Influenza (Flu)

Weekly U.S. Influenza Surveillance Report

FLUVIEW

A Weekly Influenza Surveillance Report Prepared by the Influenza Division

CDC
CENTERS FOR DISEASE
CONTROL AND PREVENTION

Key Updates for Week 47, ending November 23, 2019

According to this week's FluView report, seasonal influenza activity in the United States continues to increase but the amount of activity and the predominant influenza virus varies by region.

Viruses

| Clinical Lab	Public Health Lab	Virus Characterization
8.0% of respiratory specimens tested by clinical laboratories were positive for influenza viruses. This is higher than the previous week.	Nationally, B/Victoria viruses are most common followed by A(H1N1)pdm09 and A(H3N2) viruses. The predominant virus varies by region and age group.	Genetic and antigenic characterization and antiviral susceptibility of viruses collected in the U.S. this season is now being reported.

Illness

Outpatient Illness: ILINet

2.9% of visits to health care providers were for influenza-like illness (ILI). ILI has been at or above the national baseline of 2.4% for three weeks. Four of 10 regions were at or above their baselines.

Outpatient Illness: ILI Activity Map
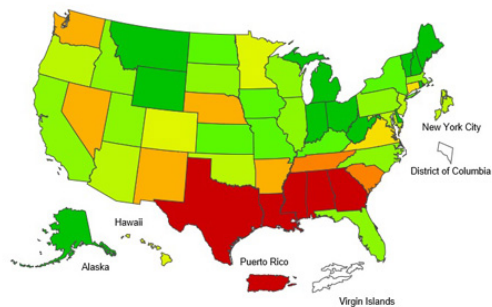
The number of jurisdictions experiencing high ILI activity remained at 8 this week. In addition, 7 jurisdictions had moderate activity compared to 0 last week.

Geographic Spread
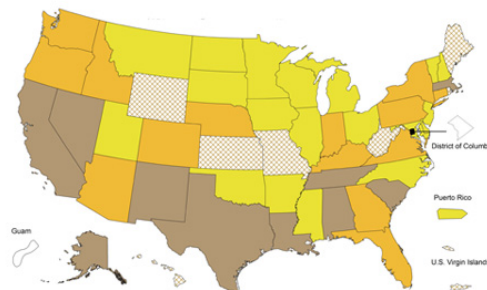
The number of jurisdictions reporting regional or widespread activity increased from 15 last week to 24 this week.

Severe Disease

Hospitalizations

The overall hospitalization rate for the season is 2.0 per 100,000. This is similar to what has been seen at this time during other recent seasons.

P&I Mortality

5.1% of deaths were attributed to pneumonia and influenza (P&I). This is below the epidemic threshold of 6.3%.

Pediatric Deaths

One new influenza-associated pediatric death occurring during the 2019-2020 season was reported to CDC this week. The total for the season is 5.

All data are preliminary and may change as more reports are received.

A description of the CDC influenza surveillance system, including methodology and detailed descriptions of each data components is available on the surveillance methods page.

Additional information on the current and previous influenza seasons for each surveillance component are available on FluView Interactive
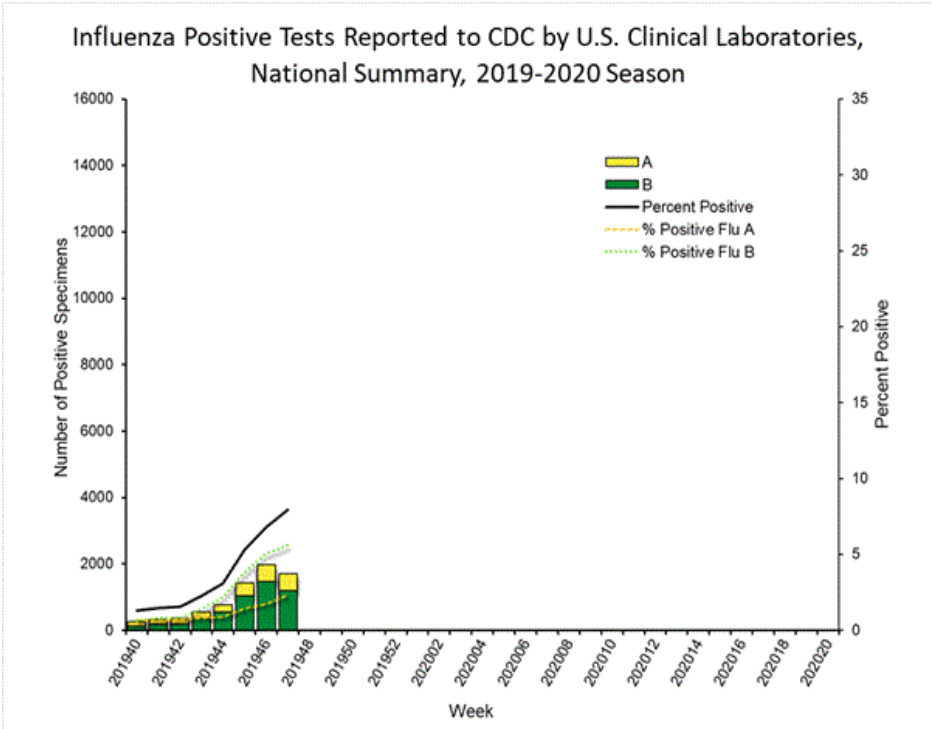
Key Points

