

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

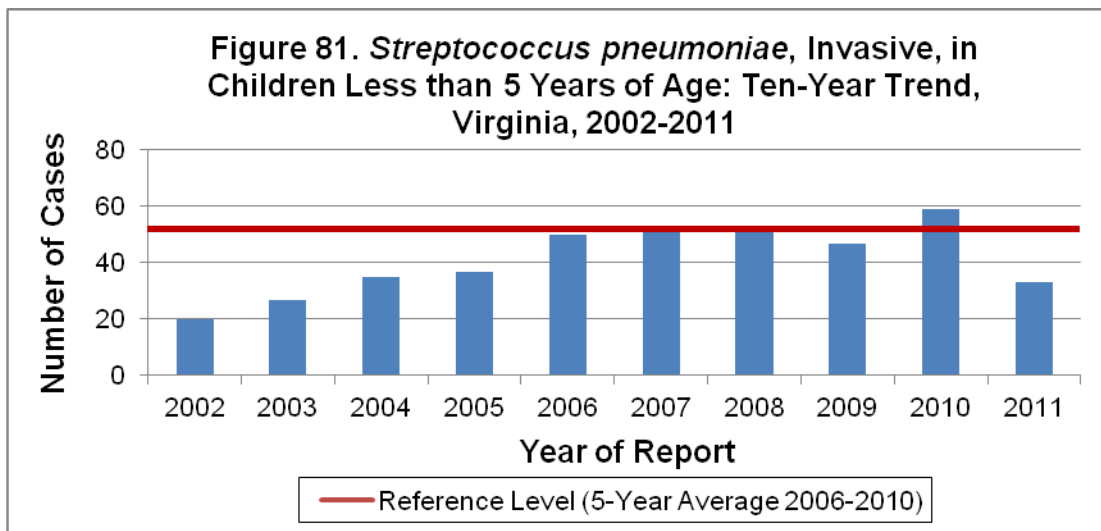
Agent: *Streptococcus pneumoniae* (bacteria)

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 infections 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. Pneumococcal infections 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: With the decline of invasive *Haemophilus influenzae* infections, *S. pneumoniae* has become the leading cause of bacterial meningitis among children less than 5 years of age in the United States.



Thirty-three cases of invasive *S. pneumoniae* infection in children less than 5 years of age were reported in Virginia during 2011. This represents a 44% decrease from the 59 cases reported in 2010, as well as a 37% decrease from the five-year average of 52.0 cases per year (Figure 81).

The incidence rate was higher in the <1 year age group than in the 1-9 year age group (9.0 and 5.9 per 100,000, respectively). Among the 88% of cases with race information, incidence was higher in the black population (8.5 per 100,000) than in the white and “other” race populations (4.9 and 5.1 per 100,000, respectively). The rate of *S. pneumoniae* infection among females was slightly higher than in males (7.2 and 5.8 per 100,000, respectively). Although cases were reported from all regions of the state, the highest incidence rate (7.4 per

100,000) was reported from the northern region followed closely by the central region (7.3 per 100,000). The rates in other regions ranged from 4.1 to 6.6 per 100,000. Cases occurred throughout the year, with 36% having onset during the first quarter and only 3% having onset in the third quarter. Of the reported cases, six had either no documentation of vaccination or had only received a dose after their pneumococcal infection had resolved. Hospitalization status was reported for 30 of the 33 cases; of these, 80% were hospitalized, highlighting the serious nature of the disease.