

CDC Influenza Division Key Points

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Summary Key Points

- The most recent [FluView](#) report indicates that flu activity decreased in the United States.
- Influenza-like-illness (ILI) activity was 1.8%, below the national baseline of 2.2%.
- While the season has peaked and is on the decline, seven states continue to experience widespread influenza activity and several more weeks of ongoing flu activity is expected.
- Influenza B viruses have been the most frequently identified virus type by public health laboratories in recent weeks. H3N2 viruses were predominant earlier in the season.
- During many flu seasons, there are second waves of influenza B activity later in the season.
- This week, CDC also reported six influenza-associated pediatric deaths. (More information about those deaths is in "[Influenza-Associated Pediatric Deaths](#)."") This brings the total number of pediatric deaths reported to CDC for 2016-2017 to 83 at this time.
- For the 2016-2017 season, ILI was at or above baseline for 17 consecutive weeks this season.
- For the last 15 seasons, the average duration of a flu season measured by influenza-like activity (ILI) being above baseline has been 13 weeks, with a range from one week to 20 weeks.
- Each flu season, flu causes millions of illnesses, hundreds of thousands of hospitalizations and thousands, or sometimes tens of thousands, of deaths.
- The Centers for Disease Control and Prevention (CDC) recommends annual flu vaccination for everyone 6 months and older by the end of October, if possible.
- CDC also routinely recommends that flu vaccination efforts continue for as long as influenza viruses are circulating.
- This season only injectable flu vaccines (flu shots) are recommended. The nasal spray vaccine should not be used.

- A flu vaccine is the best defense against getting the flu.
- While flu vaccine can vary in how well it works, vaccination can reduce flu illnesses, doctors' visits, and missed work and school due to flu, as well as prevent flu-related hospitalizations.
- Getting a flu vaccine yourself also can protect people around you who are more vulnerable to serious flu complications, like pregnant women, older people, young children and people with certain chronic conditions like asthma or diabetes. Flu can be more serious for these people and you can help protect them by getting vaccinated yourself.
- The composition of this season's flu vaccine has been updated to better match circulating flu viruses.
- Both four-component (quadrivalent) and three-component (trivalent) flu vaccines are available this season. Trivalent flu vaccines are designed to protect against three different flu viruses; quadrivalent flu vaccines protect against those three viruses plus an additional influenza B virus.
- CDC has not expressed a preference for any one flu shot over another. The important thing is to get vaccinated.
- It takes about two weeks after flu vaccination for antibodies to develop in the body that protect against flu virus infection.
- It is likely that flu activity will continue for several more weeks this season, so getting vaccinated now can still provide protection this season.
- Manufacturers report having shipped more than 145.9 million doses of flu vaccine as of March 3, 2017. For more information, see <http://www.cdc.gov/flu/professionals/vaccination/vaccinesupply.htm>
- This is similar to the number of flu vaccines distributed during prior seasons, which is posted at <https://www.cdc.gov/flu/professionals/vaccination/vaccinesupply.htm>.
- Go to <http://vaccine.healthmap.org/> or www.cdc.gov/flu to find a location near you where you can get vaccinated.
- While flu vaccine is the best way to prevent flu, influenza antiviral drugs are a second line of defense that can be used to treat flu illness.
- CDC recommends that people who are very sick with flu symptoms and people who are at high risk of serious complications and develop flu symptoms should be treated as soon as possible with influenza antiviral drugs.
- High risk people include people 65 and older, children younger than 5 years, pregnant women and people with certain long-term health conditions. Visit https://www.cdc.gov/flu/about/disease/high_risk.htm for the full list of high risk factors.

- Antiviral drugs can make flu illness milder and shorter and also can prevent serious flu complications.
- More information about antivirals is available in the section: [Treatment of Influenza](#) (below).

FluView Activity Update

According to the FluView report for the week ending April 22, 2017 (week 16), flu activity continues to decrease in the United States. Levels of flu-like illness have been below the national baseline for two weeks now. While the 2016-2017 flu season has peaked and is winding down, 7 states continue to report widespread flu activity and another six flu-related pediatric deaths were reported. This brings the total number of flu deaths in children reported to CDC this season to 83. Sporadic flu activity may continue for a number of weeks. While influenza A (H3N2) viruses have been most common overall this season, influenza B viruses accounted for 69% of the viruses reported by public health laboratories during week 16. Interim vaccine effectiveness (VE) estimates indicate flu vaccines this season reduced a vaccinated person's risk of getting sick and having to go to the doctor because of flu by about half (48%). Estimated VE against H3N2 viruses was 43% while VE against B viruses was 73%. CDC recommends annual flu vaccination for everyone 6 months of age and older. Vaccination efforts should continue for as long as influenza viruses are circulating. Below is a summary of the key flu indicators for the week ending April 22, 2017:

