

Pertussis

Agent: *Bordetella pertussis* (bacteria)

Mode of Transmission: Person-to-person transmission by contact with respiratory droplets from infected patients.

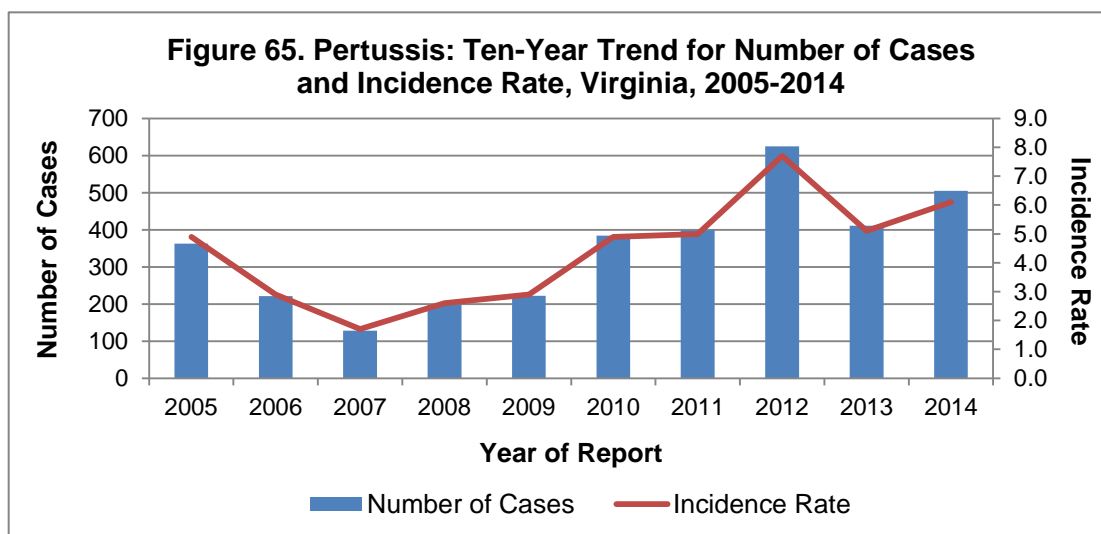
Signs/Symptoms: Insidious cough that progresses to paroxysmal coughing (i.e., severe, sequential coughs with difficulty inhaling) and may be accompanied by post-cough vomiting.

Prevention: Appropriate vaccine should be administered beginning at 2 months of age.

Other Important Information: Pertussis is also known as whooping cough. Coughing fits can last up to 10 weeks or more. In vaccinated populations, the case-fatality rate is low. When deaths occur, they are generally in children less than six months old who are too young to have been vaccinated.

Pertussis: 2014 Data Summary	
Number of Cases:	505
5-Year Average Number of Cases:	409.6
% Change from 5-Year Average:	+23%
Incidence Rate per 100,000:	6.1

In 2014, 505 cases of pertussis were reported in Virginia. This is a 21% increase from the 418 cases reported in 2013 and a 23% increase from the five-year average of 409.6 cases per year (Figure 65). Cases of pertussis typically occur in waves, with peak numbers appearing every 3-5 years. For the past 20-30 years, the peaks have been getting higher and overall case counts have been rising. The number of pertussis cases in 2012 was the highest reported in Virginia since 1959 when 1,114 cases were reported. In addition, the 48,277 cases reported nationally in 2012 was the highest number reported since 1955. Since 2012, the number of cases has declined nationally and in Virginia, but is still higher than numbers seen in previous waves. The increase observed in Virginia in 2014 is inconsistent with the typical pertussis disease cycle and was not seen nationally.



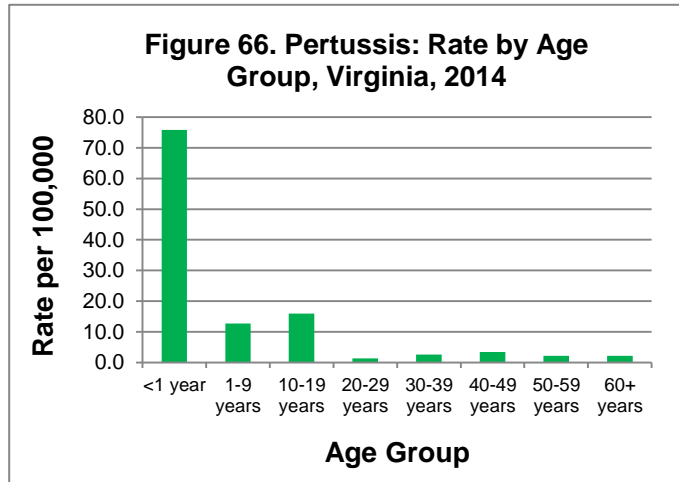
Several factors may help explain the general increase in the last decade. These include increased awareness of the disease, improved diagnostic tests and their wider availability, better reporting, increased circulation of the bacteria and waning immunity in all age groups. It is also becoming apparent that the acellular pertussis vaccine currently used in the United States may not protect for

as long as the whole cell vaccine that was used earlier. As discussed below, the highest incidence rates, nationally and in Virginia, are in children (i.e., born after 1996) who received only acellular vaccine.

Pertussis cases were reported from every age group. However, the less than one year age group had a substantially higher incidence rate than other age groups, with 75.9 cases per 100,000 population (Figure 66). The next highest incidence was observed in the 1-9 and 10-19 year age groups, with 12.7 and 15.9 cases per 100,000, respectively. Race

was not reported for 44% of cases. Among cases with a known race, incidence in the white population (4.2 per 100,000) was more than twice the rate in the black population (1.7 per 100,000), and more than three times the rate in the “other” race category (1.3 per 100,000). Incidence among females was slightly higher than incidence among males (6.5 and 5.7 per 100,000, respectively).

Among regions, the northwest region had the highest number of cases and incidence rate (139 cases, 10.9 per 100,000). Rates in other regions ranged from 7.4 per 100,000 in the southwest region to 4.1 per 100,000 in the central region. Please see the map below for more detailed incidence rates by locality. While cases occurred throughout the year, the largest proportion (30%) of cases had onset in the second quarter of the year. Sixteen pertussis outbreaks were reported in 2014. Over half of the outbreaks (56%) were linked to school settings. The largest outbreak involved 23 individuals from the eastern region. One death due to pertussis was reported in 2014 in an infant less than six months of age.



Pertussis Incidence Rate by Locality Virginia, 2014

