

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

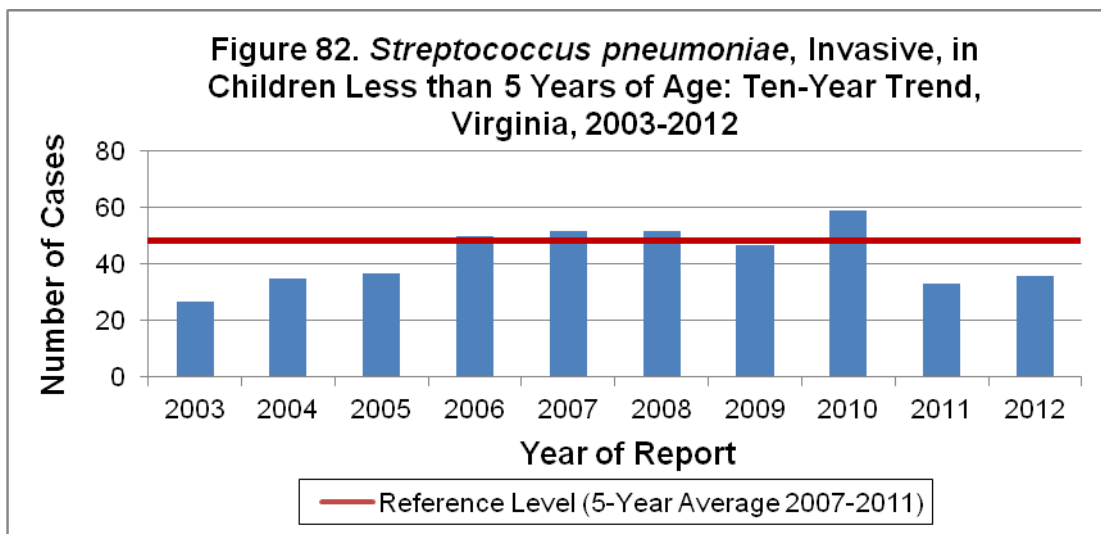
Agent: *Streptococcus pneumoniae* (bacteria)

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. 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. Before routine use of pneumococcal conjugate vaccine, the burden of pneumococcal disease among children younger than 5 years of age was significant. An estimated 17,000 cases of invasive disease occurred each year in the United States, of which 13,000 were bacteremia without a known site of infection and about 700 were meningitis. An estimated 200 children died every year as a result of IPD. Today *S. pneumoniae* is the leading cause of bacterial meningitis among children less than 5 years of age in the United States.



Thirty-six cases of invasive *S. pneumoniae* infection in children less than 5 years of age were reported in Virginia during 2012. This represents a 9% increase from the 33 cases reported in 2011, but a 26% decrease from the five-year average of 48.6 cases per year (Figure 82).

The incidence rate was higher in the less than one year age group than in the 1-4 year age group (17.7 and 4.4 per 100,000, respectively). Race was unknown for 17% of cases. Among cases with race information, incidence was higher in the “other” race population (7.2 per 100,000) than in the white and black populations (5.8 and 5.6 per 100,000, respectively). The rate of IPD among males was higher than in females (8.8 and 5.2 per 100,000, respectively). While cases were reported from all regions of the state, the highest incidence rate (8.5 per 100,000) was reported from the central region followed closely by the northern region (7.9 per 100,000). The rates in other regions ranged from 5.6 to 6.7 per 100,000. Cases occurred throughout the year, but rates were slightly higher in the colder months with 58% having onset in the first or fourth quarter of the year. Twenty-three (64%) of the 36 cases required hospitalization, which highlights the serious nature of the disease. Among cases reported in 2012, three deaths were attributed to invasive *S. pneumoniae* infection in children. The three deaths occurred in male infants one year old or younger.