- **Influenza-like Illness Surveillance:** For the week ending April 22 the proportion of people seeing their [health care provider](#) for influenza-like illness (ILI) was 1.8%.and is now below the national baseline of 2.2% for the second consecutive week season since early December. Two regions (Regions 1 and 4) reported ILI at or above their region-specific baseline level. For the 2016-2017 season, ILI was at or above baseline for 17 consecutive weeks this season. For the last 15 seasons, the average duration of a flu season by this measure has been 13 weeks, with a range from one week to 20 weeks.
- **Influenza-like Illness State Activity Indicator Map:** No states experienced high or moderate flu activity. Four states (Alaska, Arizona, Minnesota, and Tennessee) experienced low ILI activity. New York City, Puerto Rico and 46 states (Alabama, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, Hawaii,

Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, and Wyoming) experienced minimal ILI activity. The District of Columbia did not have sufficient data to calculate an activity level. ILI activity data indicate the amount of flu-like illness that is occurring in each state.

- **Geographic Spread of Influenza Viruses:** Widespread influenza activity was reported by 7 states (Alaska, Connecticut, Delaware, Maine, Massachusetts, New Hampshire, and New York). Regional influenza activity was reported by Guam, Puerto Rico and 11 states (Arizona, Colorado, Iowa, Kentucky, New Jersey, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, and Texas). Local influenza activity was reported by the District of Columbia and 19 states (Arkansas, California, Florida, Kansas, Louisiana, Maryland, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Tennessee, Washington, West Virginia, and Wisconsin). Sporadic activity was reported by 13 states (Alabama, Georgia, Hawaii, Idaho, Illinois, Indiana, Mississippi, Oregon, South Dakota, Utah, Vermont, Virginia and Wyoming). No influenza activity was reported by the U.S. Virgin Islands. Geographic spread data show how many areas within a state or territory are seeing flu activity.
- **Flu-Associated Hospitalizations:** Since October 1, 2016, a total of 17,560 laboratory-confirmed [influenza-associated hospitalizations](#) have been reported. This translates to a cumulative overall rate of 62.7 hospitalizations per 100,000 people in the United States. This is higher than the cumulative hospitalization rate for the 2012-2013 flu season (44.0 per 100,000), when influenza A (H3N2) viruses also predominated, and is similar to the cumulative hospitalization rate during 2014-2015 (64.1 per 100,000) which also was an H3N2 predominant season. Vaccine effectiveness during 2012-13 was 49%, similar to interim estimates for the current season, but was 19% during 2014-2015 as a result of a high proportion of drifted influenza viruses during that season.
 - The hospitalization rate among people 65 years and older is 281.0 per 100,000. This is the highest rate of any age group. The hospitalization rate

for people 65 and older for the same week during the 2012-2013 flu season was 183.4 per 100,000. For week 16 during 2014-2015, it was 307.8 per 100,000.

- The hospitalization rate among adults 50-64 years is 62.1 per 100,000. During the 2012-2013 and 2014-2015 flu seasons, the hospitalization rate for that age group for the same week was 40.7 per 100,000 and 53.2, respectively.
- The hospitalization rate among children younger than 5 years is 43.2 per 100,000. During the 2012-2013 and 2014-2015 flu seasons, the hospitalization rate for that age group for the same week was 66.3 per 100,000 and 56.8 per 100,000, respectively.
- During most seasons, children younger than 5 years and adults 65 years and older have the highest hospitalization rates.
- Hospitalization data are collected from 13 states and represent approximately 9% of the total U.S. population. The number of hospitalizations reported does not reflect the actual total number of influenza-associated hospitalizations in the United States. Additional data, including hospitalization rates during other influenza seasons, can be found at <http://gis.cdc.gov/GRASP/Fluview/FluHospRates.html> and <http://gis.cdc.gov/grasp/fluview/FluHospChars.html>.
- **Mortality Surveillance:**
 - The [proportion of deaths](#) attributed to pneumonia and influenza (P&I) was 6.9% for the week ending April 8, 2017 (week 14). This percentage is below the epidemic threshold of 7.2% for week 14 in the National Center for Health Statistics (NCHS) Mortality Surveillance System. The weekly percentage of deaths attributed to P&I was at or exceeded the epidemic threshold for 12 consecutive weeks this season.
- **Pediatric Deaths:**
 - Six influenza-associated pediatric deaths were reported to CDC for the week ending April 15, 2017.
 - One death was associated with influenza A (H3) virus and occurred during week 6 (the week ending February 11, 2017).

