

# Influenza (Flu)

## Weekly U.S. Influenza Surveillance Report

# FLUVIEW



A Weekly Influenza Surveillance Report Prepared by the Influenza Division

### Key Updates for Week 2, ending January 11, 2020

**Key indicators that track flu activity declined slightly but remain high. Indicators that track severity (hospitalizations and deaths) are not high at this point in the season.**

## Viruses

### Clinical Labs

The percentage of respiratory specimens testing positive for influenza at clinical laboratories decreased from 23.6% last week to 22.9% this week.

### Public Health Labs

Nationally, B/Victoria viruses are the predominant viruses this season; however, during recent weeks, approximately equal numbers of B/Victoria and A(H1N1)pdm09 viruses have been reported.

### Virus Characterization

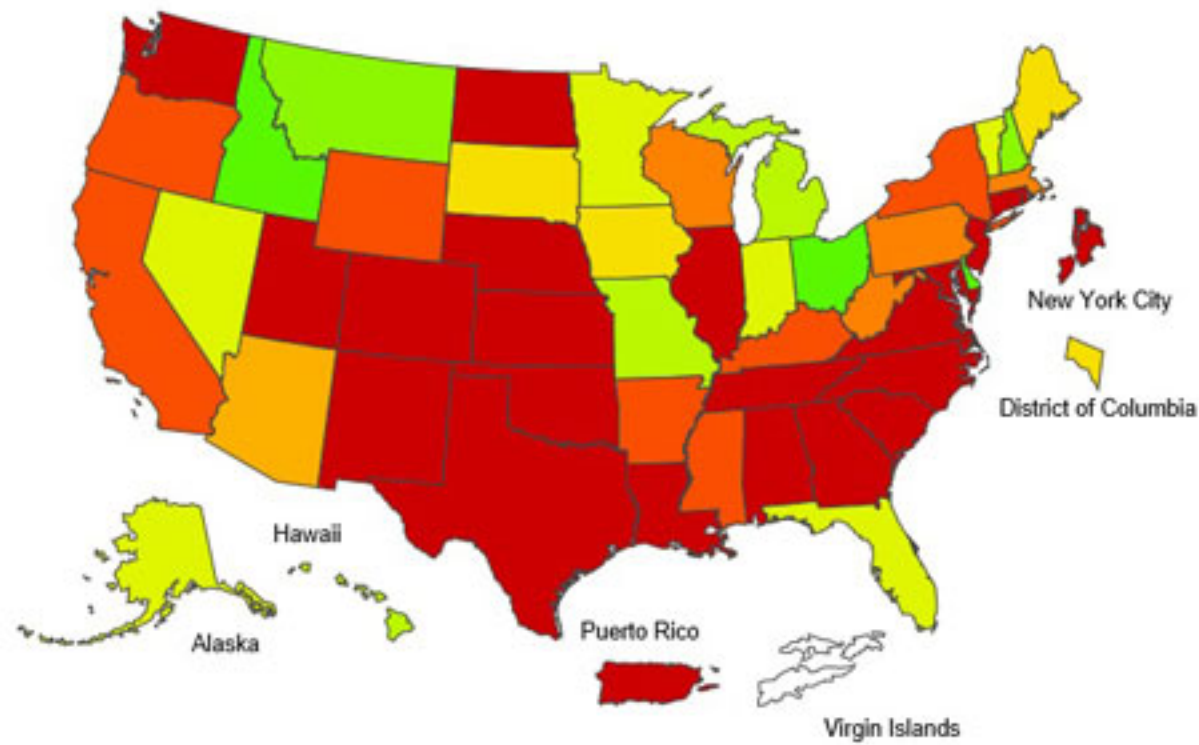
Genetic and antigenic characterization and antiviral susceptibility of influenza viruses collected in the U.S. are summarized in this report.

# Illness

## Outpatient Illness: ILINet

Visits to health care providers for influenza-like illness (ILI) decreased from 5.7% last week to 4.7% this week. All regions remain above their baselines.

## Outpatient Illness: ILI Activity Map



The number of jurisdictions experiencing high ILI activity decreased from 36 last week to 34 this week.

