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CDC A-Z



SEARCH

# 2010-2011 Influenza (Flu) Season

## Questions & Answers



### What was the 2010-2011 flu season like?

In comparison to the last three seasons, the 2010-2011 influenza season was less severe

than both the pandemic year (2009-2010) and the 2007-2008 season, but more severe than the 2008-2009 influenza season, as determined by the percentage of deaths resulting from pneumonia or influenza, the number of influenza-associated pediatric deaths reported, adult and pediatric hospitalization rates, and the percentage of visits to outpatient clinics for influenza-like illness (ILI).

Overall, during the 2010-2011 influenza season, the most commonly reported viruses were influenza A (H3N2), but 2009 influenza A (H1N1) viruses and influenza B viruses circulated as well. Because a certain age group may be hit harder by one type of influenza virus than another (for example, the 2009 H1N1 virus has disproportionately affected people younger than 65 years of age than those older than 65 whereas H3N2 virus often affects those older than 65 years), the 2010-2011 influenza season had a substantial health effect on every age group.

Flu seasons are unpredictable in a number of ways, including when they begin, how severe they are, how long they last, which viruses will spread, and whether the viruses in the vaccine match flu viruses that are circulating.

Additional information about flu activity during the 2010-2011 season can be found in the MMWR article [Update: Influenza Activity — United States, 2010-11 Season, and Composition of the 2011-12 Influenza Vaccine](#).

#### On this Page

- [What was the 2010-2011 flu season like?](#)
- [When did the flu season peak?](#)
- [How severe was the season?](#)
- [How is severity characterized?](#)
- [What flu viruses circulated this season?](#)
- [How effective is the seasonal flu vaccine?](#)
- [What did CDC do to monitor effectiveness of flu vaccines for the 2010-2011 season?](#)
- [Was last season's vaccine a good match for circulating viruses?](#)
- [What did CDC do to monitor antiviral resistance in the United States during the 2010-11 season?](#)
- [Were infections with unusual influenza viruses detected in 2010-2011?](#)

## When did the flu season peak?

During the 2010-2011 influenza season, overall influenza activity peaked in early February. Flu seasons most often peak in January or February in the United States. (See [graph of peak influenza activity by month in the United States from 1976-2009](#).)

The weekly percentage of outpatient visits for influenza-like illness (ILI), as reported by the U.S. Outpatient ILI Surveillance Network (ILINet), peaked in mid-February at 4.6%. This is comparable to the peaks seen in the two seasons prior to the 2009 H1N1 pandemic, which ranged from 3.5% to 6.0% and occurred in mid-to-late February. During the pandemic year, ILI peaked in late October at 7.7%.

The number of states reporting widespread or regional\* influenza activity peaked at 49 at the end of February and decreased to zero by the middle of April. The peak number of states reporting widespread or regional activity during the previous three seasons has ranged from 49 to 50 states.

*\*Regional activity is defined as increased ILI or flu outbreaks and recent laboratory-confirmed flu in at least two but less than half of the regions in a state with recent laboratory evidence of flu in those regions. Widespread flu activity is defined as increased ILI or flu outbreaks and recent laboratory-confirmed flu in at least half of the regions in a state with recent laboratory evidence of flu in the state.*

## How severe was the season?

Overall, the 2010-2011 season was less severe than the 2009-2010 pandemic season and the 2007-2008 season, but more severe than the 2008-2009 season. Additional information about severity of the 2010-2011 season can be found in the MMWR article [Update: Influenza Activity — United States, 2010-11 Season, and Composition of the 2011-12 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 flu laboratory tests that are positive;
- The proportion of visits to physicians for influenza-like illness (ILI);
- The proportion of all deaths that are caused by pneumonia and flu;

- The number of flu-associated deaths among children; and
- The flu-associated hospitalization rate among children and adults.

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

## What flu viruses circulated this season?

Although influenza A (H3N2) viruses predominated in the United States during the 2010-2011 season, high levels of 2009 influenza A (H1N1) and influenza B viruses circulated as well. The relative proportion of each virus type and subtype varied by geographic region and week during the influenza season.

Early in the season, the proportion of influenza B viruses was the greatest (primarily in the southeastern states); however, as the season progressed, an increasing proportion of sub-typed\* influenza A viruses were found to be influenza A (H1N1) viruses in several regions. Overall, however, influenza A (H3N2) viruses were most commonly reported during the 2010-2011 flu season in the United States.