- Nationally, ILI activity has been at or above baseline for three weeks; however, the amount of influenza activity across the country varies with the south and parts of the west seeing elevated activity while other parts of the country are still seeing low activity.
- There is significant cocirculation of influenza B/Victoria, A(H1N1)pdm09, and A(H3N2) viruses with the predominant virus varying by region and age group.
- The flu season is just getting started. It's not too late to get vaccinated. Flu vaccination is always the best way to prevent flu and its potentially serious complications.

U.S. Virologic Surveillance

Clinical Laboratories

The results of tests performed by clinical laboratories nationwide are summarized below. Data from clinical laboratories (the percentage of specimens tested that are positive for influenza) are used to monitor whether influenza activity is increasing or decreasing.

	Week 47	Data Cumulative since September 29, 2019 (week 40)
No. of specimens tested	21,367	190,649
No. of positive specimens (%)	1,702 (8.0%)	7,361 (3.9%)
Positive specimens by type		
Influenza A	504 (29.6%)	2,261 (30.7%)
Influenza B	1,198 (70.4%)	5,100 (69.3%)

Influenza Positive Tests Reported to CDC by U.S. Clinical Laboratories, National Summary, 2019-2020 Season

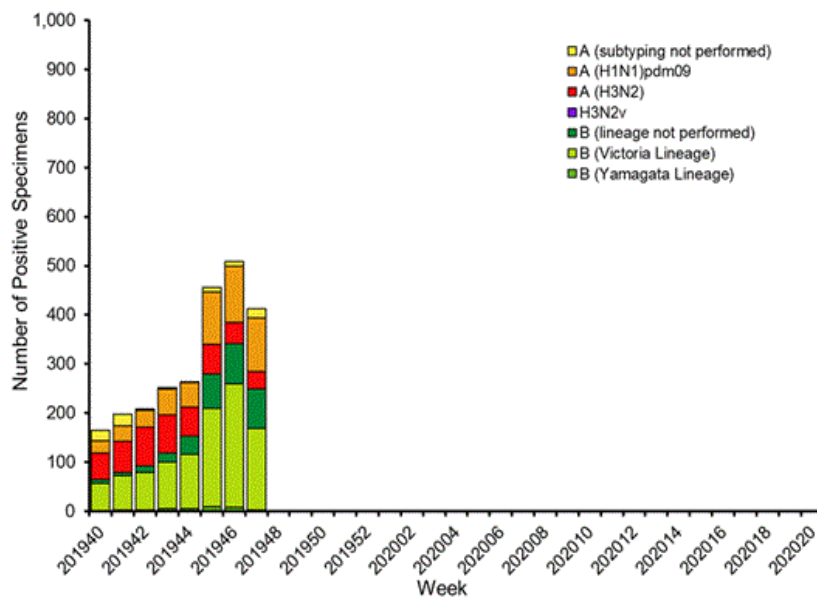View Chart Data | View Full Screen

Public Health Laboratories

The results of tests performed by public health laboratories nationwide are summarized below. Data from public health laboratories are used to monitor the proportion of circulating viruses that belong to each influenza subtype/lineage.

	Week 47	Data Cumulative since September 29, 2019 (week 40)
No. of specimens tested	1,193	10,444
No. of positive specimens	412	2,460
Positive specimens by type/subtype		
Influenza A	163 (39.6%)	1,084 (44.1%)
(H1N1)pdm09	110 (75.9%)	526 (52.7%)
H3N2	35 (24.1%)	472 (47.3%)
Subtyping not performed	18	86
Influenza B	249 (60.4%)	1,376 (55.9%)
Yamagata lineage	2 (1.2%)	35 (3.3%)
Victoria lineage	167 (98.8%)	1,028 (96.7%)
Lineage not performed	80	313

Nationally influenza B/Victoria viruses have been reported more frequently than other influenza viruses this season; followed by A(H1N1)pdm09 and A(H3N2) viruses, which are also circulating in significant numbers. The predominant virus varies by region and the proportion of influenza B/Victoria viruses is increasing in some regions. Regional and state level data about circulating influenza viruses can be found on FluView Interactive. The predominant virus also varies by age group. Nationally, influenza B/Victoria viruses are the most commonly reported influenza viruses among children age 0-4 years (50% of reported viruses) and 5-24 years (59% of reported viruses), while A(H3N2) viruses are the most commonly reported influenza viruses among persons 65 years of age and older (59% of reported viruses). Among adults aged 25-64 years, approximately equal proportions of influenza A(H1N1)pdm09 and B/Victoria viruses (32% and 33%, respectively) have been reported. Additional age data can be found on FluView Interactive.

