent causes.

STRATIFIED DATA

Trends: The incidence of pertussis in 1999 was 2.6 cases per 100,000 population (Figure 72). This is an increase from the



previous year's low rate of 0.9 cases per 100,000 population. An increase in the rate was expected as pertussis incidence runs in 3- to 4- year cycles. However, such a large increase was not anticipated.

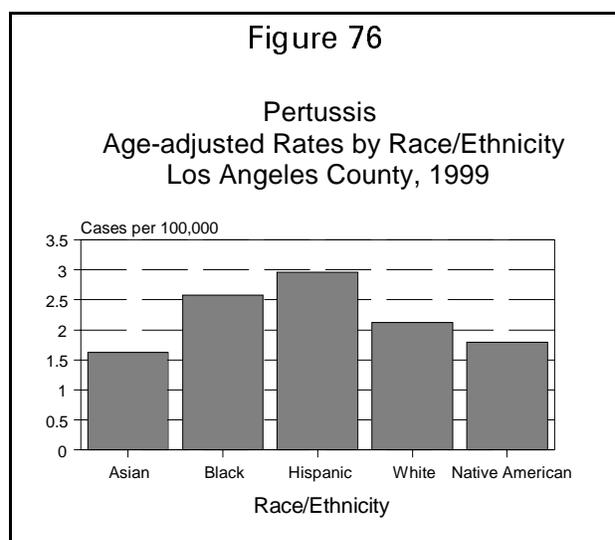
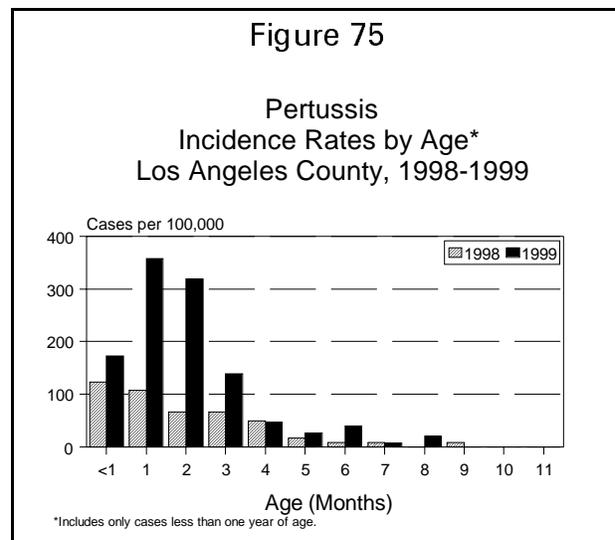
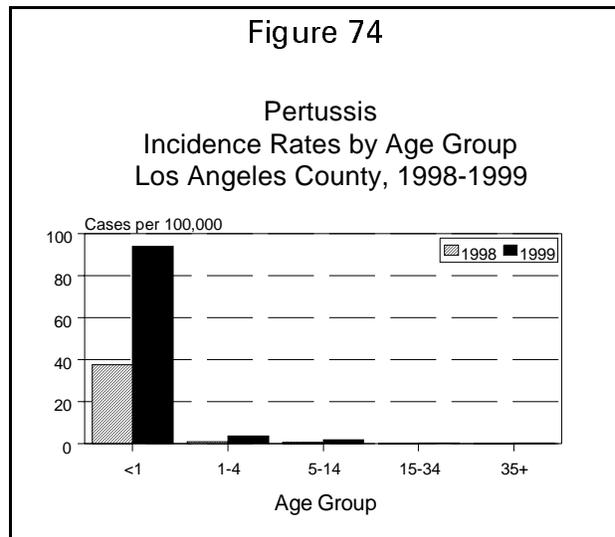
Seasonality: Cases were spread throughout the year with increased activity in July through October. In LAC, August traditionally is the month of highest pertussis incidence (Figure 73).

Age: The age-specific incidence rate among children less than one year of age was 94.0 cases per 100,000 population compared to 3.8 cases per 100,000 population among children aged 1-4 years (Figure 74). The lowest incidence was in the 15-34 years and 35+ years age groups (both 0.3 cases per 100,000 population). Sixty-eight percent of the cases occurred in infants less than six months old. The incidence for infants under one year of age followed the traditional pattern of the highest incidence in infants less than two months of age with a steady decrease in incidence until six months of age (Figure 75).

Sex: The male-to-female rate ratio was 1:1. Morbidity for this disease is usually slightly higher in females than males.

Race/Ethnicity: The age-adjusted incidence rate for pertussis was highest for Hispanics (3.0 per 100,000 population) followed by Blacks (2.6 per 100,000) (Figure 76). The greatest number of cases was reported among Hispanics (n=158), followed by Whites (n=40), Blacks (n=21), Asians (n=16), and American Indian/Alaskan native (n=2).

Location: The highest rate was in the Southeast Health District (6.5 cases per 100,000 population). The next highest rates were in the Foothill and Central Districts (4.9 and 4.5 cases per 100,000). The lowest rate was in the Harbor Health District (0.5 cases per 100,000 population).



