Weekly U.S. Influenza Surveillance Report

Key Updates for Week 48, ending November 30, 2019

Seasonal influenza activity in the United States has been elevated for four weeks and continues to increase.

Viruses

Clinical Lab

10.2% of respiratory specimens tested by clinical laboratories were positive for influenza viruses. This is higher than the previous week.

Public Health Lab

Nationally, B/Victoria viruses are most common followed by A(H1N1)pdm09 and A(H3N2) viruses, but the predominant virus varies by region and age group.

Virus Characterization

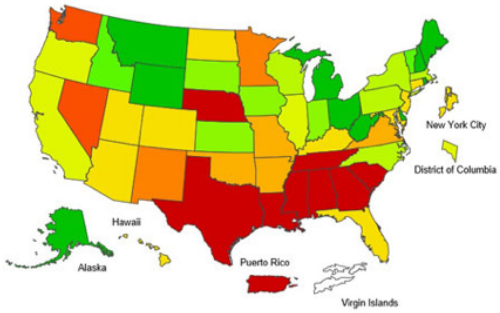
Genetic and antigenic characterization and antiviral susceptibility of viruses collected in the U.S. this season is now being reported.

Illness

Outpatient Illness: ILINet

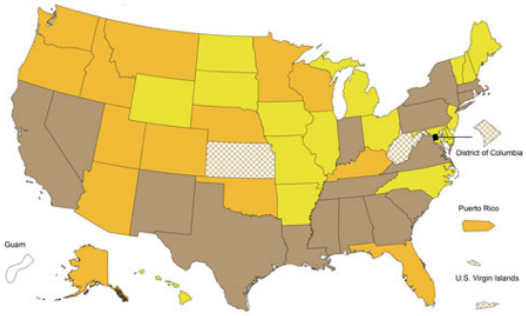
3.5% of visits to health care providers were for influenza-like illness (ILI). ILI has been at or above the national baseline of 2.4% for four weeks. Nine of 10 regions were at or above their baselines.

Outpatient Illness: ILI Activity Map



The number of jurisdictions experiencing high ILI activity increased to 13 this week, compared to 8 last week. In addition, 15 jurisdictions had moderate activity compared to 7 last week.

Geographic Spread



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

Severe Disease

Hospitalizations

The overall hospitalization rate for the season is 2.7 per 100,000. This is similar to what has been seen at this time during other recent seasons.

P&I Mortality

4.8% of deaths were attributed to pneumonia and influenza (P&I). This is below the epidemic threshold of 6.4%.

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 to date is 6.

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 component 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