Influenza Positive Tests Reported to CDC by U.S. Public Health Laboratories, National Summary, 2019-2020 Season

View Chart Data | View Full Screen

Additional virologic surveillance information for current and past seasons:
Surveillance Methods | FluView Interactive: National, Regional, and State Data or Age Data

Influenza Virus Characterization

CDC performs genetic and antigenic characterization of U.S. viruses submitted from state and local health laboratories using Right Size Roadmap submission guidance. These data are used to compare how similar the currently circulating influenza viruses are to the reference viruses used for developing new influenza vaccines and to monitor evolutionary changes that continually occur in circulating influenza. CDC also tests susceptibility of influenza viruses to antiviral medications including the neuraminidase inhibitors (oseltamivir, zanamivir, and peramivir) and the PA endonuclease inhibitor baloxavir.

CDC **genetically characterized** 216 influenza viruses collected in the U.S. from September 29, 2019 to November 23, 2019.

Virus Subtype or Lineage	Genetic Characterization				
	Total No. of Subtype/Lineage Tested	Clade	Number (% of subtype/lineage tested)	Subclade	Number (% of subtype/lineage tested)
A/H1	44				
		6B.1A	44 (100%)		
A/H3	92				

		3C.2a	92 (100%)	2a1	92 (100%)
				2a2	0
				2a3	0
				2a4	0
		3C.3a	0	3a	0
B/Victoria	72				
		V1A	72 (100%)	V1A	0
				V1A.1	10 (17.2%)
				V1A.3	62 (82.8%)
B/Yamagata	8				
		Y3	8 (100%)		

CDC **antigenically characterizes** a subset of influenza viruses by hemagglutination inhibition (HI) or neutralization based Focus Reduction assays (FRA). Antigenic drift is evaluated by comparing antigenic properties of cell-propagated reference viruses representing currently recommended vaccine components with those of cell-propagated circulating viruses. CDC antigenically characterized 21 influenza viruses collected in the U.S. from September 29, 2019 to November 23, 2019.

Influenza A Viruses
- **A (H1N1)pdm09:** Two A(H1N1)pdm09 viruses were antigenically characterized by HI with ferret antisera, and all were antigenically similar (reacting at titers that were within 4-fold of the homologous virus titer) to cell-propagated A/Brisbane/02/2018-like reference viruses representing the A(H1N1)pdm09 component for the 2019-20 Northern Hemisphere influenza vaccines.
- **A (H3N2):** Eight A(H3N2) viruses were antigenically characterized by FRA with ferret antisera, and 7 (87.5%) were antigenically similar to cell-propagated A/Kansas/14/2017-like reference viruses representing the A(H3N2) component for the 2019-20 Northern Hemisphere influenza vaccines.

Influenza B Viruses
- **B/Victoria:** 11 B/Victoria lineage viruses, including viruses from both co-circulating sub-clades, were antigenically characterized by HI with ferret antisera, and seven (63.6%) were antigenically similar to cell-propagated B/Colorado/06/2017-like reference viruses representing the B/Victoria component for the 2019-20 Northern Hemisphere influenza vaccines.
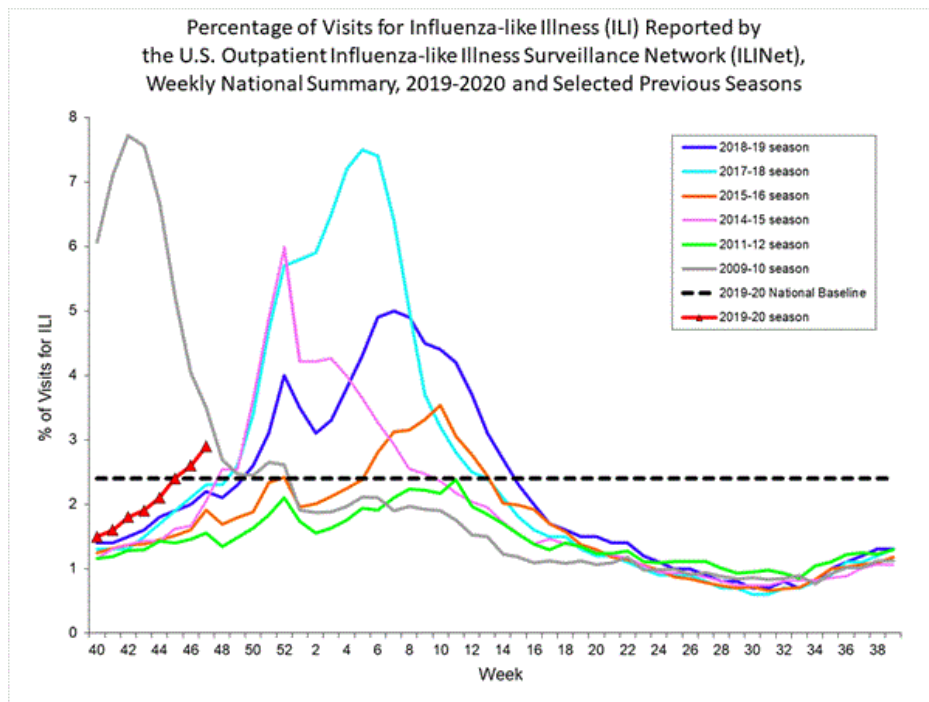- **B/Yamagata:** Antigenic characterization is pending.

