

Summary of the 2014–2015 Influenza Season

Season Summary Reports

- [Seasonal Influenza Vaccine Effectiveness, 2014-2015](#)
- [Vaccine Benefits from the 2014 – 2015 Flu Season](#)
- [Vaccine Coverage in the U.S. 2014-2015 Flu Season](#)

What was the 2014–2015 flu season like?

Compared with the previous five influenza seasons, the 2014-2015 season was moderately severe, with overall high levels of outpatient illness, high levels of hospitalization and a relatively high percentage of deaths attributed to pneumonia and influenza. The season was a severe one for people 65 years and older. The season was a relatively early in terms of timing, with influenza activity increasing through November and December, and peaking in late December.

The frequency of outpatient visits to doctors for influenza like illness (ILI) went above the national baseline the week ending November 22, 2014 and remained elevated for 20 consecutive weeks, making the season longer than average and the longest in more than a decade. Over the previous 13 seasons, ILI was at or above baseline for 13 weeks on average, with a range of one week to 19 weeks. See [2014-2015 Flu Season Drawing to a Close](#) for more information.

When did the 2014–2015 flu season peak?

While flu activity levels varied across the country, influenza activity began increasing nationally in November and peaked in late December, when 33% of respiratory specimens tested positive for influenza and 6.0% of outpatient visits to healthcare providers were for ILI. The timing of flu is unpredictable and can vary in different parts of the country and from season to season. However, flu activity most [often peaks in February](#) and can last into May.

More information about flu activity during the 2014-2015 season can be found in [2014-2015 Flu Season Drawing to a Close](#), [FluView](#), and the MMWR report [Update: Influenza Activity – United States, 2014-15 Season and Composition of the 2015-16 Influenza Vaccine](#).

[FluView interactive](#) provides visualizations of influenza information collected by CDC's monitoring systems.

How is influenza disease severity characterized?

The overall health impact (e.g., outpatient illnesses, hospitalizations and deaths) of a flu season varies from year to year. Based on available data from U.S. influenza surveillance systems that are monitored and reported on by CDC, the severity of a flu season is judged according to a variety of criteria, including:

- The number and proportion of respiratory specimens that are influenza-positive;
- The proportion of visits to healthcare providers that are due for ILI;
- The proportion of all deaths that are caused by pneumonia and influenza ;
- The number of flu-associated deaths among children; and
- Flu-associated hospitalization rates.

CDC assesses the severity of a season by comparing the data from these measures with data from previous seasons.

How many people died from flu during the 2014–2015 season?

CDC does not count how many people die from flu each year. Unlike flu deaths in children, flu deaths in adults are not nationally reportable. However, CDC has [two flu surveillance systems](#) that are used to monitor relative levels of flu-associated deaths. One is the 122 Cities Mortality Reporting System and the other is mortality data collected by the National Center for Health Statistics. Both of these systems track the proportion of death certificates processed that list pneumonia or influenza as the underlying or contributing cause of death of the total deaths reported. These systems provide an overall indication of whether flu-associated deaths are elevated, but do not provide an exact number of how many people died from flu. For more information, see [Overview of Influenza Surveillance in the United States](#).

CDC also uses modeling studies to estimate numbers of flu-related deaths, but these studies apply only to past seasons and are not done each year. For more information, see [Estimating Seasonal Influenza-Associated Deaths in the United States: CDC Study Confirms Variability of Flu](#).

Why is it difficult to know how many people die from flu?

There are several factors that make it difficult to determine accurate numbers of flu-associated deaths. Some of the challenges in counting influenza-associated deaths include the following: the sheer volume of deaths to be counted; the fact that not everyone that dies with an influenza-like illness is tested for influenza; and the fact that influenza-associated deaths are often a result of complications secondary to influenza and underlying medical problems, and this may be difficult to sort out. For more information, see [Estimating Seasonal Influenza-Associated Deaths in the United States: CDC Study Confirms Variability of Flu](#).