## Geographic Spread



The number of jurisdictions reporting regional or widespread influenza activity remained at 50 this week.

# Severe Disease

## Hospitalizations

The overall hospitalization rate for the season increased to 19.9 per 100,000. This is similar to what has been seen this time during recent seasons.

## P&I Mortality

The percentage of deaths attributed to pneumonia and influenza increased from 6.0% to 6.9% but remains below the epidemic threshold.

## Pediatric Deaths

Seven new influenza-associated pediatric deaths occurring during the 2019-2020 season were reported this week. The total for the season is 39.

*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 [FluView Interactive](#).*

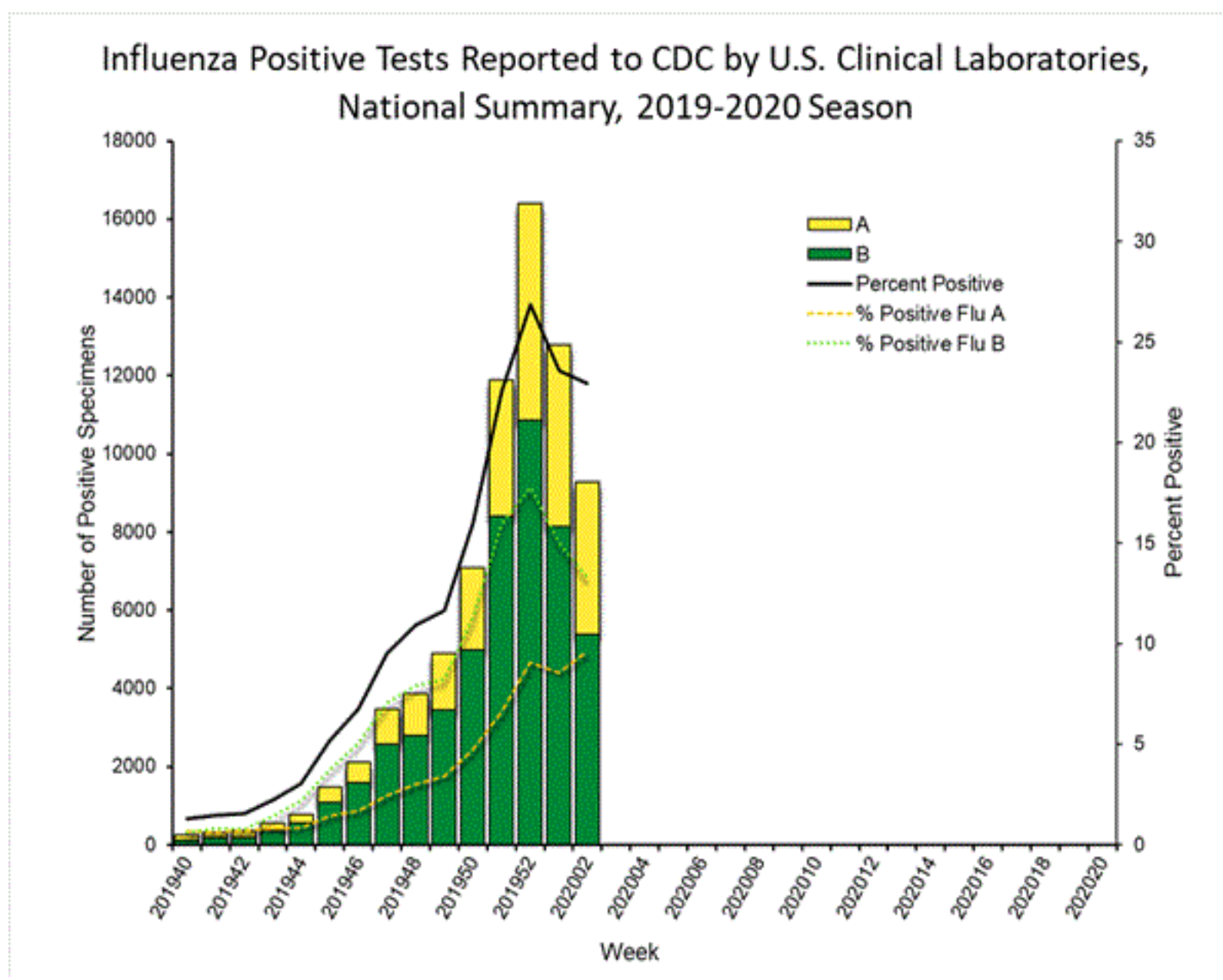
### Key Points

- Outpatient ILI and laboratory data remain elevated but declined slightly this week. While the overall percent of specimens positive for influenza declined nationally, the percent positive for influenza A viruses increased and some regions are seeing