CDC assesses **susceptibility of influenza viruses to the antiviral medications** oseltamivir, zanamivir, peramivir, and baloxavir using next generation sequence analysis supplemented by laboratory assays. Viruses collected in the U.S. from September 29, 2019 to November 23, 2019 were tested for antiviral susceptibility as follows:

Antiviral Medication			Total Viruses	A/H1	A/H3	B/Victoria	B/Yamagata
Neuraminidase Inhibitors	Oseltamivir	Viruses Tested	208	44	89	68	7
		Reduced Inhibition	(0.0%)	(0.0%)	(0.0%)	(0.0%)	(0.0%)
		Highly Reduced Inhibition	1 (0.5%)	1 (2.3%)	(0.0%)	(0.0%)	(0.0%)
	Peramivir	Viruses Tested	208	44	89	68	7
		Reduced Inhibition	(0.0%)	(0.0%)	(0.0%)	(0.0%)	(0.0%)
		Highly Reduced Inhibition	1 (0.5%)	1 (2.3%)	(0.0%)	(0.0%)	(0.0%)
	Zanamivir	Viruses Tested	208	44	89	68	7
		Reduced Inhibition	1 (0.5%)	(0.0%)	(0.0%)	1 (1.5%)	(0.0%)
		Highly Reduced Inhibition	(0.0%)	(0.0%)	(0.0%)	(0.0%)	(0.0%)
PA Endonuclease Inhibitor	Baloxavir	Viruses Tested	212	45	89	70	8
		Reduced Susceptibility	(0.0%)	(0.0%)	(0.0%)	(0.0%)	(0.0%)

Outpatient Illness Surveillance

ILINet

Nationwide during week 47, 2.9% of patient visits reported through the U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet) were due to influenza-like illness (ILI). This percentage is above the national baseline of 2.4%.

Percentage of Visits for Influenza-like Illness (ILI) Reported by
the U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet),
Weekly National Summary, 2019-2020 and Selected Previous Seasons

View Chart Data | View Full Screen

On a regional level, the percentage of outpatient visits for ILI ranged from 1.5% to 6.8% during week 47. Region 3 (Delaware, the District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia), Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee), Region 6 (Arkansas, Louisiana, New Mexico, Oklahoma, and Texas), and Region 10 (Alaska, Idaho, Oregon, and Washington) reported a percentage of outpatient visits for ILI which is equal to or above their region-specific baselines. Regions 1, 2, 5, 7, 8, and 9 were below their region-specific baselines.
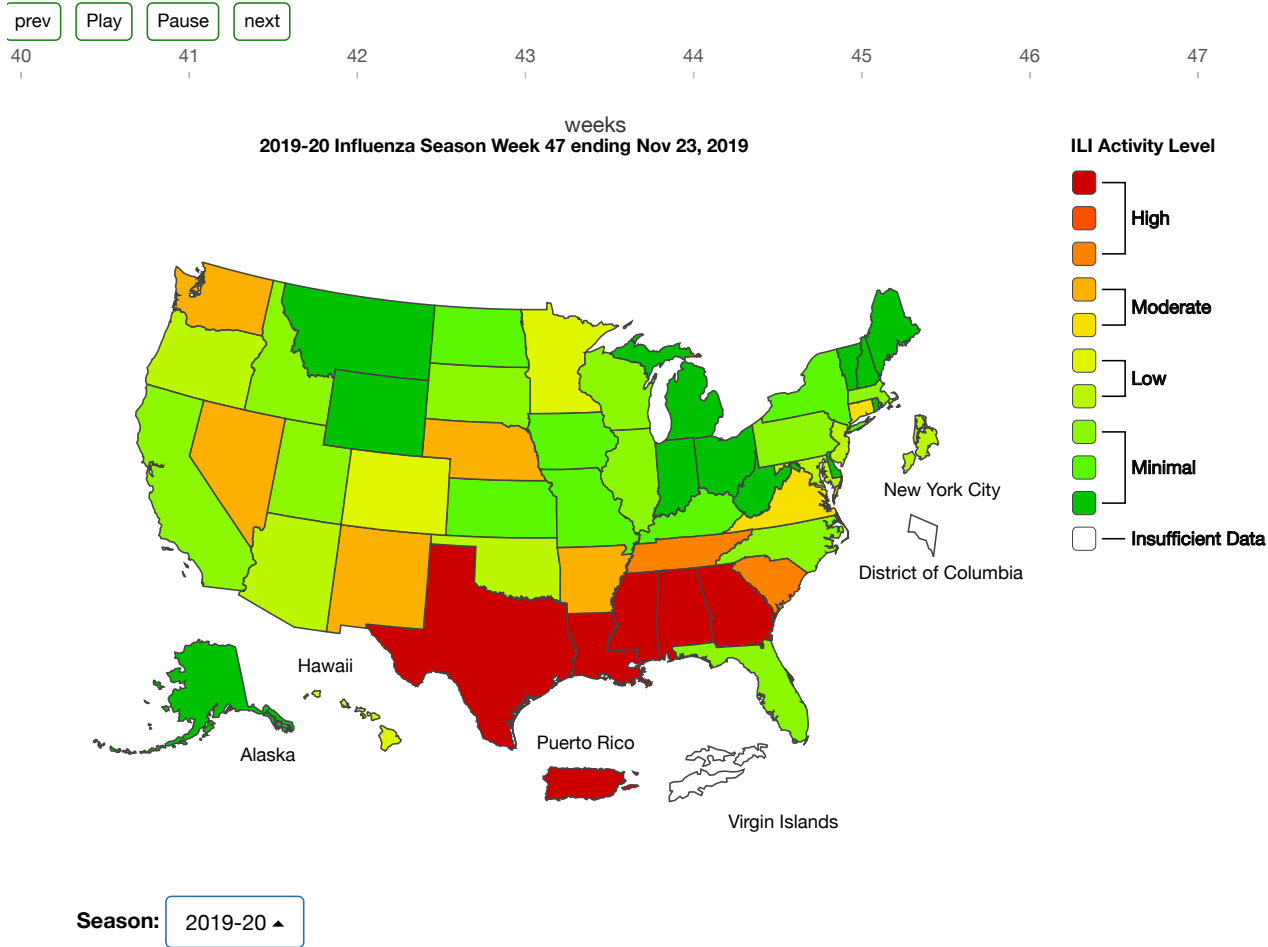
ILI Activity Map