What flu viruses circulated during the 2014–2015 season?

Overall, influenza A (H3N2) viruses predominated nationally, followed by influenza B viruses; influenza A (H1N1)pdm09 viruses were identified less frequently.

Influenza A viruses were more commonly detected until late February 2015, after which there was substantial influenza B activity. Influenza B viruses predominated from the week ending February 28, 2015 (week 8) through the week ending May 23, 2015 (week 20).

The relative proportion of each type and subtype varied by geographic region and by week.

Who was most severely impacted during the 2014–2015 season?

While influenza virus infection can be serious for anyone, hospitalization data indicate people 65 years and older were more severely impacted by the 2014-2015 flu season, relative to other age groups and relative to previous seasons.

Among people 65 years and older, there were an estimated 8.3 million illnesses, 4.7 million medical visits and 758,000 flu hospitalizations during the 2014-2015 season. CDC estimates that the overall burden of influenza disease estimated across all age groups was 40 million flu illnesses, 19 million flu-associated medical visits, and 970,000 flu-associated hospitalizations. See [Estimated Influenza Illnesses and Hospitalizations Averted by Vaccination – United States, 2014-15 Influenza Season](#) for more information.

These data are consistent with observations of the burden of flu illness in the elderly from previous years: data from statistical modeling studies looking at flu seasons from 1979 to 2001 estimate that as many as 60% of flu-related hospitalizations occurred among people 65 years and older.

How many children died from the flu during the 2014–2015 season?

As of February 1, 2016, a total of 148 laboratory-confirmed, influenza-associated pediatric deaths occurring during the 2014-2015 flu season were reported to CDC from 41 states and New York City.

Since influenza-associated pediatric mortality became a nationally-notifiable condition during the 2004-2005 season, the total number of influenza-associated pediatric deaths has ranged from 34 to 171. (This excludes the 2009 pandemic, when 358 pediatric deaths were reported to CDC during April 15, 2009, through October 2, 2010.)

More information about reported pediatric deaths is available at [FluView: Influenza-Associated Pediatric Mortality](#).

Were infections with novel (non-human) influenza viruses detected during 2014–2015?

Yes, three cases of human infection with novel influenza A viruses were reported during the 2014-2015 influenza reporting period. One infection with an influenza A (H3N2) variant virus (H3N2v) occurred during the week ending October 18, 2014 (week 42) in Wisconsin, and one infection with an influenza A (H1N1) variant (H1N1v) virus was reported to CDC during the week ending January 24, 2015 (week 3), from Minnesota. Both patients had illness onset in October 2014 and reported contact with swine in the week preceding illness. Both patients fully recovered, and no further cases were identified in contacts of either patient. The third case, a fatal infection with an influenza A (H1N1)v virus was reported from Ohio during the week ending May 2, 2015 (week 17). The patient worked at a livestock facility that housed swine, but no direct contact with swine in the week before illness onset was reported. The patient died from complications of the infection, and no ongoing human-to-human transmission was identified.

Swine flu viruses do not normally infect humans. However, sporadic human infections with swine influenza viruses have occurred. When this happens, these viruses are called “variant viruses.” They also can be denoted by adding the letter “v” to the end of the virus subtype designation. Human infections with H1N1v, H3N2v and H1N2v viruses have been detected in the United States. See [Information on Swine Influenza/Variant Influenza Viruses](#) and [Reported Infections with Variant Influenza Viruses in the United States since 2005](#) for more information.

What kind of vaccines were available in the United States during the 2014–2015 season?

A number of different manufacturers produced trivalent (three component) influenza vaccines for the U.S. market, including intramuscular (IM), intradermal, and nasal spray vaccines. Some seasonal flu vaccines were formulated to protect against four flu viruses (quadrivalent flu vaccines).

See [Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices \(ACIP\) – United States, 2014-15 Influenza Season](#), [Key Facts About Seasonal Flu Vaccine](#) and [How Flu Vaccines Are Made](#) for more information.

