

Influenza

Agent: Influenza virus; Types A, B and (rarely) C cause human disease.

Mode of Transmission: Person-to-person primarily through inhalation of droplets released through coughing or sneezing.

Signs/Symptoms: Fever, headache, muscle pain, fatigue, sore throat and cough; influenza can also lead to pneumonia, especially in those with underlying medical conditions (e.g., lung or heart disease).

Prevention: Annual vaccination is the primary prevention strategy; antiviral medications are sometimes used with high-risk populations (e.g., nursing home residents) to prevent illness. Transmission may be reduced by frequent hand washing or using alcohol-based hand-sanitizers; avoidance of touching the eyes, nose, and mouth with contaminated hands; and covering the nose and mouth with a tissue or the bend of the elbow when coughing or sneezing.

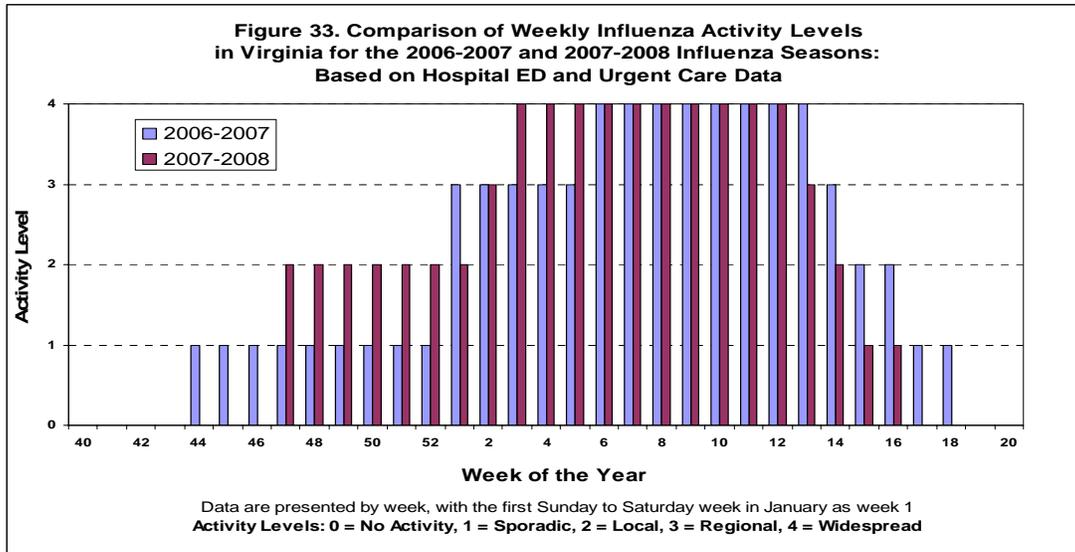
Other Important Information: The influenza virus changes slightly from year to year (antigenic drift), making it necessary to prepare a new vaccine each year. Periodically, the virus will change to form a completely new subtype (antigenic shift) which can lead to pandemics.

Influenza Surveillance

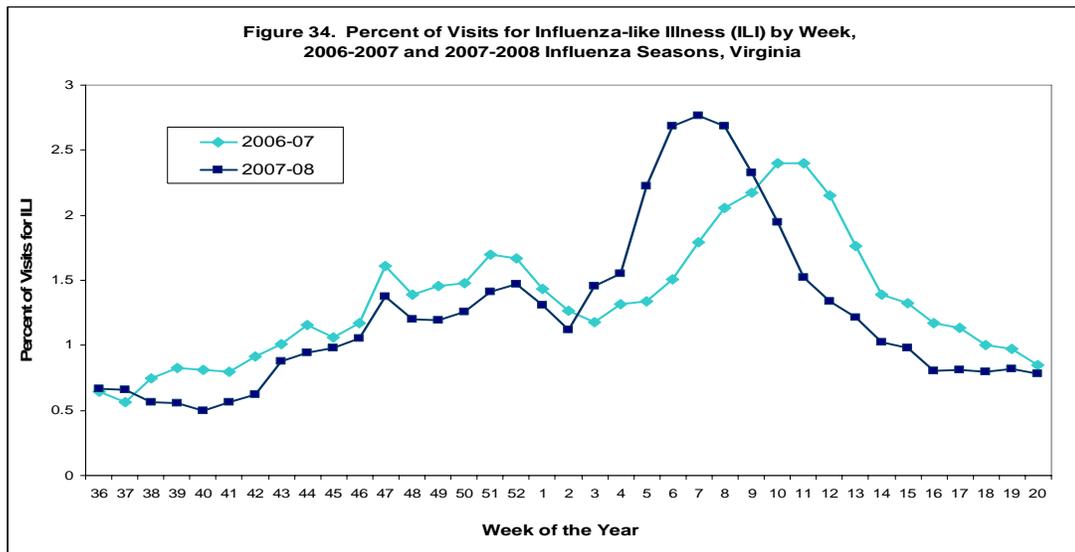
In Virginia, influenza activity generally begins to increase in November and starts to decrease in March or April, but VDH monitors influenza activity throughout the year. During the 2007-2008 season, information sources included information on patients presenting with influenza-like illness (ILI) at out-patient facilities, summary counts of individuals with influenza, positive laboratory findings for influenza, information from influenza outbreaks, and reports of influenza-associated deaths in the pediatric population. The data are used to determine weekly influenza activity levels, summarize the length and severity of the influenza season, and characterize circulating influenza types and subtypes.