Data collected in ILINet are used to produce a measure of ILI activity* by state.

During week 47, the following ILI activity levels were experienced:
- High – Puerto Rico and seven states (Alabama, Georgia, Louisiana, Mississippi, South Carolina, Tennessee, and Texas)
- Moderate – seven states (Arkansas, Connecticut, Nebraska, Nevada, New Mexico, Virginia, and Washington)
- Low – New York City and eight states (Arizona, Colorado, Hawaii, Maryland, Minnesota, New Jersey, Oklahoma, and Oregon)
- Minimal – 28 states (Alaska, California, Delaware, Florida, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Maine, Massachusetts, Michigan, Missouri, Montana, New Hampshire, New York, North Carolina, North Dakota, Ohio, Pennsylvania, Rhode Island, South Dakota, Utah, Vermont, West Virginia, Wisconsin, and Wyoming)
- Data were insufficient to calculate an ILI activity level from the District of Columbia and the U.S. Virgin Islands.

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Influenza-Like Illness (ILI) Activity Level Indicator Determined by Data Reported to ILINet

40 41 42 43 44 45 46 47

weeks

2019-20 Influenza Season Week 47 ending Nov 23, 2019

ILI Activity Level

- High
- Moderate
- Low
- Minimal
- Insufficient Data

New York City

District of Columbia

Hawaii

Alaska

Puerto Rico

Virgin Islands

Season: 2019-20 ▲

*Data collected in ILINet may disproportionally represent certain populations within a state, and therefore, may not accurately depict the full picture of influenza activity for the whole state. Differences in the data presented here by CDC and independently by some state health departments likely represent differing levels of data completeness with data presented by the state likely being the more complete.

Additional information about medically attended visits for ILI for current and past seasons:

Surveillance Methods | FluView Interactive: National, Regional, and State Data or ILI Activity Map

Geographic Spread of Influenza as Assessed by State and Territorial Epidemiologists