- One death was associated with an influenza A virus for which no subtyping was performed and occurred during week 15 (the week ending April 15, 2017).
- Four deaths were associated with an influenza B virus and occurred during week 15.
- A total of 83 influenza-associated pediatric deaths have been reported for the 2016-2017 season.
- Additional information on pediatric deaths for the 2016-2017 season is available on FluView Interactive at:
<https://gis.cdc.gov/GRASP/Fluview/PedFluDeath.html>.
- **Laboratory Data:**
 - Nationally, the percentage of [respiratory specimens](#) testing positive for influenza viruses in clinical laboratories during the week ending April 22 was 9.6%.
 - Regionally, the three week average percent of specimens testing positive for influenza in clinical laboratories ranged from 6.7% to 20.9%.
 - During the week ending April 22, of the 1,426 (9.6%) influenza-positive tests reported to CDC by clinical laboratories, 366 (25.7%) were influenza A viruses and 1,060 (74.3%) were influenza B viruses.
 - While influenza A (H3N2) viruses have predominated this season, the most frequently identified influenza virus type reported by public health laboratories since mid-March was influenza B viruses.
 - During the week ending April 22, 66 (30.7%) of the 215 influenza-positive tests reported to CDC by public health laboratories were influenza A viruses and 149 (69.3%) were influenza B viruses. Of the 60 influenza A viruses that were subtyped, 58 (96.7%) were H3N2 viruses and 2 (3.3%) was (H1N1)pdm09 virus.
 - Since October 1, 2016, antigenic and/or genetic characterization shows that the majority of the tested viruses remain similar to the recommended components of the 2016-2017 Northern Hemisphere vaccines.
 - Since October 1, 2016, CDC tested 3,056 specimens (291 influenza A (H1N1)pdm09, 2,071 influenza A (H3N2), and 694 influenza B viruses) for

resistance to the neuraminidase inhibitors antiviral drugs. None of the tested viruses were found to be resistant to oseltamivir, zanamivir, or peramivir.

[FluView \(http://www.cdc.gov/flu/weekly/fluactivitysurv.htm\)](http://www.cdc.gov/flu/weekly/fluactivitysurv.htm) is available – and past issues are [archived \(http://www.cdc.gov/flu/weekly/pastreports.htm\)](http://www.cdc.gov/flu/weekly/pastreports.htm) – on the CDC website.

Note: Delays in reporting may mean that data changes over time. The most up to date data for all weeks during the 2016-2017 season can be found on the current [FluView\(http://www.cdc.gov/flu/weekly/\)](http://www.cdc.gov/flu/weekly/).

Treatment of Influenza

Antiviral drugs can be used to treat flu illness and prevent serious flu complications.

- There are prescription drugs, called “influenza antiviral drugs” that can be used to treat the flu or to prevent infection with flu viruses.
- Treatment with antivirals works best when begun within 48 hours of getting sick, but can still be beneficial when given later in the course of illness.
- Treatment with flu antiviral drugs can make your illness milder and shorter. Treatment with antivirals can also lessen the risk of being hospitalized or dying from flu.
- Antiviral drugs become even more important when circulating flu viruses are very different from the vaccine viruses; which can mean that the vaccine’s effectiveness is reduced against those viruses.
- Antiviral drugs are effective across all age and risk groups.
- Prescription antiviral drugs are under-prescribed for high risk people who get flu.
- Treating high risk people or people who are very sick with flu with antiviral drugs is very important. It can mean the difference between having a milder illness instead of very serious illness that could result in a hospital stay.
 - Multiple FDA-approved influenza antiviral agents are recommended for use in the United States during the 2016-2017 influenza season: oseltamivir (Trade Name Tamiflu®), zanamivir (Trade Name: Relenza®), and peramivir (Trade Name: Rapivab®).
 - Generic versions of Tamiflu® (oseltamivir phosphate) are available for the first time this season in the United States.

- Visit <http://www.cdc.gov/flu/professionals/antivirals/index.htm> for information about how antiviral medications can be used to prevent or treat influenza when influenza activity is present in your community.
- A summary of antiviral recommendations for clinicians is available on the CDC website at <http://www.cdc.gov/flu/professionals/antivirals/summary-clinicians.htm>.
- As always, people who are at high risk for influenza complications should see a health care professional promptly if they get flu symptoms, even if they have been vaccinated this season.
 - People at high risk for serious flu complications include: people with underlying chronic medical conditions such as asthma, diabetes, heart disease, or neurological conditions; pregnant women; those younger than 5 years or older than 65 years of age; or anyone with a weakened immune system. A full list of high risk factors is available at http://www.cdc.gov/flu/about/disease/high_risk.htm.
- More information about everyday preventive actions that help fight flu is available at <http://www.cdc.gov/flu/protect/habits.htm>.