increases in the proportion of influenza A(H1N1)pdm09 viruses compared to other influenza viruses. It is too early to know whether the season has peaked or if flu activity will increase again.
- Levels of outpatient ILI remain elevated; however, hospitalization rates remain similar to what has been seen at this time during recent seasons and mortality, while increasing, has not yet exceeded the epidemic threshold.
- CDC estimates that so far this season there have been at least 13 million flu illnesses, 120,000 hospitalizations and 6,600 deaths from flu.
- Flu vaccine effectiveness estimates are not available yet this season, but vaccination is always the best way to prevent flu and its potentially serious complications.
- Antiviral medications are an important adjunct to flu vaccine in the control of influenza. Almost all (>99%) of the influenza viruses tested this season are susceptible to the four FDA-approved influenza antiviral medications recommended for use in the U.S. this season.

# 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 2	Data Cumulative since September 29, 2019 (week 40)
<b>No. of specimens tested</b>	40,451	541,982
<b>No. of positive specimens (%)</b>	9,277 (22.9%)	75,552 (13.9%)
<i>Positive specimens by type</i>		
<b>Influenza A</b>	3,899 (42.0%)	24,881 (32.9%)
<b>Influenza B</b>	5,378 (58.0%)	50,671 (67.1%)



[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.

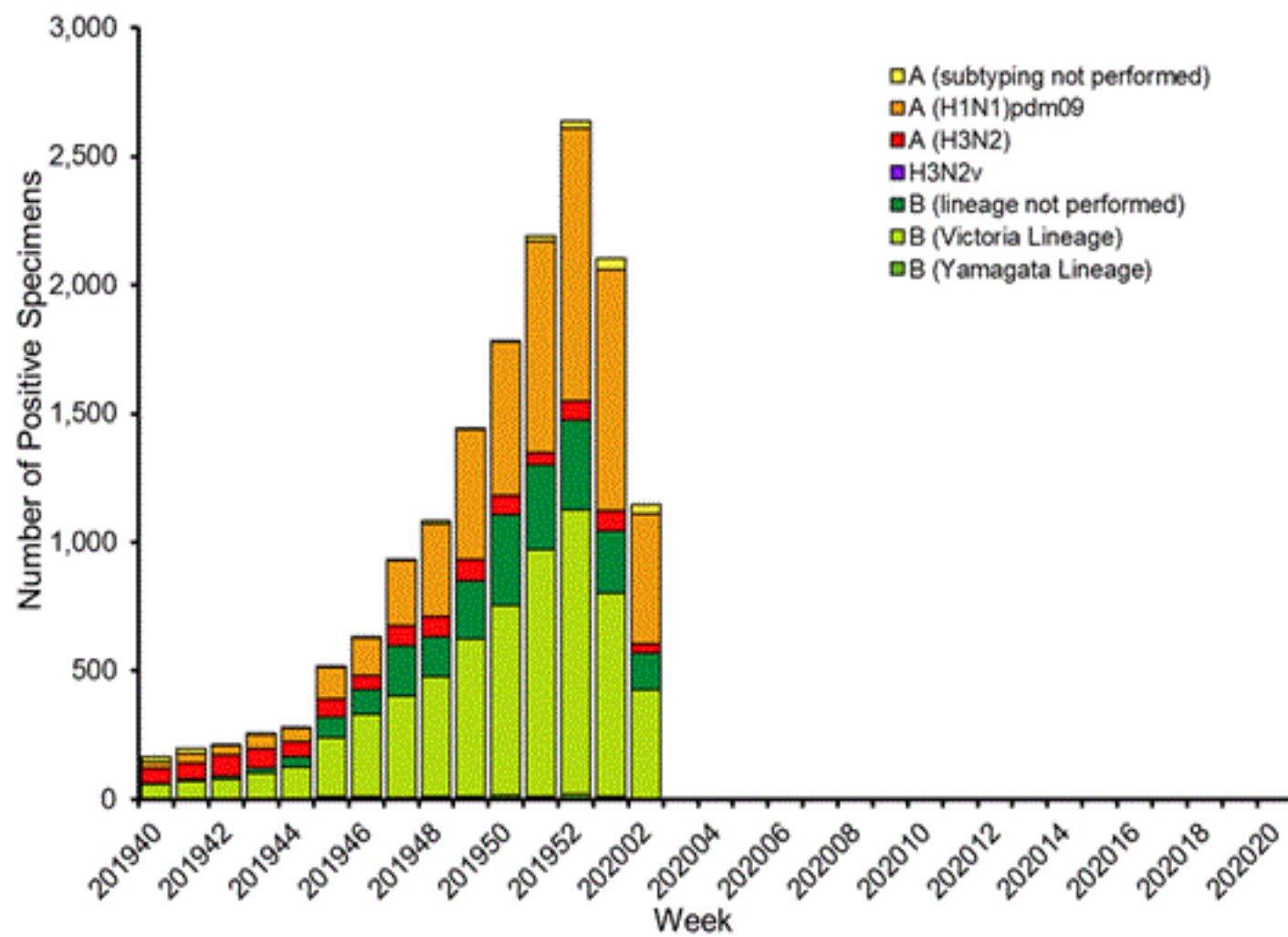
		Data Cumulative since
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	<b>Week 2</b>	<b>September 29, 2019 (week 40)</b>
<b>No. of specimens tested</b>	1,904	32,894
<b>No. of positive specimens</b>	1,148	15,580
<i>Positive specimens by type/subtype</i>		
<b>Influenza A</b>	579 (50.4%)	6,748 (43.3%)
<b>(H1N1)pdm09</b>	504 (93.3%)	5,500 (84.2%)
<b>H3N2</b>	36 (6.7%)	1,031 (15.8%)
<b>Subtyping not performed</b>	39	217
<b>Influenza B</b>	569 (49.6%)	8,832 (56.7%)
<b>Yamagata lineage</b>	5 (1.2%)	130 (2.0%)
<b>Victoria lineage</b>	422 (98.8%)	6,466 (98.0%)
<b>Lineage not performed</b>	142	2,236