The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses but does not measure the severity of influenza activity.
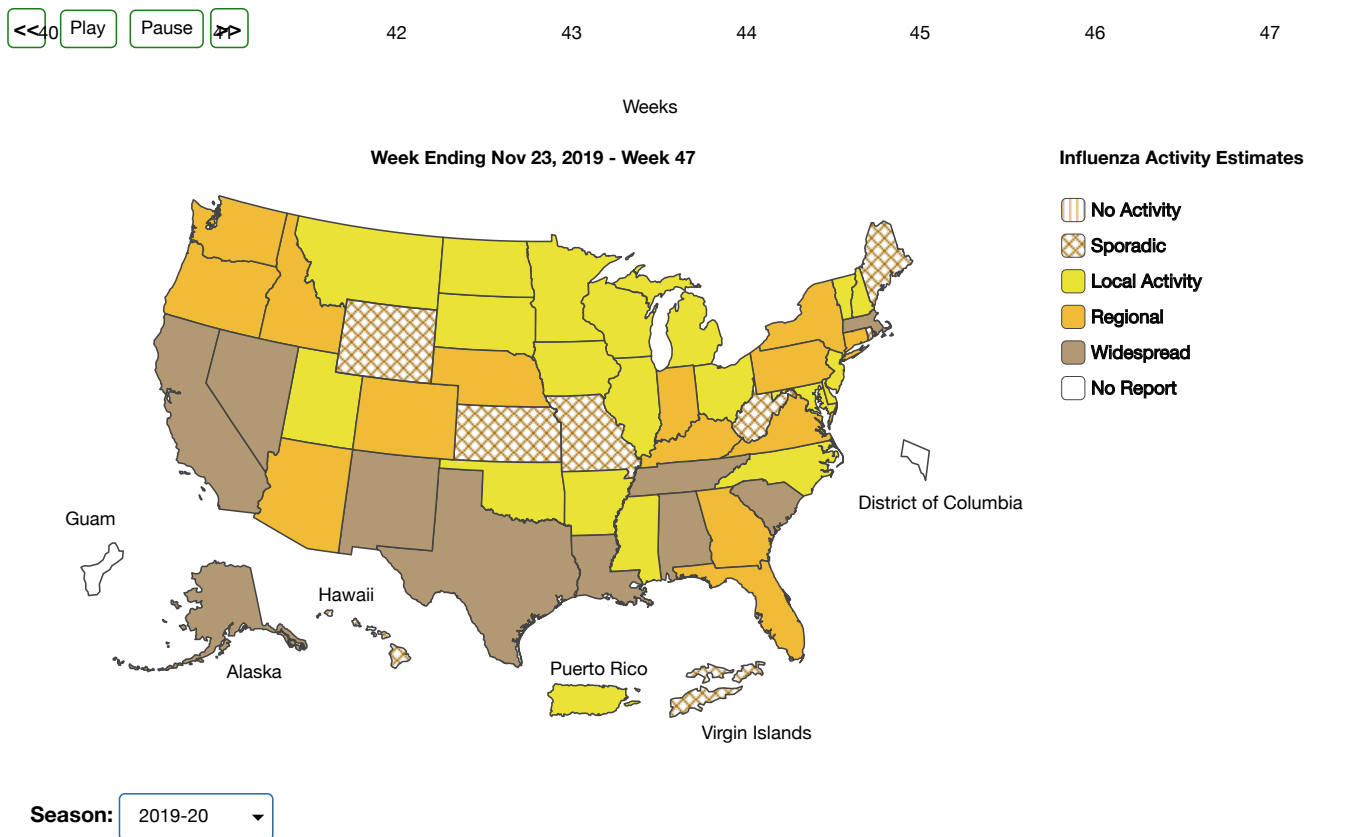
During week 47 the following influenza activity was reported:

- Widespread – 10 states (Alabama, Alaska, California, Louisiana, Massachusetts, Nevada, New Mexico, South Carolina,

Tennessee and Texas)

- Regional – 14 states (Arizona, Colorado, Connecticut, Florida, Georgia, Idaho, Indiana, Kentucky, Nebraska, New York, Oregon, Pennsylvania, Virginia and Washington)

- Local – Puerto Rico and 19 states (Arkansas, Delaware, Illinois, Iowa, Maryland, Michigan, Minnesota, Mississippi, Montana, New Hampshire, New Jersey, North Carolina, North Dakota, Ohio, Oklahoma, South Dakota, Utah, Vermont and Wisconsin)

- Sporadic – the U.S. Virgin Islands and 7 states (Hawaii, Kansas, Maine, Missouri, Rhode Island, West Virginia and Wyoming)

- The District of Columbia and Guam did not report.

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Weekly Influenza Activity Estimates Reported by State and Territorial Epidemiologists*

| <<40 | Play | Pause | >> | | 42 | 43 | 44 | 45 | 46 | 47 |

Weeks

Week Ending Nov 23, 2019 - Week 47

Influenza Activity Estimates

- No Activity
- Sporadic
- Local Activity
- Regional
- Widespread
- No Report

District of Columbia

Guam

Hawaii

Alaska

Puerto Rico

Virgin Islands

Season: 2019-20

Download Image   Download Data

Most Recent Flu Activity data in XML Format (https://www.cdc.gov/flu/weekly/flureport.xml) | View Full Screen (http://gis.cdc.gov/grasp/fluview/FluView8.html)

*This map indicates geographic spread and does not measure the severity of influenza activity.