Were there new recommendations for the 2014–2015 influenza season?

Recommendations on the control and prevention of influenza are published annually, in late summer or early fall. Recommendations for the 2014-2015 season are available in the [Morbidity and Mortality Weekly Report \(MMWR\)_Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices \(ACIP\) – United States, 2014-15 Influenza Season](#). During the 2014-2015 flu season, CDC recommended use of the nasal spray vaccine (LAIV) for healthy* children 2 through 8 years of age, when it was immediately available and if the child had no contraindications or precautions to that vaccine. For more information, see [Nasal Spray Flu Vaccine in Children 2 through 8 Years Old](#) or the [2014-2015 MMWR Influenza Vaccine Recommendations](#). However, on February 26, 2015, the Advisory Committee on Immunization Practices (ACIP) did not renew the preferential recommendation for LAIV for the 2015-2016 season. The ACIP recommendations must be approved by the CDC Director at which point they are published in the MMWR and become CDC policy. More information on this vote is available at the [CDC Newsroom](#).

(*“Healthy” in this instance refers to children 2 years through 8 years old who do not have an underlying medical condition that predisposes them to influenza complications.)

Visit [What's New on this Site](#) to sign up and receive updates from the CDC Influenza site.

How much flu vaccine was produced and distributed during the 2014–2015 season?

Flu vaccine is produced by private manufacturers. Information about the number of seasonal flu vaccine doses distributed this season is available at [Seasonal Flu Vaccine & Total Doses Distributed](#). In September, seven influenza vaccine manufacturers projected about 151 million to 156 million doses of influenza vaccines would be available for the U.S. market during the 2014-2015 season. Of those projected doses, manufacturers estimated that 76 million doses would be quadrivalent flu vaccine. As of February 2015, approximately 147.8 million doses of flu vaccine were distributed.

Information about vaccine supply is available at [2014-15 Seasonal Influenza Vaccine – Total Doses Distributed](#).

What flu viruses did the 2014–2015 flu vaccines protect against?

Flu vaccines are designed to protect against the main flu viruses that research suggests will be the most common during the upcoming season. Three kinds of flu viruses commonly circulate among people today: influenza A (H1N1) viruses, influenza A (H3N2) viruses, and influenza B viruses. Each year, reference viruses are used to produce seasonal influenza vaccine.

All of the 2014-2015 influenza vaccine was made to protect against:

- an A/California/7/2009 (H1N1)pdm09-like virus
- an A/Texas/50/2012 (H3N2)-like virus
- a B/Massachusetts/2/2012-like virus.

Some of the 2014-2015 flu vaccine was quadrivalent vaccine. In addition to the above three, quadrivalent vaccines were made to protect against an B/Brisbane/60/2008-like virus.

Vaccines that give protection against three viruses are called trivalent vaccines. Vaccines that give protection against four viruses are called quadrivalent vaccines.

More information about influenza vaccines is available at [Preventing Seasonal Flu With Vaccination](#).

How effective was the 2014–2015 flu vaccine?

CDC's end-of-season influenza vaccine effectiveness (VE) estimates for the 2014-2015 season were presented to the Advisory Committee on Immunization Practices (ACIP) on June 24, 2015. CDC's adjusted overall VE estimate against influenza A and B viruses for all ages was 23%. The adjusted VE estimate against influenza A (H3N2) viruses for all ages was 13%.

Reduced protection against influenza A (H3N2) viruses for the 2014-2015 season was attributed to the fact that more than 80% of circulating influenza A (H3N2) viruses analyzed at CDC were different or "drifted" from the recommended influenza A (H3N2) vaccine virus.

These vaccine effectiveness estimates were derived from data collected from the U.S. Flu VE Network from November 10, 2014, through April 10, 2015.

See [Seasonal Influenza Vaccine Effectiveness, 2005-2015](#) for more information.

