State of Alaska Epidemiology **Bulletin**

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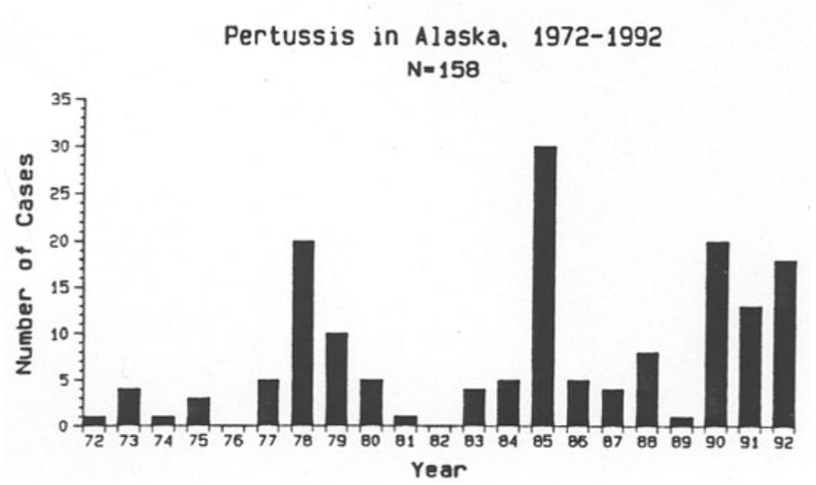
Pertussis - Preventable Illness Strikes Alaskan Children

During the week of May 24, two cases of pertussis in infants were reported to the Section of Epidemiology.

Case 1
On May 14, a 1-month-old male developed a cough which soon became paroxysmal, accompanied by post-tussive vomiting. The child was evaluated in an emergency room on May 18 and released. He was seen on May 19 by a pediatrician who admitted the infant to Providence Hospital with diagnoses of respiratory distress and probable pertussis. The infant was treated with erythromycin on May 19, recovered, and was discharged on May 24. Nasopharyngeal (NP) smears obtained on May 20, sent to the State Public Health Laboratory in Anchorage (SPHL-A), were positive for pertussis on direct fluorescent antibody (DFA) slide test; culture yielded *B. pertussis*. Eight household members were treated with erythromycin on May 21. >The family had visitors from Fairbanks on May 2, including a child with a cough and runny nose. Attempts to contact this family for follow-up were unsuccessful.

Case 2
A 1-month-old male from a Bethel-area village was admitted to the Yukon-Kuskokwim Delta Regional Hospital in Bethel on May 11 with a 6-day history of wheezing cough. A NP smear taken then was positive for respiratory syncytial virus (RSV). The infant became apneic and was transferred to Alaska Native Medical Center on May 16. A second RSV smear was negative. NP smears taken on May 17 were negative for pertussis on DFA slide test; a culture yielded *B. pertussis* at the SPHL-A one week later. Twenty contacts, including seven household members, were treated with erythromycin. No other individuals with acute respiratory symptoms were seen in the village.

Pertussis has been reported in Alaska almost every year since 1972 with an average of eight cases per year (Figure 1). During each of the last 3 years, the number of reported cases has been higher than average. This increase may reflect improved reporting and/or more frequent diagnostic testing, or a real increase in pertussis morbidity, parallel to the increase seen nationally beginning in the 1980s. Declining national pertussis immunization rates probably account for much of this increase. In Alaska, a retrospective survey of kindergartners in 1991-92 indicated that only 57% had been fully immunized against pertussis by age 2 years. Cases of pertussis in adolescents and adults occur due to incomplete immunization and waning immunity; many of these cases are not diagnosed as pertussis and may serve as a reservoir of disease.



Pertussis is an acute respiratory infection caused by *Bordetella pertussis*. It is characterized initially by a nasal discharge (catarrh). During the first 1-2 weeks of illness, an irritating cough develops, becomes paroxysmal, and lasts for 1-2 months or longer. Paroxysms consist of a series of violent coughs followed by a characteristic crowing or high-pitched inspiratory whoop, often ending with the expulsion of tenacious mucus or with vomiting. Adults and infants may not have the typical whoop or cough paroxysm. Fortunately, the number of pertussis deaths in the USA is low, averaging 7 per year. About 90% of deaths are among children under one year of age, and 75% are under 6 months. The case-fatality rate is 0.5% in infants less than 6 months old. Pneumonia is the most common cause of death.

Man is the only reservoir of *B. pertussis*. The disease is transmitted by direct contact with respiratory discharges of infected persons, primarily by airborne droplets. Often it is brought home by an older sibling or a parent. The incubation period is 7-10 days, rarely exceeding 14 days. It is highly communicable in the early catarrhal stage before onset of paroxysmal cough. Cases treated with erythromycin become non-infectious after about 5 days of therapy.

The acceptance and use of pertussis vaccine has suffered because of unfounded concerns about its safety. **Extensive investigation and research has shown no causal association between DTP vaccination and either SIDS or permanent neurological damage.** Because morbidity and mortality from pertussis are greater in the very young, opportunities for age-appropriate vaccination should not be missed. DTP vaccine should not be withheld because of mild acute illness in an otherwise well child or delayed because of prematurity.

Cases should be treated with erythromycin to shorten their period of communicability. A 14-day course of erythromycin for all close contacts is recommended. Close contacts under age 7 years should also be offered a dose of DTP if they have not already received 4 DTP doses or have not received a DTP dose within the prior 3 years. DTP vaccine is not given routinely to children older than 6 years.

Diagnosis is based on the recovery of *B. pertussis* from NP swabs obtained early in the illness. DFA testing of NP secretions may provide rapid presumptive diagnosis; however, DFA testing may have low sensitivity and variable specificity. DFA test slides and Regan-Lowe culture transport medium are available free-of-charge from State Public Health Laboratories.

Section of Epidemiology staff can assist with the diagnosis of pertussis. **All suspected or confirmed cases of pertussis should be reported immediately to the Section of Epidemiology at 561-4406.**

Reported by State Public Health Lab-Anchorage. >We thank the Municipality of Anchorage Health Department, Fairbanks Health Center, Bethel Health Center, and Alaska Native Medical Center for their investigation efforts. Contributed by Sue Anne Jenkerson, RNC, MSN, FNC; Michael Jones, MD; and Sherry Kew, RN, BSN, Section of Epidemiology.