Influenza-Like Illness (ILI) and Influenza Activity Levels

During the 2007-2008 season, VDH used patient visits for ILI to 73 hospital emergency departments and urgent care centers to monitor influenza activity. An ILI case is defined as any person with a fever and a cough or a sore throat, in the absence of another known cause of illness. Starting in July, six weeks of baseline data were collected to establish threshold levels. During the rest of the season, regions with ILI levels over their threshold were considered elevated. In combination with reports of laboratory-confirmed influenza and influenza-associated outbreaks, this information contributed to the determination of the overall activity level in the state. Each week, influenza activity was classified as one of five levels: no activity, sporadic, local, regional or widespread. During the 2007-2008 season, influenza activity was widespread from mid January through late March (Figure 33).



ILI activity peaked during the week ending February 16, 2008 (week 7), with 2.8% of visits due to ILI. Significantly, this peak occurred approximately three weeks earlier than the peak in the previous year. Figure 34 compares ILI data for the two seasons based on emergency department and urgent care center data.



Reports of Influenza Diagnoses

Summary counts of influenza cases were reported to local health departments by private practitioners, hospitals, schools and other facilities throughout the calendar year. The data are summary numbers and include results from rapid flu tests as well as confirmatory tests. This information is presented in tables at the front of the report. During 2008 24,580 cases of influenza were reported. This was a 192% increase from the 8,416 cases reported in 2007. A number of factors may have contributed to this increase, including a higher number of influenza outbreaks in 2008, more complete reporting and improved

report handling practices. Similar to the other data sources, these reports suggest that influenza activity peaked in February during the 2007-2008 season.

Influenza Types and Subtypes in Virginia

Laboratory findings for influenza are used to monitor the seasonal emergence and decline of influenza throughout the state and to determine the subtypes that are circulating. As part of routine disease reporting, laboratories report positive influenza findings to VDH. In addition, influenza specimens are submitted to the Division of Consolidated Laboratory Services (DCLS) for speciation and to confirm outbreaks. Additional information on specimens from Virginia is obtained from the CDC's National Respiratory and Enteric Virus Surveillance System (NREVSS). Three laboratory testing procedures are considered sufficient for confirmation of influenza for surveillance purposes: DFA (direct fluorescent antibody), PCR (polymerase chain reaction), and viral culture.

During the 2007-2008 season, information on influenza type was available from 527 specimens with detectable influenza virus. Among them, 415 (79%) were type A and 112 (21%) were type B. Of the type A viruses reported, 310 (75%) were of unknown subtype, 96 (23%) were subtype A/H3, and 9 (2%) were subtype A/H1.

Outbreaks

A total of 55 influenza outbreaks were reported to the Virginia Department of Health during the 2007-2008 influenza season. In comparison, 6 were reported during the 2006-2007 season. Influenza was laboratory confirmed in 31 of the 2007-2008 season outbreaks and suspected in the remaining 24.

Among the outbreaks, 36 (65%) occurred in nursing homes or other long-term care facilities, 8 (15%) in assisted living facilities, 4 (7%) in colleges, universities or K-12 schools, and 7 (13%) in other facilities. Geographically, 11 outbreaks (20%) were reported from the central region, 17 (31%) from the eastern region, 4 (7%) from the northern region, 13 (24%) from the northwestern region and 10 (18%) from the southwestern region. The outbreaks ranged in size from 2 to 593 cases, with an average of 32 cases. The first outbreak was reported during the week ending November 27, 2007, and the last was reported during the week ending May 22, 2008.

Pediatric Deaths

Three influenza-associated pediatric deaths were reported to VDH during the 2007-2008 season. They involved a young school age child (5-12 years) from the eastern region, and a teenage child (13-17 years) and a preschool age child (0-4 years) from the southwest region. All three deaths occurred in February. Nationwide, CDC received a total of 72 reports of influenza-associated pediatric deaths during the 2007-2008 season.