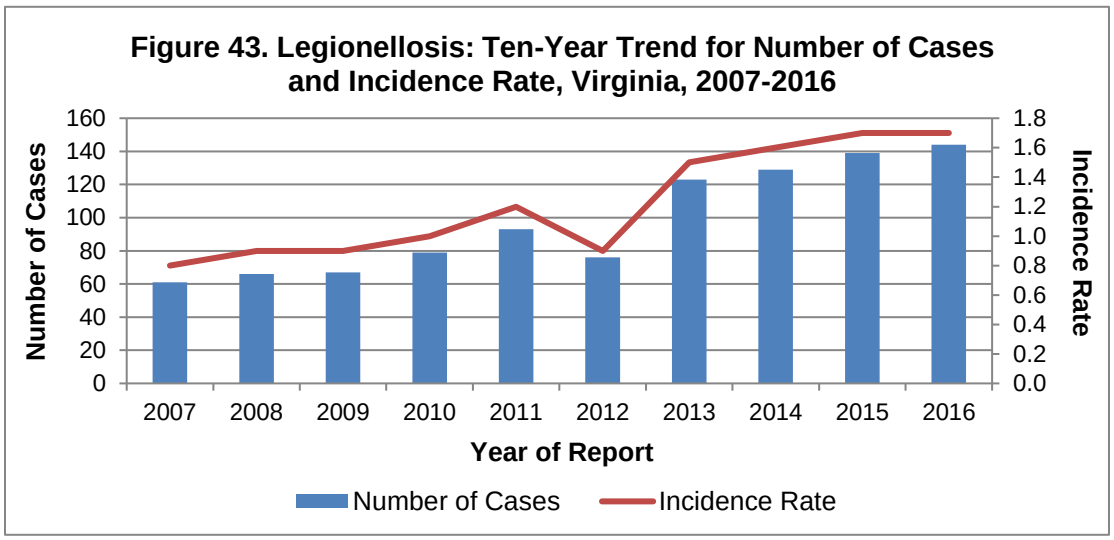
Legionellosis

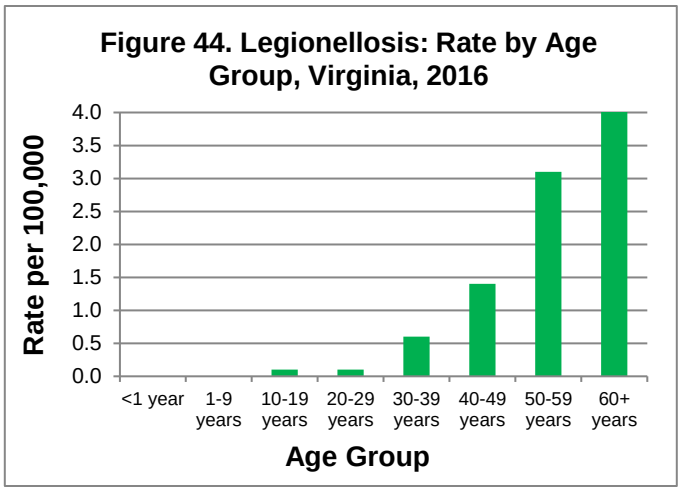
Agent: *Legionella* species (bacteria); most infections in the United States are caused by *Legionella pneumophila*
Mode of Transmission: Inhalation of contaminated aerosolized water (e.g., sprays, mists).
Signs/Symptoms: Infection with *L. pneumophila* causes two distinct illnesses: Legionnaires' disease, characterized by fever, muscle aches, headaches, malaise, cough, and pneumonia with progressive respiratory distress; or Pontiac fever, a milder influenza-like illness without pneumonia characterized by quick onset. Pontiac fever and Legionnaires' disease are referred to as "legionellosis", separately or together.
Prevention: Ensuring that water systems in buildings (i.e., hot tubs, cooling water systems, hot water tanks, decorative fountains) are maintained properly in order to reduce the growth and spread of *Legionella*. For outbreaks, control measures include disinfection of contaminated water sources by chlorination or superheating of water from 160° to 170°F, and appropriate mechanical cleaning.
Other Important Information: Legionellosis is more common among people who are elderly, are immunocompromised, or have underlying lung disease. Virginia has experienced a pattern, also seen nationally, in which there was an increase in legionellosis cases in 2003, followed by a higher incidence in the post-2003 period than in the pre-2003 period. The cause of this increase is not clearly understood. The number of legionellosis cases has been on the rise in Virginia over the past decade (2007-2016). During 2000–2014, in the U.S. there was several fold increase in reported cases of legionellosis. According to CDC it is unclear whether this increase represents artifact (i.e., due to increased awareness, improved diagnosis and reporting of the condition including CDC's call for more active and timely surveillance of travel-associated cases), increased susceptibility of the population, an increasing population of older persons and persons at high risk for infection, increased *Legionella* in the environment, or some combination of factors.