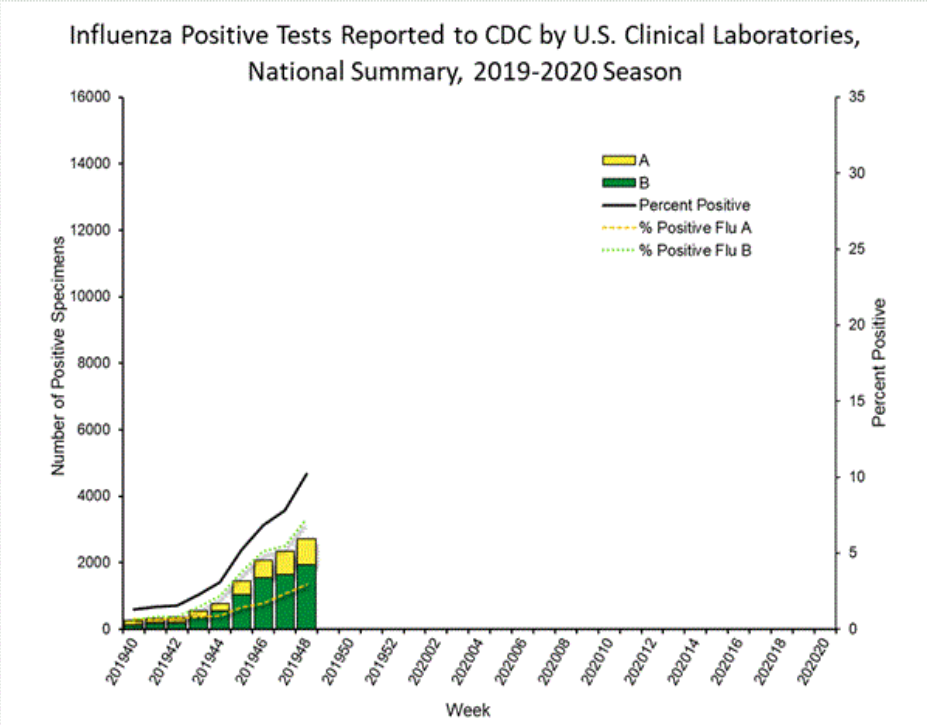
- The 2019-2020 flu season is underway for most of the country, however some parts of the country are still seeing lower levels of flu activity.
- Activity is being caused mostly by influenza B/Victoria viruses, which is unusual for this time of year. H1N1 viruses are the next most common, followed by H3N2 viruses, which are decreasing in proportion.
- The flu season is just getting started; elevated flu activity is expected to continue for weeks. It's not too late to get vaccinated. Flu vaccination is the best way to reduce the risk from 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 48	Data Cumulative since September 29, 2019 (week 40)
No. of specimens tested	26,576	227,629
No. of positive specimens (%)	2,713 (10.2%)	10,826 (4.8%)
Positive specimens by type		
Influenza A	784 (28.9%)	3,271 (30.2%)
Influenza B	1,929 (71.1%)	7,555 (69.8%)



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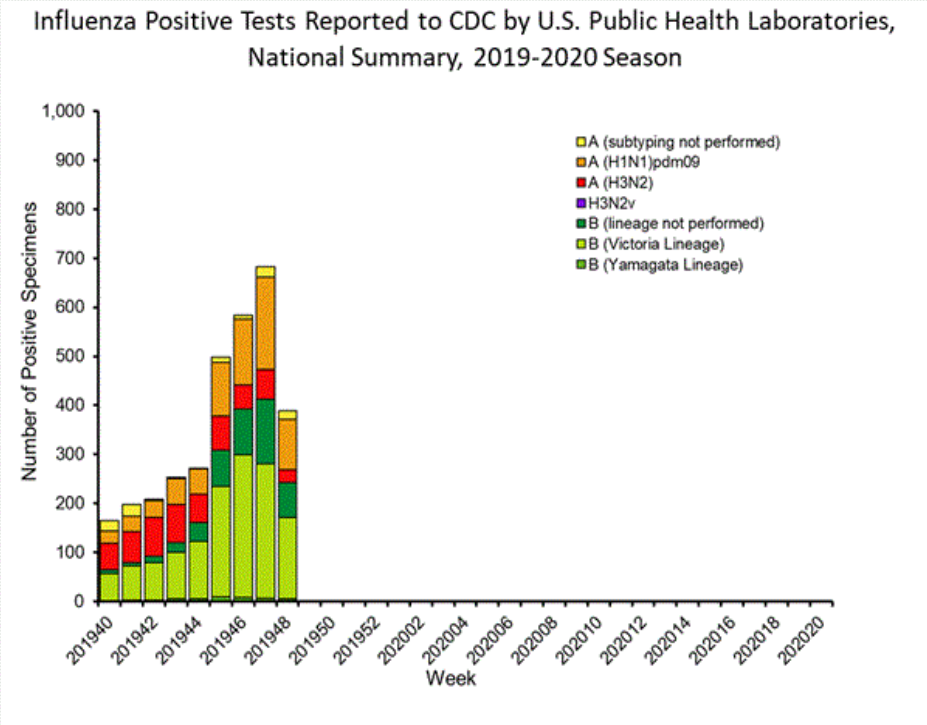
Public Health Laboratories