Was this season's vaccine a good match for circulating viruses?

Laboratory analysis of circulating flu viruses indicated that most of the influenza A (H3N2) viruses were antigenically or genetically different than the influenza A (H3N2) vaccine virus. This is probably why there was reduced vaccine effectiveness against those drifted influenza A (H3N2) viruses. However, the vaccine worked well against about one-third of circulating influenza A (H3N2) viruses that were similar to the recommended vaccine virus and against influenza A (H1N1) and influenza B viruses.

Why didn't the 2014–2015 season vaccine contain the right H3N2 virus?

Experts must pick which viruses to include in the vaccine many months in advance of the flu season in order for vaccine to be produced and delivered on time. And flu viruses change constantly; they can change from one season to the next or they can even change within the course of one flu season. Because of these factors, there is always the possibility of a less than optimal match between circulating viruses and the viruses in the vaccine.

When the vaccine viruses for 2014-2015 were selected, A/Texas/50/2012 was the most common circulating influenza A (H3N2) virus, so it was chosen to be included in the vaccine. The drifted influenza A (H3N2) viruses that circulated during the 2014-2015 season were first detected during routine surveillance testing in late March 2014, after World Health Organization (WHO)

recommendations [for the vaccine composition for the Northern Hemisphere formulation of the 2014-2015 vaccine were made \(in mid-February\)](#). At that time, only a very small number of these viruses had been found among the thousands of specimens that had been collected and tested and there was no way to predict that they would circulate widely.

What did CDC do to monitor vaccine effectiveness during the 2014-2015 season?

CDC collaborates with other partners each season to assess how well the seasonal vaccines are working. During the 2014-2015 season, CDC completed multiple studies on the [effectiveness of both the flu shot and the nasal-spray flu vaccine](#). These studies measured vaccine effectiveness in preventing laboratory-confirmed influenza among persons 6 months of age and older. See [Seasonal Influenza Vaccine Effectiveness, 2005-2015](#) for CDC's vaccine effectiveness estimates for the 2014-15 season.

What did CDC do to monitor antiviral resistance in the United States during the 2014-2015 season?

CDC routinely collects and monitors flu viruses for changes through an established network of domestic and global surveillance systems. One of the things that CDC looks for are [changes in viruses](#) that would make antiviral drugs less effective in treating or preventing infection. Additionally, CDC works with the state public health departments and the World Health Organization to collect additional information on antiviral resistance in the United States and worldwide. The information collected will assist in making informed recommendations regarding use of antiviral drugs to treat influenza.

Publications

Morbidity and Mortality Weekly Reports (MMWR)

- [Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices \(ACIP\) — United States, 2014-15 Influenza Season, MMWR 2014, August 15, 2014 / 63\(32\);691-697](#)
- [Influenza Activity — United States, 2014-15 Season and Composition of the 2015-16 Influenza Vaccine. MMWR June 5, 2015 / 64\(21\);583-590](#)
- [Update: Influenza Activity — United States, September 28, 2014–February 21, 2015. MMWR March 6, 2015 / 64\(08\);206-212](#)
- [Early Estimates of Seasonal Influenza Vaccine Effectiveness — United States, January 2015. MMWR January 16, 2015 / 64\(01\);10-15](#)
- [Update: Influenza Activity — United States, September 28–December 6, 2014. MMWR December 19, 2014 / 63\(50\);1189-1194](#)
- [2014-15 Season Vaccination Coverage Reports: FluVaxView](#)
- [Estimated Influenza Illnesses and Hospitalizations Averted by Vaccination — United States,](#)
- [Update: Influenza Activity — United States and Worldwide, May 18–September 20, 2014, MMWR 2014 / 63\(39\);861-864](#)
- [2013-14 Influenza Season. MMWR December 12, 2014 / 63\(49\);1151-1154](#)

CDC Flu Reports & Spotlights

- [CDC Statement on LAIV Effectiveness and Vaccination of Children](#)