Legionellosis: 2016 Data Summary	
Number of Cases:	144
5-Year Average Number of Cases:	112.0
% Change from 5-Year Average:	+29%
Incidence Rate per 100,000:	1.7

In 2016, 144 legionellosis cases were reported in Virginia compared to 139 cases reported in 2015. This is the highest number of legionellosis cases ever reported in Virginia and represents a 4% increase from 2015, and a 29% increase compared to the five-year average of 112 cases per year (Figure 43). Overall, there has been an increase in reported cases in Virginia since 2007. Similarly, legionellosis data from the CDC indicate the number of cases reported nationally have increased more than four-fold since 2000.



Legionellosis incidence rates were closely associated with age. In 2016, the highest incidence occurred in the 60 year and older age group (4.9 per 100,000), followed by the 50-59 year age group (3.1 per 100,000) (Figure 44). Of the 144 cases reported in 2016, 83 (58%) were reported among persons age 60 years or older. The median age at time of onset of symptoms was 62 years, with a range of 19-97 years. No cases were reported in persons younger than 10 years of age. Race information was not reported for 10% of cases. Among those with a known race, incidence was highest in the black population (3.1 per 100,000) when compared to the white and "other" race populations (1.3 and 0.2 per 100,000, respectively). The incidence rate was higher among males compared to females (1.9 and 1.5 per 100,000, respectively).



Incidence rates were highest in the central region (2.7 per 100,000), followed by the southwest region (2.1 per 100,000). Incidence rates in the other regions were between 0.9 and 1.9 cases per 100,000. Geographically, cases were dispersed among a number of localities throughout Virginia (refer to map below). While cases occurred throughout the year, the highest percentage of cases (32%) was observed during the warmer months of the third quarter.

Information on spending a night away from home in the 10 days prior to symptom onset was obtained for 121 (84%) of 144 cases in 2016. Of those, 21 (17%) cases reported spending at least one night away from home; seven (33%) spent at least one night in a hotel, and 14 (67%) spent at least one night away from home in a location other than a hotel or the type of location was not reported.

Information on exposure to a healthcare setting in the 10 days prior to symptom onset was obtained for 115 (80%) of 144 cases. Of those, 22 (19%) reported exposure to a healthcare setting. Healthcare settings include hospitals, clinics, long-term care facilities, or other healthcare settings. Individuals with possible exposure in a healthcare setting include inpatients, outpatients, visitors, volunteers, or employees of a healthcare setting. Among those 22 persons who reported a healthcare exposure, 20 (91%) were determined to be "possible" exposures, defined as exposure to a healthcare setting for only a portion of the 10 days prior to symptom onset. Two (9%) persons were determined to be "definite" exposures, defined as a patient who was hospitalized or a resident of a long-term care facility who was confined for the entire 10 days prior to symptom onset.

No outbreaks of legionellosis were reported in Virginia in 2016. Six deaths (4%) were attributed to legionellosis in 2016 in persons ranging in age from 57 to 89 years. Three deaths occurred in the central region, two in the southwest region, and one in the northwest region.

Legionellosis Incidence Rate by Locality
Virginia, 2016