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 48	Data Cumulative since September 29, 2019 (week 40)
No. of specimens tested	828	12,256
No. of positive specimens	389	3,251
Positive specimens by type/subtype		
Influenza A	147 (37.8%)	1,380 (42.4%)
(H1N1)pdm09	103 (79.2%)	731 (57.6%)
H3N2	27 (20.8%)	538 (42.4%)
Subtyping not performed	17	111
Influenza B	242 (62.2%)	1,871 (57.6%)
Yamagata lineage	5 (2.9%)	44 (3.1%)
Victoria lineage	166 (97.1%)	1,371 (96.9%)

Lineage not performed	71	456

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. The proportion of influenza B/Victoria viruses is increasing in some regions, while the proportion of A(H3N2) viruses is decreasing overall. 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 (46% of reported viruses) and 5-24 years (60% of reported viruses), while A(H3N2) viruses are the most commonly reported influenza viruses among persons 65 years of age and older (54% of reported viruses). Among adults aged 25-64 years, approximately equal proportions of influenza A(H1N1)pdm09 and B/Victoria viruses (35% and 34%, respectively) have been reported. Additional age data can be found on FluView Interactive.



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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** 299 influenza viruses collected in the U.S. from September 29, 2019 to November 30, 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	66				
		6B.1A	66 (100%)		
A/H3	111				