Nationally influenza B/Victoria viruses have been reported more frequently than other influenza viruses this season. However, during recent weeks, approximately equal numbers of B/Victoria and influenza A(H1N1)pdm09 viruses have been reported nationally. The predominant virus varies by region. 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 (47% of reported viruses) and 5-24 years (57% of reported viruses), while A(H1N1)pdm09 viruses are the most commonly reported influenza viruses among persons 25-64 years (46% of reported viruses) and 65 years of age and older (53% reported viruses). 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



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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. Antigenic characterization data are based on an animal model (influenza-naive ferrets), and do not reflect pre-existing protection provided by past influenza infections and vaccination. Additional antigenic characterization studies involving people vaccinated with current influenza vaccines are conducted later in the season; these data account for pre-existing protection in different populations against circulating influenza viruses. Genetic and antigenic characterization data are not used to make calculations about [vaccine effectiveness](#) (VE). CDC conducts [VE studies](#) each year to measure the benefits of flu vaccines in people.

CDC **genetically characterized** 952 influenza viruses collected in the U.S. from September 29, 2019, to January 11, 2020.

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	290				

		6B.1A	290 (100%)		
<b>A/H3</b>	244				
		3C.2a	240 (98.4%)	2a1	240 (98.4%)
				2a2	0
				2a3	0
				2a4	0
		3C.3a	4 (1.6%)	3a	4 (1.6%)
<b>B/Victoria</b>	382				
		V1A	382 (100%)	V1A	0
				V1A.1	34 (8.9%)
				V1A.3	348 (91.1%)
<b>B/Yamagata</b>	36				
		Y3	36 (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 195 influenza viruses collected in the United States from September 29, 2019 to January 11, 2020. These data are not used to make calculations about [vaccine effectiveness \(VE\)](#). CDC conducts [VE studies](#) each year to measure the benefits of flu vaccines in people.

