

## **Haemophilus influenzae Infection, Invasive**

Agent: *Haemophilus influenzae* (bacteria)

Mode of Transmission: Person-to-person transmission by inhalation of respiratory droplets or direct contact with nose and throat secretions from an infected person or an asymptomatic carrier.

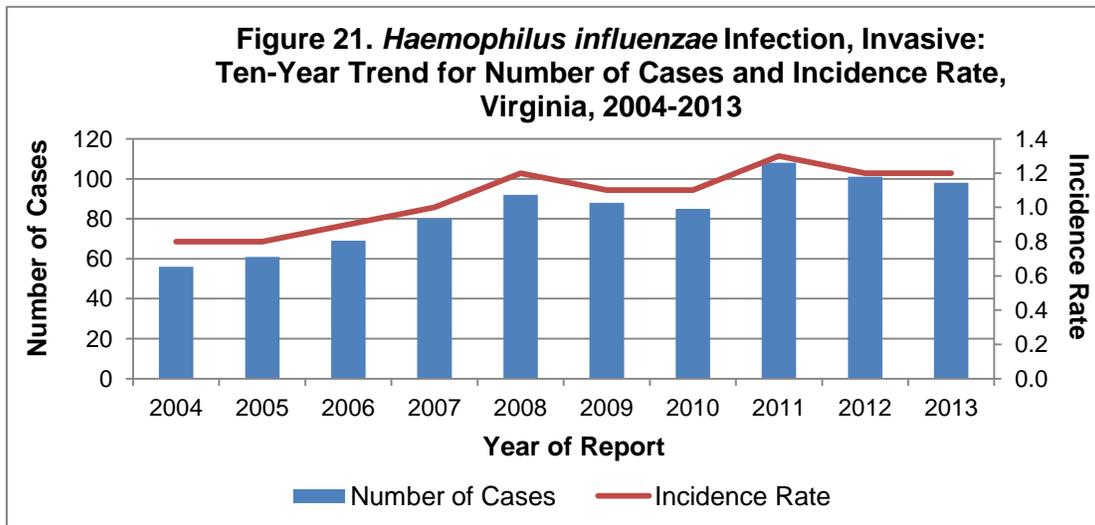
Signs/Symptoms: Inflammation of the lining of the brain and spinal cord (i.e., meningitis), inflammation of the epiglottis which may lead to blockage of upper airway and death, pneumonia, deep skin infection, arthritis, or bloodstream infection.

Prevention: Vaccination with a 3-4 dose series (depending on manufacturer) of conjugate *Haemophilus influenzae* type b (Hib) vaccine beginning at 2 months of age and concluding with a booster at 12 to 15 months of age. If vaccination is delayed, children 7 months of age and older may not require a full series of three or four doses. The total number of doses a child needs to complete the series depends on the child's age at the time the first dose is administered.

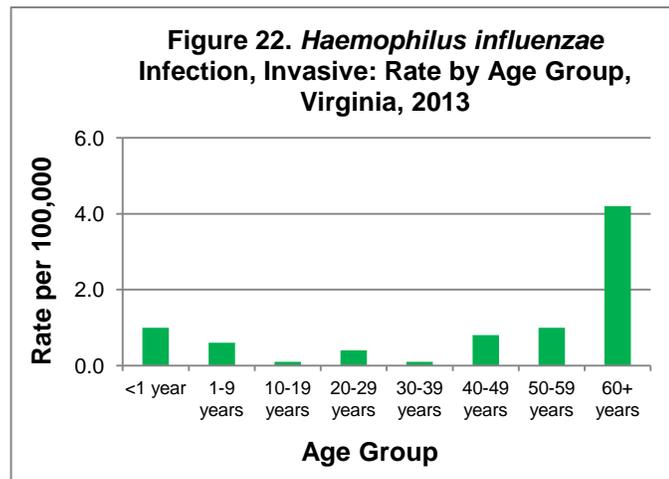
Other Important Information: *Haemophilus influenzae* is categorized into two major groupings: encapsulated and non-encapsulated. Encapsulated strains are more virulent and produce a polysaccharide capsule which is further characterized into six antigenically distinct serotypes (types a through f). Nontypable serotype results indicate a non-encapsulated strain. Vaccine is currently only available for one serotype, type b. In the prevaccine era, type b organisms accounted for 95% of all strains that caused invasive disease. Since the licensure of conjugate Hib vaccine in the late 1980s, the incidence of invasive Hib disease in the U.S. has declined by more than 99% compared with the prevaccine era.

<b><i>Haemophilus influenzae</i> Infection, Invasive: 2013 Data Summary</b>	
Number of Cases:	98
5-Year Average Number of Cases:	94.8
% Change from 5-Year Average:	+3%
Incidence Rate per 100,000:	1.2

In 2013, 98 cases of invasive *H. influenzae* were reported in Virginia representing a 3% decrease in cases compared to 2012. Despite this drop, there was a 3% increase from the five-year average of 94.8 cases per year. The growing elderly population is thought to be a contributing factor for the gradual increase in case counts observed in Figure 21.



In 2013 more cases (64, 65%) occurred in the 60 year and older age group than any other age group (Figure 22). While the 60 year and older age group experienced an incidence rate of 4.2 cases per 100,000, the next highest rate was 1.0 case per 100,000, which occurred in both the 50-59 year and less than one year age groups. Incidence rates for all other age groups ranged from 0.1 to 0.8 cases per 100,000.



Incidence was similar for females and males (1.3 and 1.0 cases per 100,000, respectively). Race was unknown for 29% of cases. Of those with race reported, the white population had a slightly higher incidence, with 1.0 case per 100,000, followed by the black population, with 0.6 cases per 100,000. Incidence rates varied among regions. The northwest and southwest regions had incidence rates of 2.3 and 2.0 cases per 100,000, respectively. This is more than twice the rate observed in the other regions, where the rates ranged from 0.7 to 0.9 cases per 100,000. Rates by locality can be seen in the map below. Cases occurred throughout the year with little seasonal variability, and no outbreaks attributed to *H. influenzae* were reported in 2013. Five deaths from invasive *H. influenzae* were reported in 2013. Two deaths occurred in the 50-59 year age group while the rest were among the 60 year and older age group.

Of the 98 reported cases, 91 (93%) were tested for serotype. No cases of vaccine preventable *H. influenzae* type b were reported. Non-encapsulated strains were the most common, at 70% of tested cases. Identified encapsulated strains were type f (23%), type e (4%), type a (1%), and type d (1%).

# *Haemophilus influenzae* Infection, Invasive Incidence Rate by Locality, Virginia, 2013