		3C.2a	111 (100%)	2a1	111 (100%)
				2a2	0
				2a3	0
				2a4	0
		3C.3a	0	3a	0
B/Victoria	112				
		V1A	112 (100%)	V1A	0
				V1A.1	19 (17.0%)
				V1A.3	93 (83.0%)
B/Yamagata	10				
		Y3	10 (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 29 influenza viruses collected in the U.S. from September 29, 2019 to November 30, 2019.

Influenza A Viruses

- **A (H1N1)pdm09:** Five 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:** 16 B/Victoria lineage viruses, including viruses from both co-circulating sub-clades, were antigenically characterized by HI with ferret antisera, and ten (62.5%) 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. since September 29, 2019 were tested for antiviral susceptibility as follows:

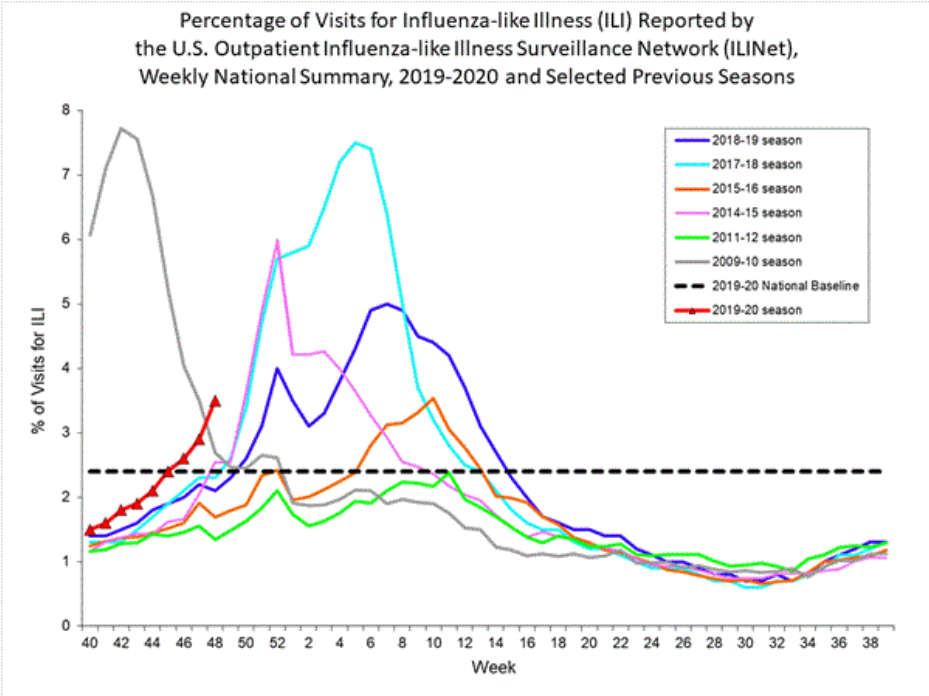
Antiviral Medication			Total Viruses	A/H1	A/H3	B/Victoria	B/Yamagata
Neuraminidase Inhibitors	Oseltamivir	Viruses Tested	286	66	108	103	9
		Reduced Inhibition	(0.0%)	(0.0%)	(0.0%)	(0.0%)	(0.0%)
		Highly Reduced Inhibition	1 (0.3%)	1 (1.5%)	(0.0%)	(0.0%)	(0.0%)
	Peramivir	Viruses Tested	286	66	108	103	9
		Reduced Inhibition	(0.0%)	(0.0%)	(0.0%)	(0.0%)	(0.0%)
		Highly Reduced Inhibition	1 (0.3%)	1 (1.5%)	(0.0%)	(0.0%)	(0.0%)
	Zanamivir	Viruses Tested	286	66	108	103	9
		Reduced Inhibition	1 (0.3%)	(0.0%)	(0.0%)	1 (1.0%)	(0.0%)
		Highly Reduced Inhibition	(0.0%)	(0.0%)	(0.0%)	(0.0%)	(0.0%)
PA Endonuclease Inhibitor	Baloxavir	Viruses Tested	263	57	101	95	10
		Reduced					