### Influenza A Viruses

- **A (H1N1)pdm09:** 74 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):** 41 A(H3N2) viruses were antigenically characterized by FRA with ferret antisera, and 14 (34.1%) 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:** 70 B/Victoria lineage viruses, including viruses from both co-circulating sub-clades, were antigenically characterized by HI with ferret antisera, and 46 (65.7%) 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:** 10 B/Yamagata lineage viruses were antigenically characterized by HI with ferret antisera, and all (100%) were antigenically similar to cell-propagated B/Phuket/3073/2013-like reference viruses representing the B/Yamagata component for the 2019-20 Northern Hemisphere influenza vaccines.

CDC assesses **susceptibility of influenza viruses to the antiviral medications** including the neuraminidase inhibitors (oseltamivir, zanamivir, and peramivir) and the PA endonuclease inhibitor baloxavir using next generation sequence analysis supplemented by laboratory assays. Viruses collected in the United States since September 29, 2019 were tested for antiviral susceptibility as follows:

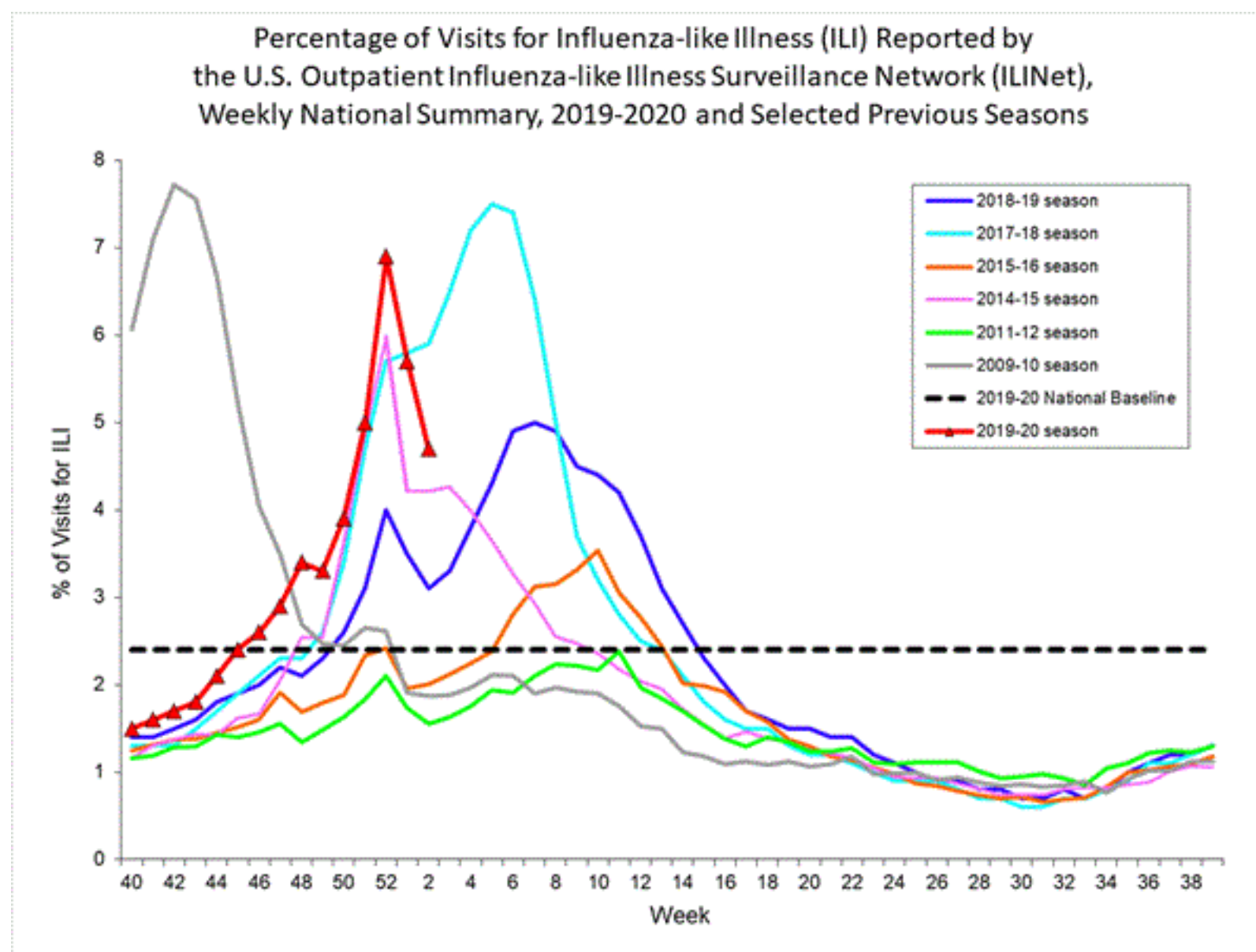
Antiviral Medication		Total Viruses	A/H1	A/H3	B/Victoria	B/Yamagata	
Neuraminidase Inhibitors	Oseltamivir	Viruses Tested	896	269	229	363	35
		Reduced Inhibition	(0.0%)	(0.0%)	(0.0%)	(0.0%)	(0.0%)
		Highly Reduced Inhibition	1 (0.1%)	1 (0.4%)	(0.0%)	(0.0%)	(0.0%)
	Peramivir	Viruses Tested	896	269	229	363	35
		Reduced Inhibition	(0.0%)	(0.0%)	(0.0%)	(0.0%)	(0.0%)
		Highly Reduced Inhibition	1 (0.1%)	1 (0.4%)	(0.0%)	(0.0%)	(0.0%)
	Zanamivir	Viruses Tested	896	269	229	363	35
		Reduced Inhibition	1 (0.1%)	(0.0%)	(0.0%)	1 (0.3%)	(0.0%)
		Highly Reduced Inhibition	(0.0%)	(0.0%)	(0.0%)	(0.0%)	(0.0%)
PA Endonuclease Inhibitor	Baloxavir	Viruses Tested	902	270	231	364	37
		Reduced Susceptibility	(0.0%)	(0.0%)	(0.0%)	(0.0%)	(0.0%)