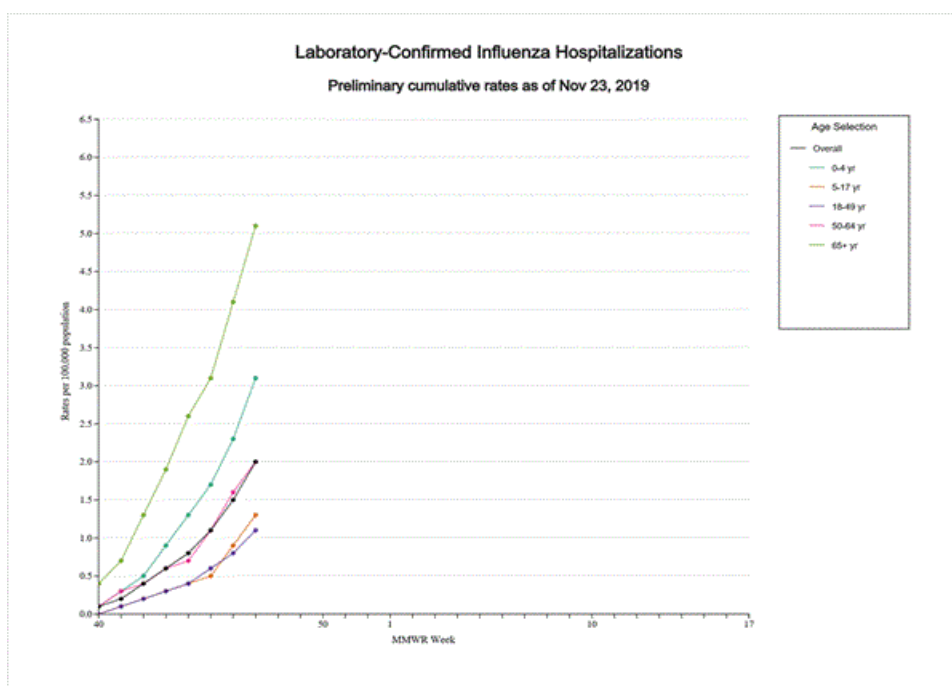**Additional geographic spread surveillance information for current and past seasons:**

Surveillance Methods | FluView Interactive

Influenza-Associated Hospitalizations

The Influenza Hospitalization Surveillance Network (FluSurv-NET) conducts population-based surveillance for laboratory-confirmed influenza-related hospitalizations in select counties in the Emerging Infections Program (EIP) states and Influenza Hospitalization Surveillance Project (IHSP) states.

A total of 573 laboratory-confirmed influenza-associated hospitalizations were reported by FluSurv-NET sites between October 1, 2019 and November 23, 2019. The overall hospitalization rate was 2.0 per 100,000 population. The highest rate of hospitalization was among adults aged ≥65 (5.1 per 100,000 population), followed by children aged 0-4 (3.1 per 100,000 population) and adults aged 50-64 (2.0 per 100,000 population). Among 573 hospitalizations, 337 (58.8%) were associated with influenza A virus, 230 (40.1%) with influenza B virus, 4 (0.7%) with influenza A virus and influenza B virus co-infection, and 2 (0.3%) with influenza virus for which the type was not determined. Among those with influenza A subtype information, 40 (54.1%) were A(H1N1)pdm09 virus and 34 (45.9%) were A(H3N2).


Laboratory-Confirmed Influenza Hospitalizations
Preliminary cumulative rates as of Nov 23, 2019

View Full Screen

Additional hospitalization surveillance information for current and past seasons and additional age groups:
Surveillance Methods | FluView Interactive

Pneumonia and Influenza (P&I) Mortality Surveillance

Based on National Center for Health Statistics (NCHS) mortality surveillance data available on November 27, 2019, 5.1% of the deaths occurring during the week ending November 16, 2019 (week 46) were due to P&I. This percentage is below the epidemic threshold of 6.3% for week 46.