		Susceptibility	(0.0%)	(0.0%)	(0.0%)	(0.0%)	(0.0%)

Outpatient Illness Surveillance

ILINet

Nationwide during week 48, 3.5% 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%.



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On a regional level, the percentage of outpatient visits for ILI ranged from 1.8% to 6.9% during week 48. All regions except Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont) reported a percentage of outpatient visits for ILI which is equal to or above their region-specific baselines.

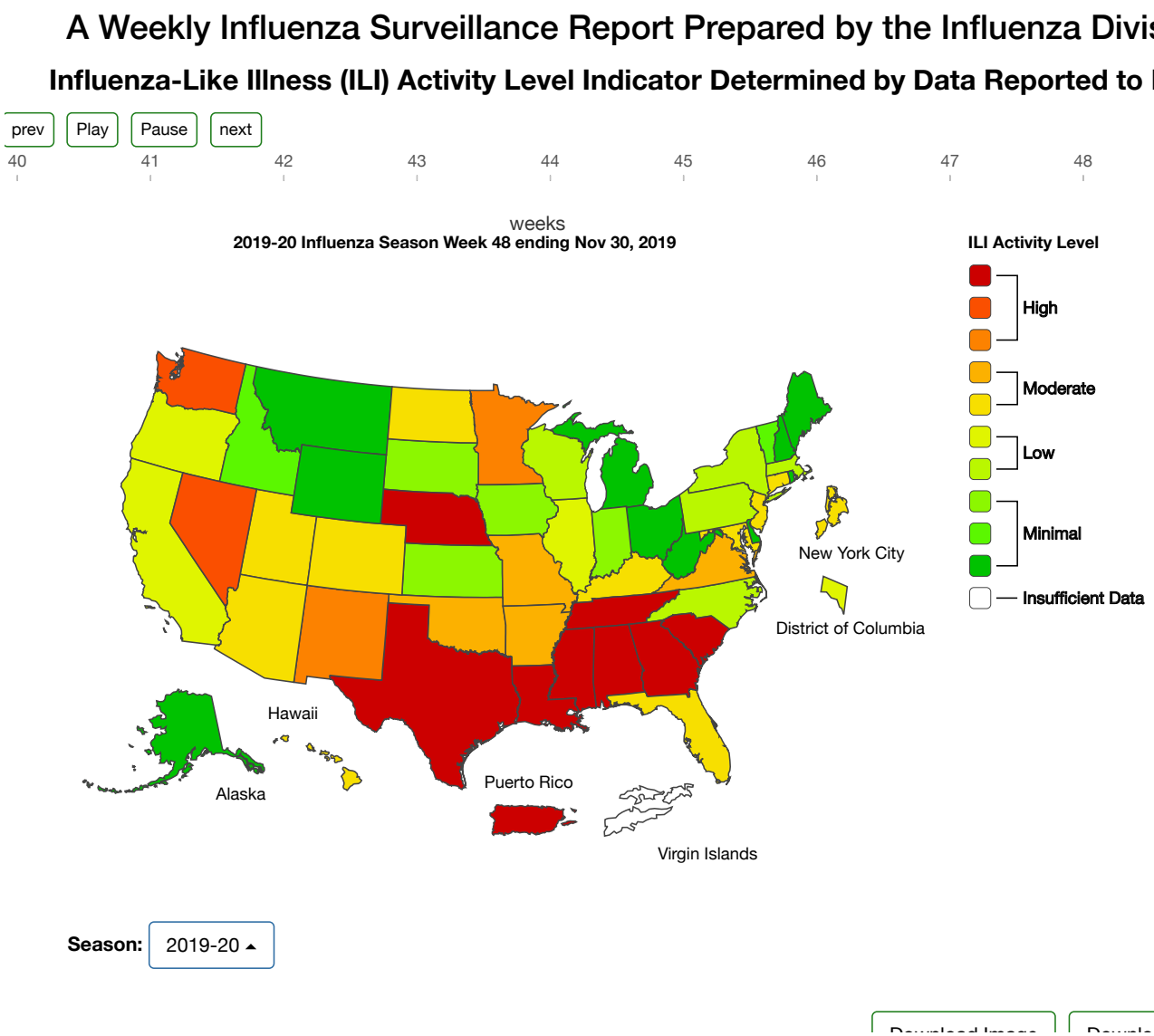
ILI Activity Map

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

During week 48, the following ILI activity levels were experienced:

- High – Puerto Rico and 12 states (Alabama, Georgia, Louisiana, Minnesota, Mississippi, Nebraska, Nevada, New Mexico, South Carolina, Tennessee, Texas, and Washington)
- Moderate – New York City and 14 states (Arizona, Arkansas, Colorado, Connecticut, Florida, Hawaii, Kentucky, Maryland, Missouri, New Jersey, North Dakota, Oklahoma, Utah, and Virginia)
- Low – District of Columbia and eight states (California, Illinois, Massachusetts, New York, North Carolina, Oregon, Pennsylvania, and Wisconsin)

- Minimal – 16 states (Alaska, Delaware, Idaho, Indiana, Iowa, Kansas, Maine, Michigan, Montana, New Hampshire, Ohio, Rhode Island, South Dakota, Vermont, West Virginia, and Wyoming)
- Data were insufficient to calculate an ILI activity level from the U.S. Virgin Islands.



