

Summary of the 2012–2013 Influenza Season

Season Summary Reports

- [Seasonal Influenza Vaccine Effectiveness, 2012-2013](#)
- [Vaccine Coverage in the U.S. 2012-2013 Flu Season](#)

Flu Activity During the 2012–2013 Season

What was the 2012–2013 flu season like?

In comparison to other recent seasons, the 2012-2013 season was moderately severe, with a high percentage of outpatient visits for influenza-like illness (ILI), high rates of hospitalization (particularly among people 65 years and older), and more reported deaths attributed to pneumonia and influenza compared with recent years. This season had a somewhat early increase in flu activity through November and December, with a peak in late December. Influenza-like-illness rose quickly to well above the baseline of expected activity and remained elevated for 15 consecutive weeks, making this season slightly longer than average.

Additional information about flu activity during the 2012-2013 season can be found in [2012-2013 Flu Season Draws to a Close](#) and in the MMWR article [Influenza Activity — United States, 2012-13 Season, and Composition of the 2013-14 Influenza Vaccine](#).

When did the 2012–2013 flu season peak?

While flu activity can vary across the country, influenza activity peaked nationally in late December, when 38.2% of respiratory specimens were influenza-positive and the peak percentage of outpatient visits for ILI was 6.1%. Flu activity most commonly peaks in the United States between December and February.

This was one of the highest reported peaks since the system began reporting in its current format in 1997. In contrast, the peak percentage of outpatient visits for ILI during the previous influenza season (2011–12) was 2.4% (which occurred in mid-March).

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

How severe was the season?

Overall, the 2012-2013 season was moderately severe, with a high percentage of outpatient visits for ILI, high rates of hospitalization (particularly among people 65 years and older), and more reported deaths attributed to pneumonia and influenza compared with recent years.

Pneumonia and influenza related deaths in adults and children were tracked through the 122 Cities Mortality Report System. Pneumonia and influenza diagnoses (P & I) first rose above the epidemic threshold the week ending January 5, 2013 and peaked the week ending January 19, 2013 at 9.9 percent. This was the highest recorded P & I in nearly a decade, but it is comparable to recorded percentages for past severe seasons, including 2003-2004 when P&I reached 10 percent.

Additional information about severity of the 2012-2013 season can be found in the MMWR article [Influenza Activity — United States, 2012-13 Season, and Composition of the 2013-14 Influenza Vaccine](#).

How is severity characterized?

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

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

A season's severity is determined by assessing several of these measures and by comparing available data with previous seasons.

What flu viruses circulated this season?

Over the course of the entire 2012–2013 season, influenza A (H3N2) viruses predominated nationally, followed by influenza B viruses; 2009 influenza A (H1N1) viruses were identified less frequently.

Influenza A viruses predominated until the end of February 2013, after which influenza B viruses were detected more often.

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

Who was most severely impacted this flu season?

While influenza can be serious for everyone, hospitalization data indicate people 65 and older were more severely impacted by the 2012–2013 flu season, relative to other age groups.

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

How many children died from the flu this season?

As of October 2014, more than 170 laboratory-confirmed, influenza-associated pediatric deaths were reported during the 2012–2013 flu season.

Since influenza-associated pediatric mortality became a nationally-notifiable condition during the 2004–2005 season, the total number of influenza-associated pediatric deaths had previously ranged from 34 to 123 per season. (This excludes the 2009 pandemic, when 348 pediatric deaths were reported to CDC during April 15, 2009, through October 2, 2010.)

Were infections with novel (non-human) influenza viruses detected in 2012–2013?

In the summer of 2012, before the 2012–2013 flu season officially began, 307 cases of influenza A (H3N2) variant viruses (or “H3N2v”) infections were detected across 12 states. These infections in humans were mostly associated with prolonged exposure to pigs at agricultural fairs.

During the 2012–13 influenza season, two additional H3N2v cases were reported, bringing the total number of H3N2v cases to 309. One was reported from Minnesota, and the other from Iowa. Both infections occurred in children, one of which had known exposure to swine. Both patients recovered fully. See [Influenza A \(H3N2v\) virus](#) for more information.

Flu Vaccine Information for 2012–2013

How effective was the 2012–2013 seasonal flu vaccine?

Final vaccine effectiveness (VE) estimates for the 2012-2013 influenza season found that influenza vaccine was 52% (95% CI, 46% to 58%) effective at preventing medically-attended acute respiratory illnesses caused by circulating influenza A and B viruses in people of all ages. This estimate is adjusted for age, sex, race/ethnicity, study site, illness onset date, calendar date, assessments of self-rated health and pre-existing medical conditions. This VE estimate means that getting a flu vaccine this season reduced the vaccinated population's risk of having to go to the doctor because of the flu by more than half, and was similar to the preliminary VE estimate reported earlier in the 2012-2013 season (56%, 95% CI, 47% to 63%).