# Outpatient Illness Surveillance

## ILINet

Nationwide during week 2, 4.7% 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%.



[View Chart Data \(current season only\)](#) | [View Full Screen](#)

On a regional level, the percentage of outpatient visits for ILI ranged from 3.0% to 7.4% during week 2. All regions reported a percentage of outpatient visits for ILI which is 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 2, the following ILI activity levels were experienced:

- High – New York City, Puerto Rico, and 32 states (Alabama, Arkansas, California, Colorado, Connecticut, Georgia, Illinois, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Mississippi, Nebraska, New Jersey, New Mexico, New York, North Carolina, North Dakota, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Utah, Virginia, Washington, West Virginia, Wisconsin, and Wyoming)
- Moderate – the District of Columbia and four states (Arizona, Iowa, Maine, and South Dakota)
- Low – nine states (Alaska, Florida, Hawaii, Indiana, Michigan, Minnesota, Missouri, Nevada, and Vermont)
- Minimal – five states (Delaware, Idaho, Montana, New Hampshire, and Ohio)
- Data were insufficient to calculate an ILI activity level from the U.S. Virgin Islands.

# A Weekly Influenza Surveillance Report Prepared by the Influenza Division

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

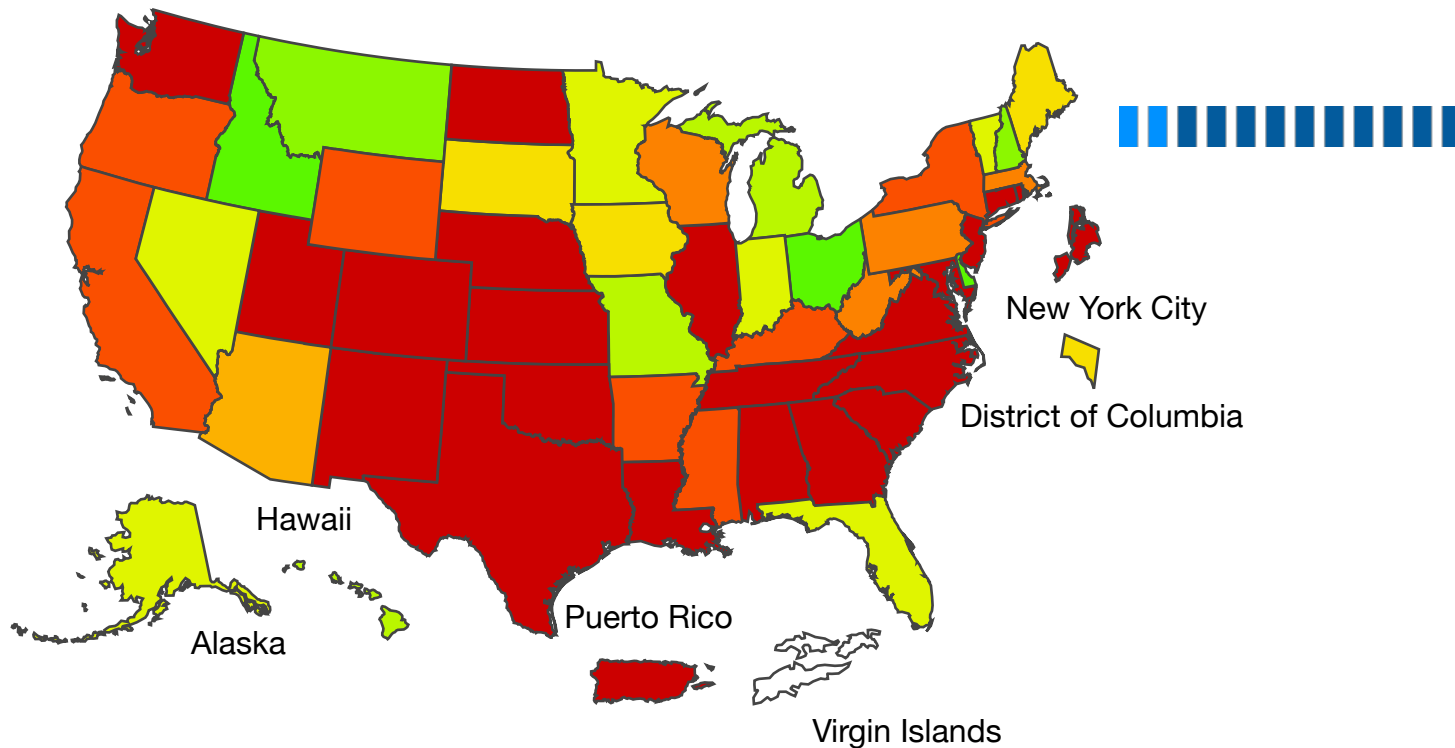
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eks

2019-20 Influenza Season Week 2 ending Jan 11, 2020

ILI Activity Level



Season: 2019-20 ▲

Download Image

Download Data

(<https://www.cdc.gov/flu/weekly/fluereport.xml>) View Full Screen (<http://gis.cdc.gov/grasp/fluview/main.html>)

\*Data collected in ILINet may disproportionately 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 virus but does not measure the severity of influenza activity.

During week 2 the following influenza activity was reported:

- Widespread – Puerto Rico and 48 states (Alabama, Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, 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, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, and Wyoming)
- Regional – one state (Oregon)
- Local – the District of Columbia and one state (Hawaii)
- Sporadic – the U.S. Virgin Islands
- Guam did not report.

**A Weekly Influenza Surveillance Report Prepared by the Influenza Division**  
**Weekly Influenza Activity Estimates Reported by State and Territorial Epidemiologists\***

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Weeks

Week Ending Jan 11, 2020 - Week 2



Influenza Activity Estimates

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

Season: 2019-20

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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:**

