

Streptococcus pneumoniae, Invasive, in Children Less than 5 Years of Age

Agent: *Streptococcus pneumoniae* (bacteria)

Mode of Transmission: Person-to-person transmission via respiratory droplets or direct contact with respiratory secretions from persons carrying the bacteria in their upper respiratory tract.

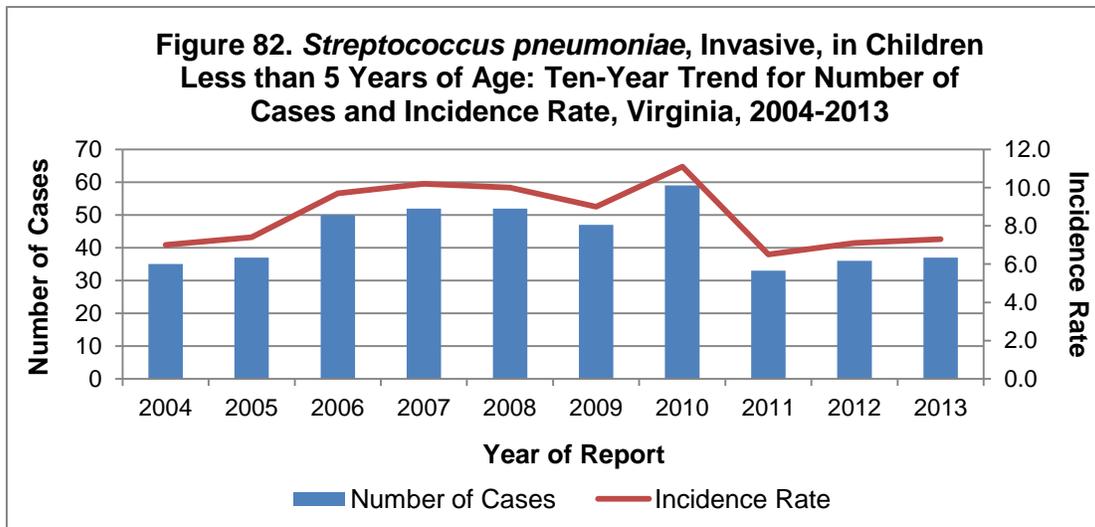
Signs/Symptoms: Invasive pneumococcal disease (IPD) may affect the blood, lung, and lining of the brain and spinal cord and may cause fever, chills, and irritability. Headache, stiff neck, confusion, sleepiness, vomiting, and poor feeding can occur with meningitis.

Prevention: Routine immunization with pneumococcal conjugate vaccine as a 4-dose series is recommended for infants at 2, 4, 6, and 12 to 15 months of age. IPD can be hard to treat because of antibiotic resistance, thus making prevention through vaccination even more important. The 7-valent conjugate vaccine was first licensed in the U.S. in 2000 and a 13-valent vaccine was licensed in 2012. Following the introduction of the 13-valent vaccine, clients that completed the immunization series were recommended to receive a booster dose for protection against the additional strains. Vaccine is also recommended for adults aged 65 years or older and other persons at increased risk for infection, although a 23-valent polysaccharide vaccine is traditionally used in these populations.

Other Important Information: There are more than 90 known serotypes of *S. pneumoniae*. Although all serotypes may cause serious disease, a relatively limited number of serotypes cause the majority of invasive infections. From 1998 (two years before implementation of routine immunization of infants with heptavalent pneumococcal conjugate vaccine) through 2007, incidence of vaccine-type invasive pneumococcal infections decreased by 99% in children less than 5 years, and the incidence for all pneumococcal infections decreased by 76%. Today *S. pneumoniae* continues to be the leading cause of bacterial meningitis among children less than 5 years of age in the United States.

<i>Streptococcus pneumoniae</i>, Invasive, in Children Less than 5 Years of Age: 2013 Data Summary	
Number of Cases:	37
5-Year Average Number of Cases:	45.4
% Change from 5-Year Average:	-19%
Incidence Rate per 100,000:	7.3

In 2013, 37 cases of invasive *S. pneumoniae* infection in children less than five years of age were reported in Virginia (Figure 82). While this represents a minimal increase from the 36 cases reported in 2012, it is a 19% decline from the five-year average of 45.4 cases per year. For children less than five years of age, the statewide incidence rate was 7.3 cases per 100,000.



Incidence in the less than 1 year age group was almost three times the rate in the 1-4 year age group (14.9 and 5.4 per 100,000, respectively) and was higher in males than females (8.9 and 5.6 cases per 100,000, respectively). For the 70% of cases for which information on race was available, the rate in the black population (9.8 per 100,000) was more than two times the rate in the white population (4.1 per 100,000). No cases were reported as “other” race.

Among the health planning regions, the highest incidence (14.8 cases per 100,000) occurred in the northwest region. Rates in the remaining regions ranged from 4.9 per 100,000 in the central region to 7.2 per 100,000 in the northern region. Peak incidence occurred during the first quarter of the year with 38% of onsets occurring during that timeframe. This follows the expected seasonal trend of cases occurring during the colder months of January and February. While there were no reported deaths due to *S. pneumoniae* infection, twenty (54%) of the 37 cases were hospitalized.