

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

**Agent:** *Streptococcus pneumoniae* (bacteria)

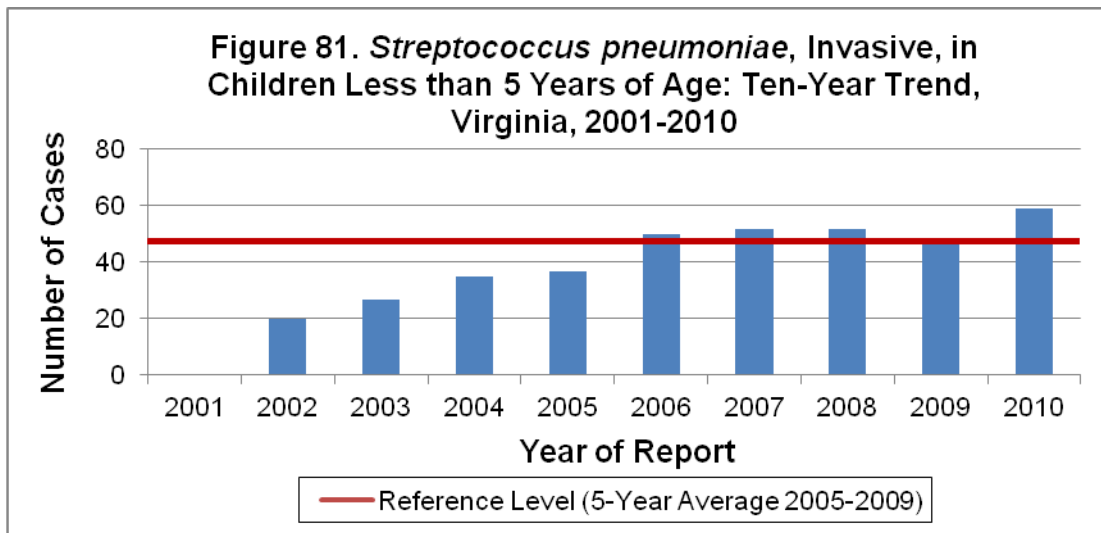
**Mode of Transmission:** Person-to-person transmission via respiratory droplets or direct contact with respiratory secretions from persons carrying the bacteria in their upper respiratory tract.

**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.

Fifty-nine cases of invasive *S. pneumoniae* infection in children less than 5 years of age were reported in Virginia during 2010. This represents a 25% increase from the 47 cases reported in 2009 and a 24% increase over the five-year average of 47.6 cases per year (Figure 81).



Twenty-nine percent of the reported cases occurred in infants aged less than one year, resulting in an incidence rate of 15.9 per 100,000. The incidence in children aged 1 to 4 years was substantially lower at 7.9 cases per 100,000. Among the 80% of cases with reported race information, incidence was higher in the black population (11.7 per 100,000) than in the white and “other” race populations (8.2 and 6.8 per 100,000, respectively). The rate of *S. pneumoniae* infection among females and males was similar (11.1 and 11.0 per 100,000, respectively). Although cases were reported from all regions of the state, the highest

incidence (19.2 per 100,000) was reported from the northwest region, which has had the highest rate in five of the past six years. The rates in other regions ranged from 6.8 to 11.1 per 100,000. Cases occurred throughout the year, with 34% having onset during the second quarter. Of the reported cases, 10 had either no documentation of vaccination or had received a dose after their pneumococcal infection had resolved. Among cases reported in 2010, the one death attributed to *S. pneumoniae* infection occurred in an infant under the age of one. Of the 56 cases where hospitalization status was reported, 44 (79%) were hospitalized, highlighting the serious nature of the disease.