*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

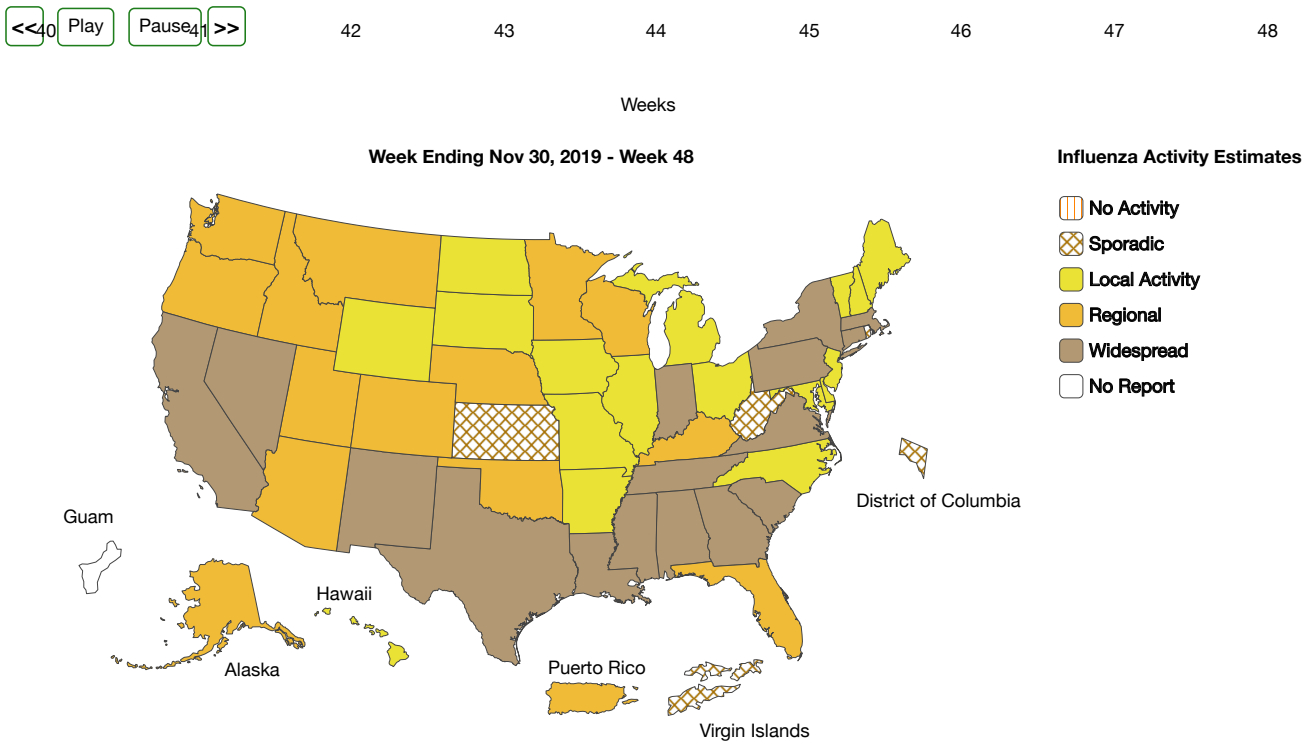
The influenza activity reported by state and territorial epidemiologists indicates geographic spread of influenza viruses but does not measure the severity of influenza activity.

During week 48 the following influenza activity was reported:

- Widespread – 16 states (Alabama, California, Connecticut, Georgia, Indiana, Louisiana, Massachusetts, Mississippi, Nevada, New Mexico, New York, Pennsylvania, South Carolina, Tennessee, Texas, and Virginia)
- Regional – Puerto Rico and 14 states (Alaska, Arizona, Colorado, Florida, Idaho, Kentucky, Minnesota, Montana, Nebraska, Oklahoma, Oregon, Utah, Washington, and Wisconsin)
- Local – 17 states (Arkansas, Delaware, Hawaii, Illinois, Iowa, Maine, Maryland, Michigan, Missouri, New Hampshire, New Jersey, North Carolina, North Dakota, Ohio, South Dakota, Vermont, and Wyoming)
- Sporadic – the District of Columbia, the U.S. Virgin Islands and 3 states (Kansas, Rhode Island, and West Virginia)
- Guam did not report.

A Weekly Influenza Surveillance Report Prepared by the Influenza Division

Weekly Influenza Activity Estimates Reported by State and Territorial Epidemiologists*