Influenza-Associated Pediatric Deaths

- Six influenza-associated pediatric deaths are being reported by CDC for the week ending April 22, 2017.
 - One death was associated with an influenza A (H3) virus and occurred during week 6 (the week ending February 11, 2017).
 - One death was associated with an influenza A virus for which no subtyping was performed and occurred during week 15 (the week ending April 15, 2017).
 - Four deaths were associated with an influenza B virus and occurred during week 15 (the week ending April 15, 2017).
- A total of 83 influenza-associated pediatric deaths have been reported for the 2016-2017 season.
- Since 2004, when pediatric deaths associated with influenza infection became nationally notifiable, the number of deaths reported to CDC each year has ranged from 37 (2011-2012 season) to 171 deaths (2012-2013 season).
- Last season, 2015-2016, 89 influenza-associated pediatric deaths were reported to CDC.
- Because of confidentiality issues, CDC does not discuss or give details on individuals.
- These deaths are a somber reminder of [the danger flu poses to children](#).

- The single best way to protect against seasonal flu and its potentially severe consequences in children is to get a [seasonal flu vaccine](#) each year.
- Vaccination is important for children younger than 5 years. It is especially important for those younger than 2 years and children of any age with a long-term health condition like asthma, diabetes and heart disease and neurological and neurodevelopmental diseases. These children are at higher risk of [serious flu complications](#) if they get the flu.
- Yearly vaccination also is especially important for people in contact with high risk children in order to protect the child (or children) in their lives from the flu. In particular, children younger than 6 months are too young to be vaccinated themselves but are at high risk of flu complications if they get sick so the people around them should get vaccinated to protect the infant.
- Some children 6 months through 8 years of age require 2 doses of influenza vaccine. Children in this age group who are getting vaccinated for the first time will need two doses. Some children who have received influenza vaccine previously also will need two doses this season. A health care provider should be consulted to determine whether two doses are recommended for a child.
- Flu-related deaths in children younger than 18 years old should be reported through the Influenza-Associated Pediatric Mortality Surveillance System. The number of flu-associated deaths among children reported during the 2016-2017 flu season will be updated each week and can be found at www.cdc.gov/flu/weekly/.

2017-2018 Northern Hemisphere Influenza Vaccine Virus Selection

- On March 2, 2017, [the World Health Organization \(WHO\) announced the recommended influenza vaccine virus composition for the 2017-2018 Northern Hemisphere vaccines.](#)
- Subsequently, on March 9, the U.S. Food and Drug Administration's [Vaccines and Related Biological Products Advisory Committee \(VRBPAC\)](#) made the influenza vaccine composition [recommendation for the United States.](#)
- Both groups recommended that [trivalent flu vaccines](#) be produced using:
 - an A/Michigan/45/2015 (H1N1)pdm09-like virus
 - an A/Hong Kong/4801/2014 (H3N2)-like virus
 - a B/Brisbane/60/2008-like (B/Victoria lineage) virus

- Quadrivalent vaccines, which protect against a second lineage of B viruses, are recommended to be produced using the same viruses recommended for the trivalent vaccines, as well as a B/Phuket/3073/2013-like (B/Yamagata lineage) virus.
- This represents an update in the H1N1 component of the vaccine compared to 2016-2017 Northern Hemisphere seasonal influenza vaccines.
- While most influenza A(H1N1)pdm09 viruses collected in recent months (from Sept 2016 – Feb 2017) were antigenically similar to the vaccine viruses used in the 2016-2017 Northern Hemisphere vaccines using traditional test methods, circulating H1N1 viruses were poorly inhibited by some post-vaccination (A/California/7/2009) adult human sera, indicating that those adults may receive less protection against recently circulating H1N1 viruses from vaccine made with the A/California/7/2009-like virus.
- To address this, an A/Michigan/45/2015(H1N1)pdm09-like virus was recommended for use in the production of 2017-2018 Northern Hemisphere vaccines in place of A/California/7/2009(H1N1)pdm09-like virus, which had been the recommended H1N1 vaccine component since 2009.
- The virus recommendations are the same as those made for 2017 Southern Hemisphere influenza vaccines.
- More information about selecting the viruses to use in vaccine production is available at <http://www.cdc.gov/flu/about/season/vaccine-selection.htm>.