*\* Subtyping is the process of identifying an influenza A virus by its genetic and antigenic (biological) properties to determine if it is an influenza A (H3N2) or influenza A (H1N1) virus. Influenza A viruses are subtyped in public health laboratories, such as state department of health laboratories and CDC Influenza Division laboratories.*

## How effective is the seasonal flu vaccine?

The effectiveness of the seasonal flu vaccine can vary from year to year and among different age and risk groups. In general, the highest vaccine effectiveness is seen among young healthy adults and older children. Lower vaccine effectiveness is reported for young children (e.g., those younger than 2 years of age), and older adults with only one randomized trial conducted in adults 60 years and older. Vaccine effectiveness also depends on the degree to which influenza vaccine viruses are well matched to circulating influenza viruses. Lower effectiveness is expected in years when the match between circulating and vaccine viruses are suboptimal. In healthy adults younger than 65 years of age, the flu vaccine can also prevent lost work days, and keep you from having to see the doctor or using unnecessary antibiotics.

For more information about seasonal flu vaccine effectiveness, visit [How Well Does the Seasonal Flu Vaccine Work?](#)

## What did CDC do to monitor effectiveness of flu vaccines for the 2010-2011 season?

Every year CDC carries out evaluations and collaborates with outside partners to assess the effectiveness of seasonal flu vaccines. CDC is currently conducting annual vaccine effectiveness studies among persons of all age groups

recommended for annual vaccination (i.e., all aged 6 months and older). In addition, CDC conducts special studies targeted at answering more specific questions, such as the effectiveness of inactivated vaccine in preventing laboratory-confirmed influenza hospitalizations among older U.S. residents.

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

Almost all of the 2,494 influenza viruses submitted to CDC for antigenic characterization were found to be similar to the components of the 2010-2011 influenza vaccine. Of the viruses tested, 99.8% of the influenza A (H1N1) viruses, 96.8% of the influenza A (H3N2) viruses, and 94% of the influenza B viruses were similar to the components of the 2010-2011 season's vaccine.

Flu viruses are constantly changing (called antigenic drift) — they often change from one season to the next or they can even change within the course of one flu season. Experts must pick which viruses to include in the vaccine many months in advance in order for vaccine to be produced and delivered on time. (For more information about the seasonal flu vaccine virus selection process, visit [Selecting the Viruses in the Influenza \(Flu\) Vaccine](#).) Because of these factors, there is always the possibility of a less than optimal match between circulating flu viruses and the viruses in the seasonal flu vaccine.

## What did CDC do to monitor antiviral resistance in the United States during the 2010-11 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 resistant to any of the four FDA-approved influenza antiviral drugs.

CDC routinely collects viruses through a domestic and global surveillance system to monitor for changes in influenza viruses. CDC conducted surveillance and testing of influenza viruses to check for antiviral resistance. CDC also worked 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 assisted in making informed public health policy recommendations.

By the end of the 2010-2011 season, almost all (99.1%) of the 2009 H1N1 influenza viruses tested for antiviral resistance at CDC were susceptible to oseltamivir (Tamiflu®), and 99.8% of the H3N2 viruses tested were susceptible to Tamiflu®. All of the influenza B viruses tested were susceptible to Tamiflu®. All virus types and subtypes tested were susceptible to zanamivir (Relenza®) by the end of the 2010-2011 season.

## Were infections with unusual influenza viruses detected in 2010-2011?

Five reports of human infections with swine origin influenza A (H3N2) viruses occurred during the 2010-2011 season. These cases were identified in Minnesota, Pennsylvania and Wisconsin. No epidemiologic links between these cases have been identified and the viruses from all five cases have genetic differences indicating different sources of infection. All five patients have fully recovered from their illnesses.

In 2007, human infection with a novel influenza A virus became a nationally notifiable condition. Novel influenza A virus infections include all human infections with influenza A viruses that are different from currently circulating human influenza H1 and H3 viruses. These viruses include those that are subtyped as nonhuman in origin. More information on [influenza surveillance in the United States](#) can be found on CDC's influenza website.

**Influenza Types**

[Seasonal](#)

[Avian](#)

[Swine](#)

[Variant](#)

[Pandemic](#)

[Other](#)

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