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.**

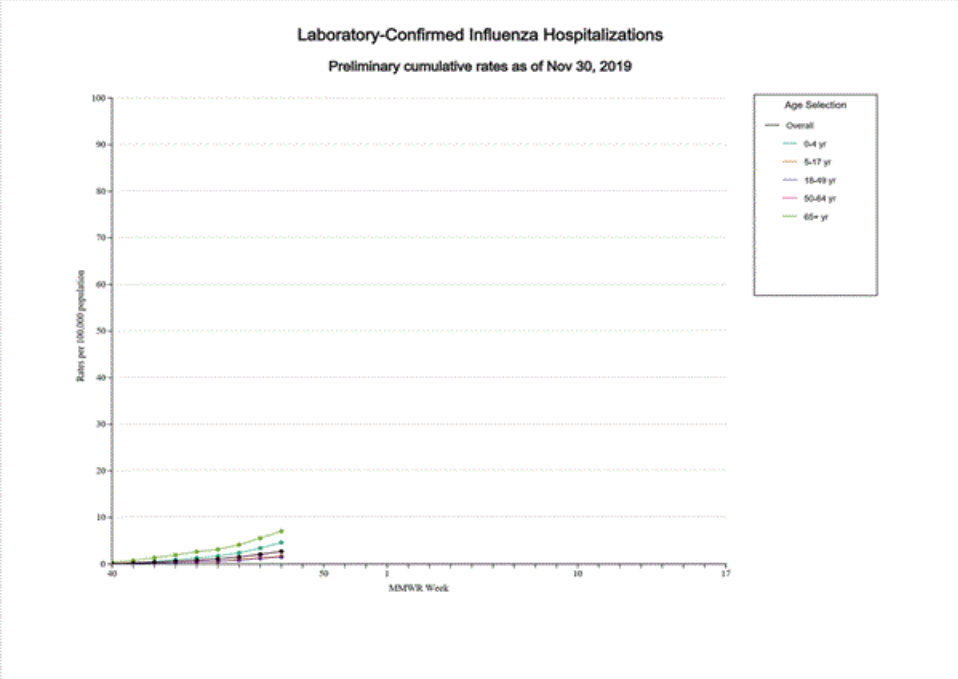
Additional geographic spread surveillance information for current and past seasons:

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 784 laboratory-confirmed influenza-associated hospitalizations were reported by FluSurv-NET sites between October 1, 2019 and November 30, 2019. The overall hospitalization rate was 2.7 per 100,000 population. The highest rate of hospitalization was among adults aged ≥65 (7.0 per 100,000 population), followed by children aged 0-4 (4.6 per 100,000 population) and adults aged 50-64 (2.7 per 100,000 population). Among 784 hospitalizations, 451 (57.5%) were associated with influenza A virus, 325 (41.5%) with influenza B virus, 4 (0.5%) with influenza A virus and influenza B virus co-infection, and 4 (0.5%) with influenza virus for which the type was not determined. Among those with influenza A subtype information, 60 (60.6%) were A(H1N1)pdm09 virus and 39 (39.4%) were A(H3N2).



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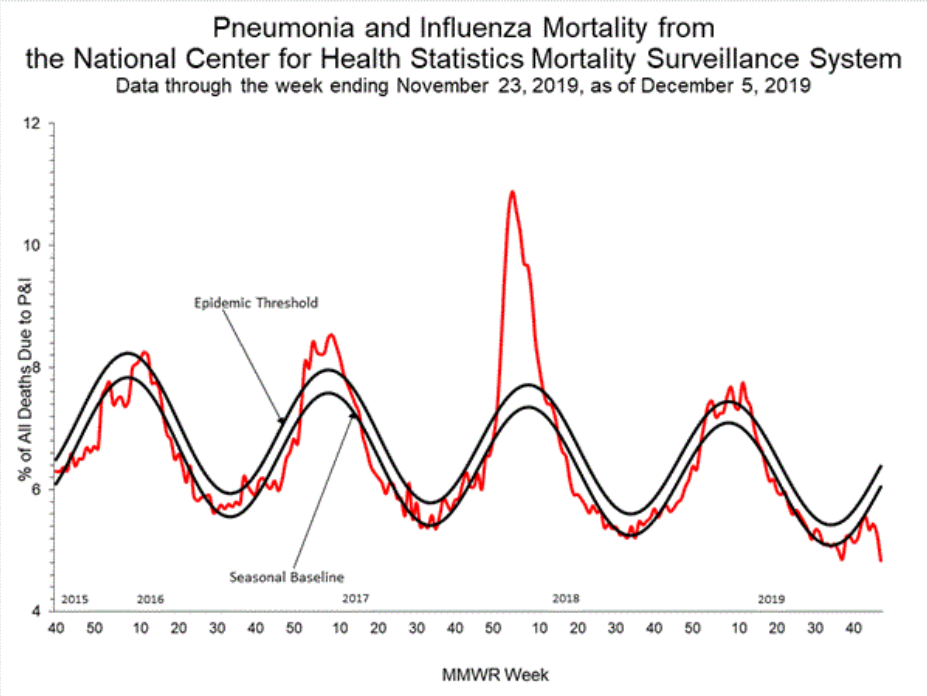
Additional hospitalization surveillance information for current and past seasons and additional age groups:
Surveillance Methods | FluView Interactive