When looking at flu virus specific VE, effectiveness against flu A (H3N2) virus – which was the main virus spreading this season – was estimated to be 47% (95% CI: 35% to 58%), while effectiveness against flu B was 67% (95% CI: 51% to 78%) for all ages. These results indicate that vaccination with the 2012-2013 flu season vaccine reduced the risk of flu-associated medical visits from flu A (H3N2) viruses by one half and from flu B viruses by two-thirds for most of the population. Overall, VE estimates suggest that the 2012-2013 flu vaccine has moderate effectiveness for most people against the flu viruses spreading in the United States, similar to previously published reports.

More information about vaccine effectiveness is available at [Vaccine Effectiveness – How well does the flu vaccine work?](#) and [Flu Vaccine Effectiveness: Questions and Answers for Health Professionals](#).

Did flu vaccines work in people 65 and older this season?

CDC's VE study measured lower VE among people 65 and older against flu A this season than it did among other age groups. However, VE against flu B was similar to what was seen in other age groups, while VE against flu A (H3N2) viruses in people 65 and older was significantly lower than in other age groups. One possible explanation for this is that some older people did not mount an effective immune response to the A (H3N2) virus component of this season's flu vaccine; however, it's not possible to say this for certain. For more general information about VE in people 65 and older see, [Vaccine Effectiveness – How Well Does the Flu Vaccine Work?](#) and see the question "How effective is the flu vaccine in the elderly?"

What caused the low VE among people 65 and older against flu A (H3N2) viruses?

One possible explanation for this is that some older people did not mount an effective immune response to the flu A (H3N2) component of this season's vaccine; however, it's not possible to say this for certain. CDC recognizes the need for developing better flu vaccines in the elderly.

What did CDC do to monitor effectiveness of flu vaccines for the 2012–2013 season?

Scientists continued to work on better ways to design, conduct and evaluate non-randomized (i.e., observational) studies to assess how well flu vaccines work. CDC has been working with researchers at universities and hospitals since the 2003-2004 influenza season to estimate how well influenza vaccine works through observational studies using laboratory-confirmed influenza as the outcome. These studies currently use laboratory-confirmed medically-attended influenza virus infections as a specific outcome. CDC's studies are conducted in five sites across the United States to gather more representative data. To assess how well the vaccine works across different age groups, CDC's studies of vaccine effects have included all people aged 6 months and older recommended at that time for an annual influenza vaccination. Similar studies are being done in Australia, Canada and Europe.

How much vaccine was produced during the 2012–2013 season?

In May and September 2012, flu vaccine manufacturers originally projected about 135 million doses would be available for the U.S. market during the 2012-2013 season. Recent updates from manufacturers to CDC indicate that more doses of flu vaccine were actually produced, totaling 145 million doses.

Information about the number of seasonal flu vaccine doses distributed this season is available at [Seasonal Flu Vaccine & Total Doses Distributed](#).

Flu Antiviral Drugs

What did CDC do to monitor antiviral resistance in the United States during the 2012–13 season?

Antiviral resistance means that a virus has changed in such a way that antiviral drugs have become less effective in treating or preventing illnesses caused by the virus. Samples of viruses collected from around the United States and the world are studied to determine if they are developing resistance to any of the antiviral medications currently recommended to treat influenza.

Over the course of the 2012-2013 flu season, CDC tested more than 3,600 influenza viruses for evidence of resistance and found that the vast majority of influenza A and B viruses were sensitive to oseltamivir (trade name Tamiflu®) and zanamivir (Relenza®).

CDC routinely collects viruses through a domestic and global surveillance system to monitor for changes in influenza viruses. CDC also works with the state public health departments and World Health Organization to collect additional information on antiviral resistance in the United States and worldwide. The information assists CDC in making informed recommendations for treatment and prevention of influenza in the United States.

Publications

Morbidity and Mortality Weekly Reports (*MMWR*)

- [MMWR Influenza Activity Update, 2012-2013 Season Summary](#)

CDC Flu Reports & Spotlights

- [Study of Flu Related Deaths in Children Shows Even Healthy Children at Risk](#) October 28, 2013
- [CDC Study Shows Flu Vaccination Prevents Significant Flu Illness, Doctor's Visits and Hospitalizations](#) June 24, 2013
- [CDC Reports About 90 Percent of Children Who Died From Flu This Season Not Vaccinated](#) March 22, 2013
- [Study Shows Flu Vaccination Prevents Hospitalizations in Older Adults](#) March 8, 2013