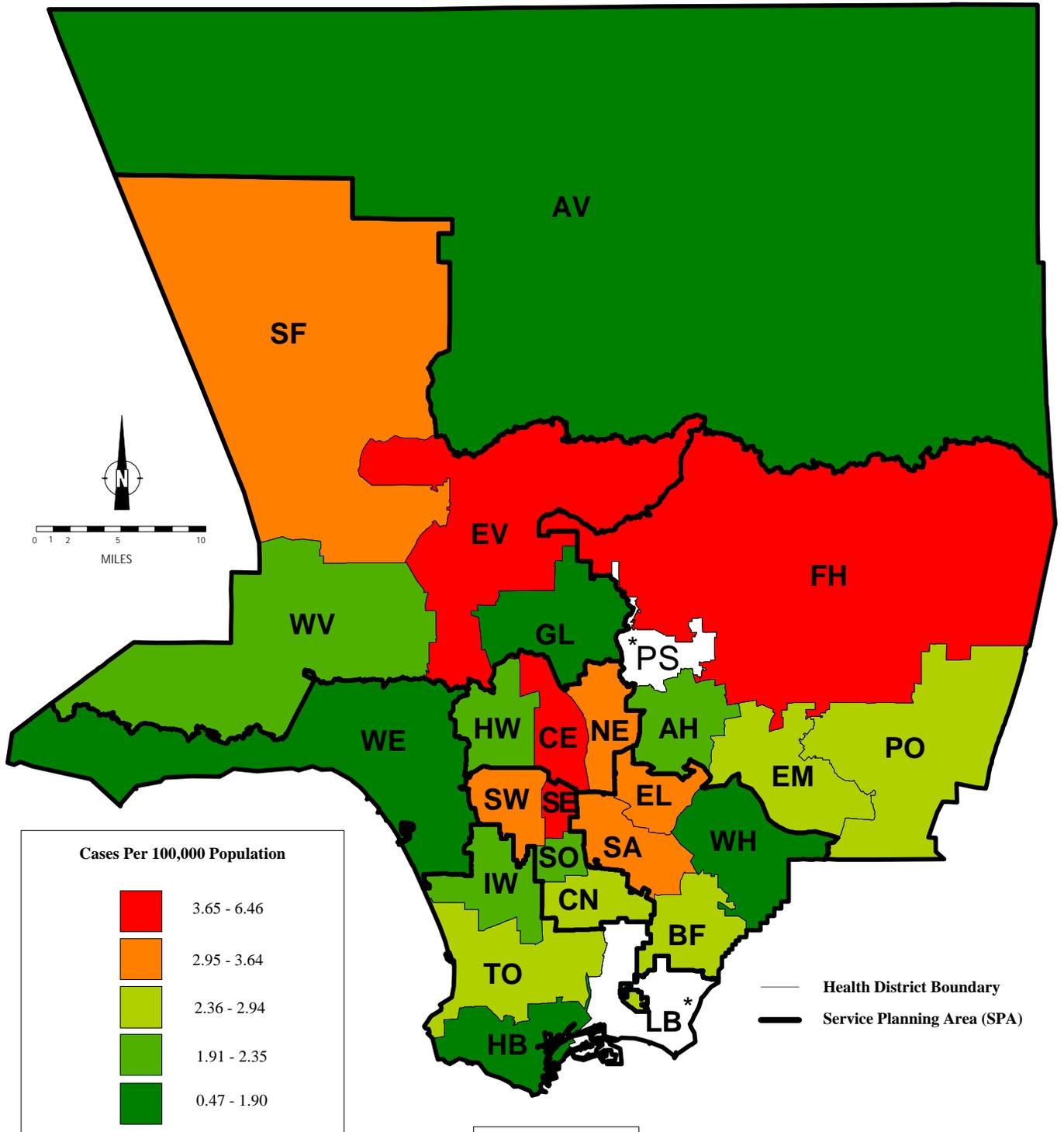
COMMENTS

Complications/Hospitalization: One hundred fifty-two cases (64%) were hospitalized; 93% (n=141) were less than one year old. The average hospital stay was nine days (range 1-33 days). Infants are at the highest risk for complications from pertussis. Twenty eight cases (86%) developed pneumonia; 22 cases (79%) were in children less than six months old. Additionally, six cases with seizures and two cases with encephalopathy were reported in children less than six months of age. Two deaths were reported. Both deaths occurred in Hispanic females who were two months old and both died of multiple organ failure. The deaths occurred 16 days and 53 days from the onset of pertussis.

Vaccination Status: Pertussis-containing vaccine should be given at two months, four months, six months, 15-18 months, and 4-6 years of age. Immunity conferred by the pertussis component of the DTP/DTaP vaccine decreases over time with little or no protection 5 to 10 years following the last dose. Eighty cases (34%) were less than two months of age and too young for the first vaccine dose. An additional 21 cases (9%) were 15 years old or older; their immunity would have waned even if they had been immunized. Thus, 43% of the cases could not have been prevented by the vaccine. Eighty-six cases were in the 2-month to 6-month age group; of these, 84% were up to date for their age but would have had incomplete immunity. Of the children who could have had full immunity conferred by the vaccine (7 months to 15 years old), thirty-two (64%) were fully up to date, eight (16%) were underimmunized, and seven (14%) were unimmunized. Four of these unimmunized children were not immunized due to religious/philosophical exemption, two for medical reasons, and one because of parental negligence. Three children in this category had unknown immunization status.

Adolescent/Adult Cases: Because immunity conferred by the vaccine wanes, adolescents and adults can serve as a reservoir for the disease. Adults and adolescents with pertussis often go undiagnosed because they are more likely to have mild or atypical disease and physicians may not consider the diagnosis in non-pediatric patients. Unimmunized and underimmunized infants are often infected by undiagnosed adult cases.

MAP 9. Pertussis Rates by Health District, Los Angeles County, 1999*



*Excludes Long Beach and Pasadena Data.