Pneumonia and Influenza (P&I) Mortality Surveillance

Based on National Center for Health Statistics (NCHS) mortality surveillance data available on December 5, 2019, 4.8% of the deaths occurring during the week ending November 23, 2019 (week 47) were due to P&I. This percentage is below the epidemic threshold of 6.4% for week 47.



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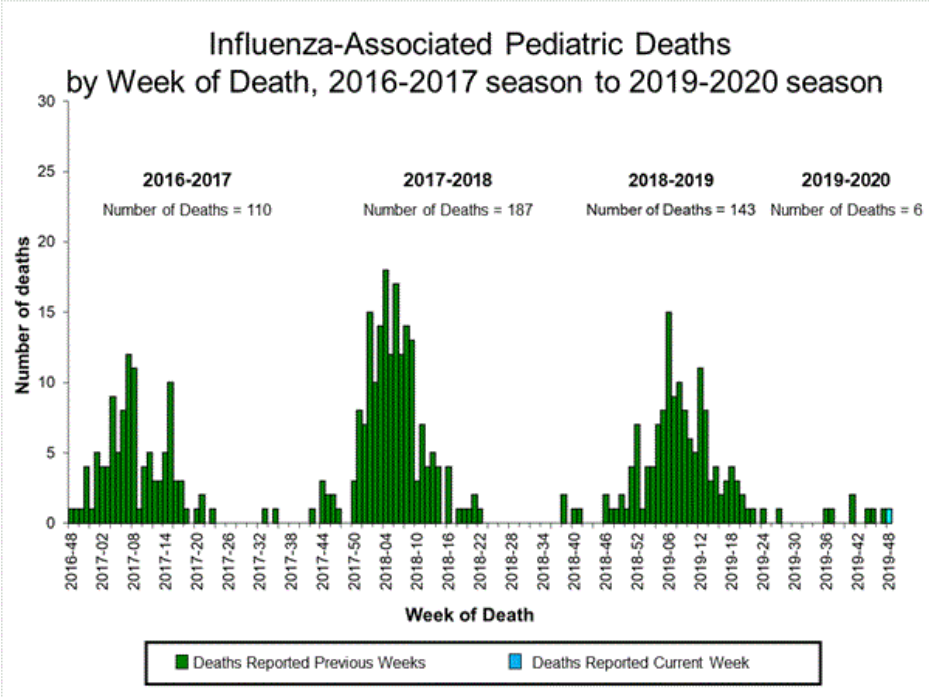
Additional pneumonia and influenza mortality surveillance information for current and past seasons:
Surveillance Methods | FluView Interactive

Influenza-Associated Pediatric Mortality

One influenza-associated pediatric death was reported to CDC during week 48. The death was associated with an influenza B virus for which the lineage was not determined and occurred during week 48 (the week ending November 30, 2019).

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



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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

Missouri	Montana	Nebraska	Nevada	New Hampshire
New Jersey	New Mexico	New York	North Carolina	North Dakota
Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island
South Carolina	South Dakota	Tennessee	Texas	Utah
Vermont	Virginia	Washington	West Virginia	Wisconsin
Wyoming	New York City	Puerto Rico	Virgin Islands	

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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