Pneumonia and Influenza Mortality from
the National Center for Health Statistics Mortality Surveillance System
Data through the week ending November 16, 2019, as of November 27, 2019
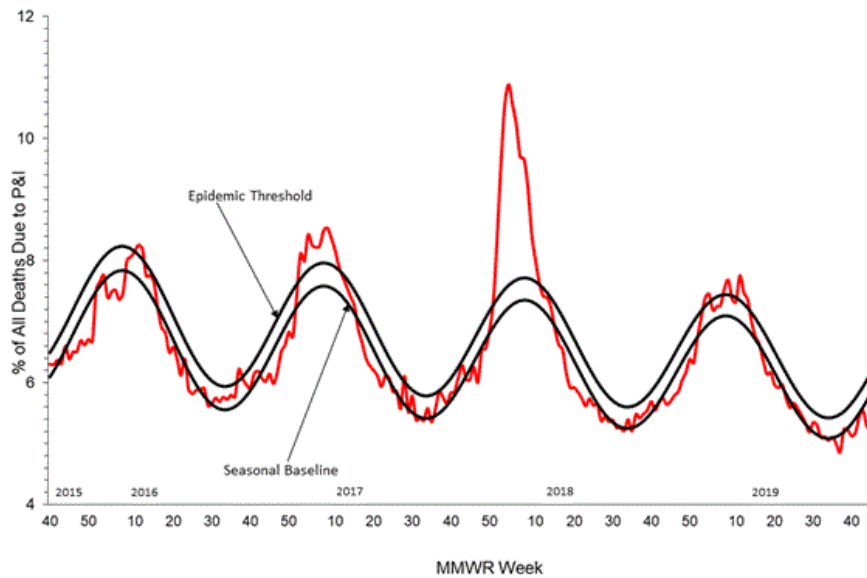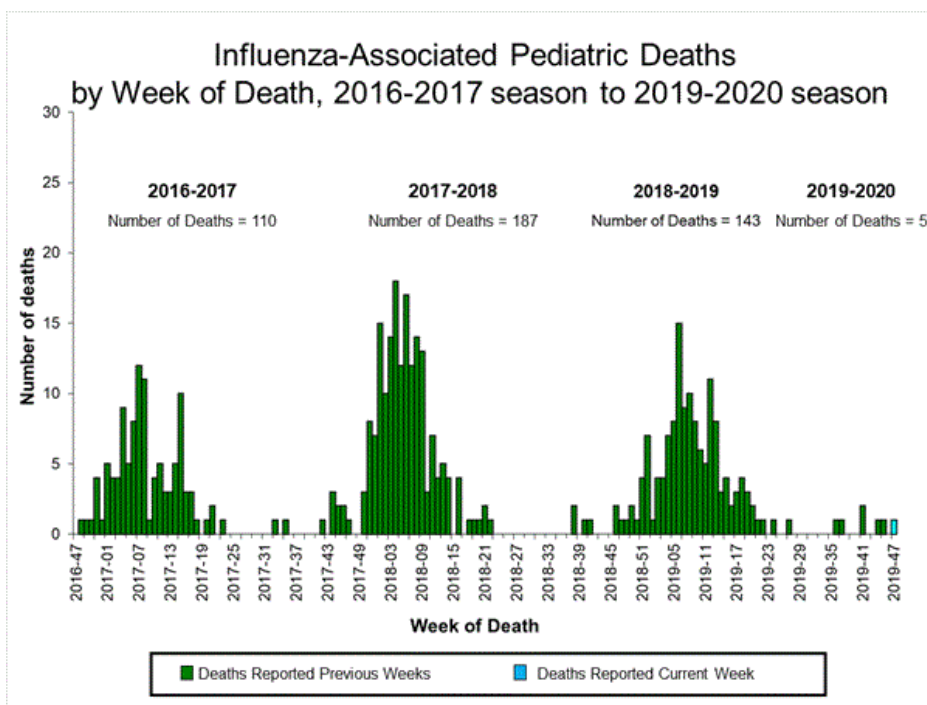
View Chart Data | View Full Screen

Additional pneumonia and influenza mortality surveillance information for current and past seasons:
Surveillance Methods | FluView Interactive

Influenza–Associated Pediatric Mortality

One influenza-associated pediatric death was reported to CDC during week 47. The death was associated with an influenza B virus for which the lineage was not determined and occurred during week 47 (the week ending November 23, 2019).

A total of five influenza-associated pediatric deaths occurring during the 2019-2020 season have been reported to CDC.

Influenza-Associated Pediatric Deaths
by Week of Death, 2016-2017 season to 2019-2020 season

View Full Screen

Additional pediatric mortality surveillance information for current and past seasons:
Surveillance Methods | FluView Interactive

Additional National and International Influenza Surveillance Information

FluView Interactive: FluView includes enhanced web-based interactive applications that can provide dynamic visuals of the influenza data collected and analyzed by CDC. These FluView Interactive applications allow people to create customized, visual interpretations of influenza data, as well as make comparisons across flu seasons, regions, age groups and a variety of other demographics. To access these tools, visit http://www.cdc.gov/flu/weekly/fluviewinteractive.htm

National Institute for Occupational Safety and Health: Monthly surveillance data on the prevalence of health-related workplace absenteeism among full-time workers in the United States are available from NIOSH at https://www.cdc.gov/niosh/topics/absences/default.html

U.S. State and local influenza surveillance: Select a jurisdiction below to access the latest local influenza information

Alabama	Alaska	Arizona	Arkansas	California
Colorado	Connecticut	Delaware	District of Columbia	Florida
Georgia	Hawaii	Idaho	Illinois	Indiana
Iowa	Kansas	Kentucky	Louisiana	Maine
Maryland	Massachusetts	Michigan	Minnesota	Mississippi

World Health Organization: Additional influenza surveillance information from participating WHO member nations is available through FluNet and the Global Epidemiology Reports.

WHO Collaborating Centers for Influenza located in Australia, China, Japan, the United Kingdom, and the United States (CDC in Atlanta, Georgia).

Europe: For the most recent influenza surveillance information from Europe, please see WHO/Europe and the European Centre for Disease Prevention and Control at http://www.flunewseurope.org/.

Public Health Agency of Canada: The most up-to-date influenza information from Canada is available at http://www.phac-aspc.gc.ca/fluwatch/

Public Health England: The most up-to-date influenza information from the United Kingdom is available at https://www.gov.uk/government/statistics/weekly-national-flu-reports

An overview of the CDC influenza surveillance system, including methodology and detailed descriptions of each data component, is available at: http://www.cdc.gov/flu/weekly/overview.htm.

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Content source: Centers for Disease Control and Prevention, National Center for Immunization and Respiratory Diseases (NCIRD)