

Summary of the 2015–2016 Influenza Season

Note: See [Frequently Asked Flu Questions 2017-2018 Influenza Season](#) for flu and flu vaccine information specific to the current flu season.

Season Summary Reports

- [Seasonal Influenza Vaccine Effectiveness, 2015-2016](#)
- [Vaccine Benefits from the 2015 – 2016 Flu Season](#)
- [Vaccine Coverage for in U.S 2015-16 Flu Season](#)

What was the 2015-2016 flu season like?

Flu seasons can vary in their timing, severity, and duration from one season to another. The 2015-2016 flu season started a little later than the previous three flu seasons. The season also peaked later. While H3N2 viruses predominated early in the season, H1N1 viruses were the most common later in the season and were the predominant virus for the entire season. This is the virus that emerged in 2009 to cause a pandemic and that caused severe illness in some children & young-and middle-aged adults. While there were reports of severe flu illnesses and deaths, overall the 2015-2016 season was milder than the previous three seasons.

When did the 2015-2016 flu season peak?

The timing of flu is unpredictable and can vary in different parts of the country and from season to season. Most of the time [flu activity](#) peaks between December and February, although activity can last as late as May. The peak week of flu activity in terms of influenza-like illness (ILI) for the 2015-2016 season was the week ending March 12, 2016. This is one of the later season peaks on record. Over the last 18 seasons (including the 2015-2016 season), only three seasons have peaked during March (2015-2016, 2011-2012 and 2005-2006). No season has peaked later than March.

How many people died from flu during the 2015-2016 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. During the 2015-2016 season, overall influenza activity was moderate, with a lower percentage of outpatient visits for influenza-like illness (ILI), lower hospitalization rates, and a lower percentage of deaths attributed to pneumonia and influenza (P&I) compared with the preceding three seasons (2012-2013, 2013-2014, and 2014-2015).

CDC used [two flu surveillance systems](#) to monitor relative levels of flu-associated deaths: mortality data from the National Center for Health Statistics and the 122 Cities Mortality Reporting System. 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.

Based on data from CDC's National Center for Health Statistics Mortality Surveillance System, the proportion of deaths attributed to P&I was at or slightly above the epidemic threshold for three consecutive weeks from the week ending January 2, 2016, through the week ending January 16, 2016 (weeks 52-2) and again for four consecutive weeks from the week ending February 27, 2016, through the week ending March 19, 2016 (weeks 8-11). The percentage of deaths attributed to P&I peaked at 7.9% during the week ending March 19, 2016 (week 11). During the past five influenza seasons, peak weekly percentages of deaths attributable to P&I have ranged from 8.7% during the 2011-12 season to 11.1% during the 2012-13 season.

Based on 122 Cities Mortality Reporting System data, the weekly percentage of deaths attributed to P&I exceeded the epidemic threshold for the weeks ending January 16, 2016 (week 2) and February 27, 2016 (week 8), and again for 5 consecutive weeks from the week ending March 19, 2016, through the week ending April 16, 2016 (weeks 11-15), and finally, for 2 consecutive weeks from the week ending May 7, 2016, through the week ending May 14, 2016 (weeks 18-19). P&I mortality peaked at 7.8% during the week ending March 26, 2016 (week 12). During the past five influenza seasons, peak

weekly percentages of deaths attributable to P&I have ranged from 7.9% during the 2011–12 season to 9.9% during the 2012–13 season. More information about pneumonia and influenza-associated mortality is available in the [2015-2016 influenza season Morbidity and Mortality Weekly Report \(MMWR\)](#).

How many children died from the flu during the 2015-2016 season?

As of September 15, 2016, a total of 85 laboratory-confirmed influenza-associated pediatric deaths occurring during the 2015-2016 flu season were reported to CDC from Puerto Rico, the District of Columbia, and 33 states. Sometimes there is a lag time for reporting of pediatric deaths. For the most recent data and more information visit [FluView: Influenza-Associated Pediatric Mortality](#).

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 37 to 171. (This excludes the 2009 pandemic, when 358 pediatric deaths were reported to CDC during April 15, 2009, through October 2, 2010.)

What flu viruses circulated during the 2015-2016 season?

Overall, influenza A(H1N1)pdm09 viruses predominated during the 2015-2016 season. However, influenza A (H3N2), A(H1N1)pdm09 and influenza B viruses from both lineages were detected last season. Influenza A(H3N2) viruses were more commonly identified from October through early December, and influenza B viruses were more commonly identified from mid-April through mid-May.

Were infections with novel (non-human) influenza viruses detected during 2015-2016?

As of September 15, 2016, seven human infections with novel influenza A viruses were reported to CDC during 2015-2016.

An influenza A(H1N1)pdm09 variant (H1N1v) virus infection was reported by Minnesota during the week ending December 12, 2015. The patient reported no direct contact with swine in the week before illness onset, but lived and worked in an area near where swine were housed.

Six influenza A(H3N2) variant (H3N2v) virus infections were reported in 2015-2016, and they are listed as follows: New Jersey (1), Minnesota (1), Ohio (2), and Michigan (2). The New Jersey patient (reported during the week ending January 2, 2016) reported no direct contact with swine during the week before symptom onset, but had visited a farm where swine were present. The Minnesota patient (reported during the week ending May 7, 2016) was hospitalized as a result of the illness, but recovered fully. The source of the infection could not be determined. The Ohio (2) and Michigan (2) patients reported attending fairs where they had exposure to pigs during the week preceding illness onset. The Ohio patients were not related; however, both reported attending the same fair in Ohio. Similarly, the Michigan cases both attended the same fair in Michigan, but are otherwise unrelated to each other.

There was no evidence of human-to-human transmission associated with any of these reports.

How much flu vaccine was produced and distributed during the 2015-2016 season?

Flu vaccine is produced by private manufacturers, so [supply](#) depends on manufacturers. For 2015-2016, manufacturers originally projected that they would provide between 171 and 179 million doses of vaccine for the U.S. market. As of February 26, 2016, manufacturers reported having shipped approximately 146.4 million doses of flu vaccine. More information about flu vaccine supply is available at [Seasonal Influenza Vaccine & Total Doses Distributed](#).

How effective was the 2015-2016 flu vaccine?

CDC's end-of-season influenza vaccine effectiveness (VE) estimates for the 2015-2016 season were presented to the [Advisory Committee on Immunization Practices \(ACIP\) on June 22, 2016](#). CDC's adjusted overall VE estimate against influenza A and B viruses for all ages was 47%. The overall VE against A(H1N1)pdm09 was 41% and the overall VE against influenza B was 55%. This data is consistent with VE observed during previous seasons when vaccine viruses and circulating viruses were similar. These vaccine effectiveness estimates were derived from data collected from the U.S. Flu VE Network from November 2, 2015, through April 15, 2016.

See [Seasonal Influenza Vaccine Effectiveness, 2005-2016](#) for more information.

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

Yes. Laboratory data show that most of the circulating flu viruses were like the viruses recommended for the 2015-2016 influenza vaccines.

How many antiviral resistant viruses were detected during the 2015-2016 season?

Between October 4, 2015 and May 21, 2016, CDC and its partner laboratories detected 18 influenza A(H1N1)pdm09 viruses (0.8%) in the United States that were resistant to the antiviral drugs oseltamivir and peramivir. All influenza A(H1N1)pdm09 viruses tested were susceptible to zanamivir. High levels of resistance to the adamantanes (amantadine and rimantadine) persisted among influenza A viruses.

Did CDC do anything different in terms of virologic surveillance during the 2015-2016 season?

Yes. In advance of the 2015-2016 season, CDC and the Association of Public Health Laboratories (APHL) shared revised guidelines with public health laboratories for submitting influenza viruses to CDC for testing. The revised guidelines set the recommended number of flu viruses of each type and subtype to be submitted to CDC by each laboratory, along with when and how those viruses should be submitted.

The revisions were implemented with the goal of yielding a more balanced and comprehensive picture of antigenic, genetic, and antiviral properties of the main groups of flu viruses circulating in the United States. During past seasons, the viruses that have been submitted to CDC have not been fully representative of the main circulating flu viruses (A(H1N1)pdm09, H3N2, and B); specifically, predominantly circulating viruses have often been over-represented among submitted samples. It is important to have equally strong surveillance data for the main groups of circulating flu viruses since this data is needed to inform vaccine virus selection and different viruses can predominate from season to season.

Publications

Morbidity and Mortality Weekly Reports (*MMWR*)

- [Update: Influenza Activity — United States and Worldwide, May 24–September 5, 2015](#)
- [Update: Influenza Activity — United States, October 4, 2015–February 6, 2016](#)
- [Early Estimates of Seasonal Influenza Vaccine Effectiveness — United States, January 2015](#)
- [Update: Influenza Activity — United States, September 28, 2014–February 21, 2015](#)
- [Influenza Activity — United States, 2014–15 Season and Composition of the 2015–16 Influenza Vaccine](#)

CDC Flu Reports & Spotlights

- [Avian Influenza H7N8 Update](#)
- [New CDC Observational Study: The Effect of Influenza Vaccination on Birth Outcomes](#)
- [CDC Collaborative Study: Improved Global Capacity for Influenza Surveillance](#)
- [New CDC Vaccine Effectiveness Study Uses Innovative Approach to Measure Vaccine Benefits](#)
- [CDC Collaborative Study: Influenza Seasonality in the Tropics and Sub-tropics](#)
- [CDC Collaborative Study: Influenza Important Cause of Respiratory Hospitalizations Worldwide](#)
- [Patients With Flu-Associated Pneumonia Less Likely to Have Received Flu Vaccine ↗](#)
- [Study Looks at Flu Vaccine Dosing in Children](#)