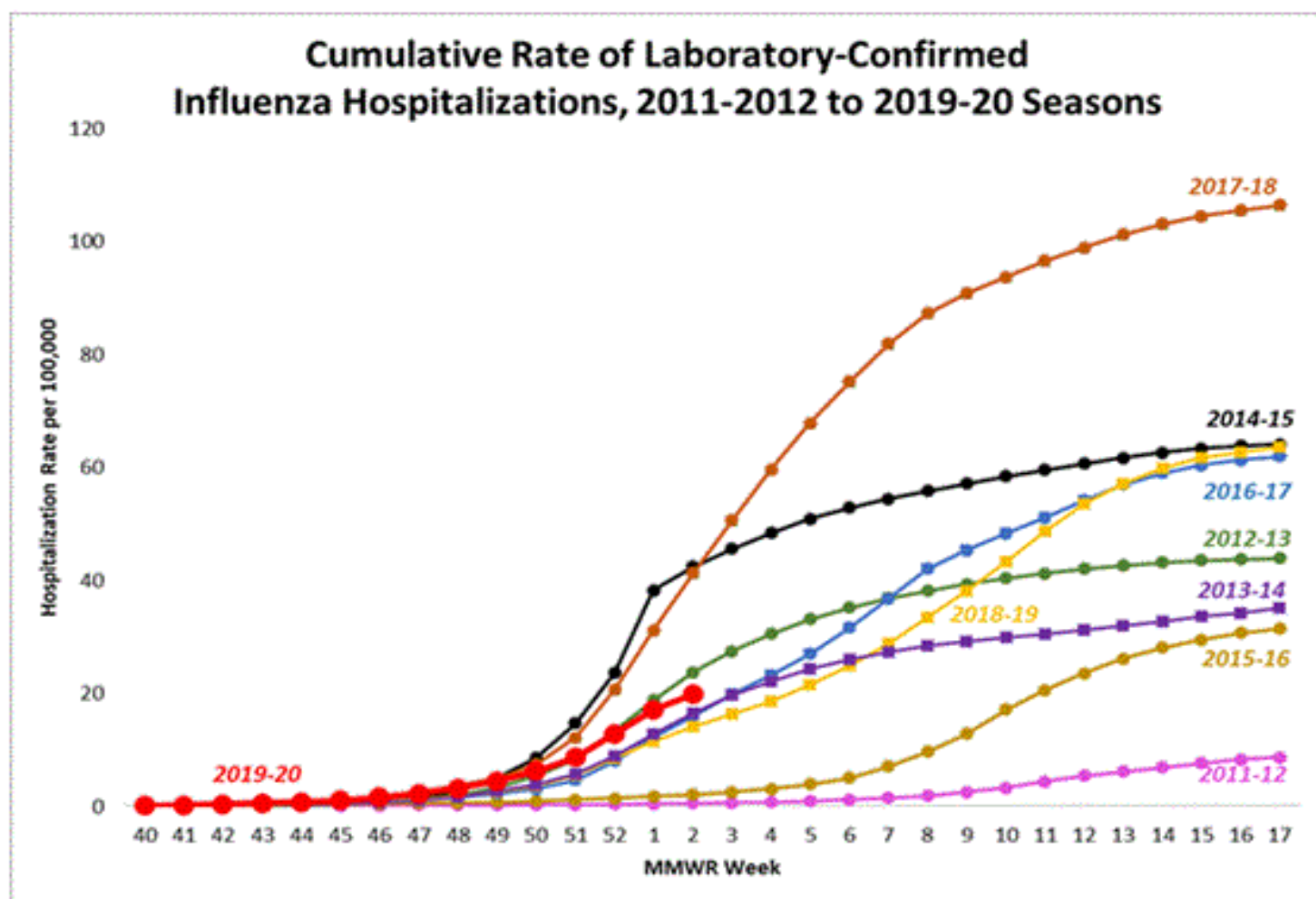
[Surveillance Methods](#) | [FluView Interactive](#)

# 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 5,786 laboratory-confirmed influenza-associated hospitalizations were reported by FluSurv-NET sites between October 1, 2019 and January 11, 2020; 3,257 (56.3%) were associated with influenza A virus, 2,491 (43.1%) with influenza B virus, 15 (0.3%) with influenza A virus and influenza B virus co-infection, and 23 (0.4%) with influenza virus for which type was not determined. Among those with influenza A subtype information, 679 (88.3%) were A(H1N1)pdm09 virus and 90 (11.7%) were A(H3N2).

The overall cumulative hospitalization rate was 19.9 per 100,000 population which is similar to what has been seen during recent previous influenza seasons at this time of year.



[View Full Screen](#)

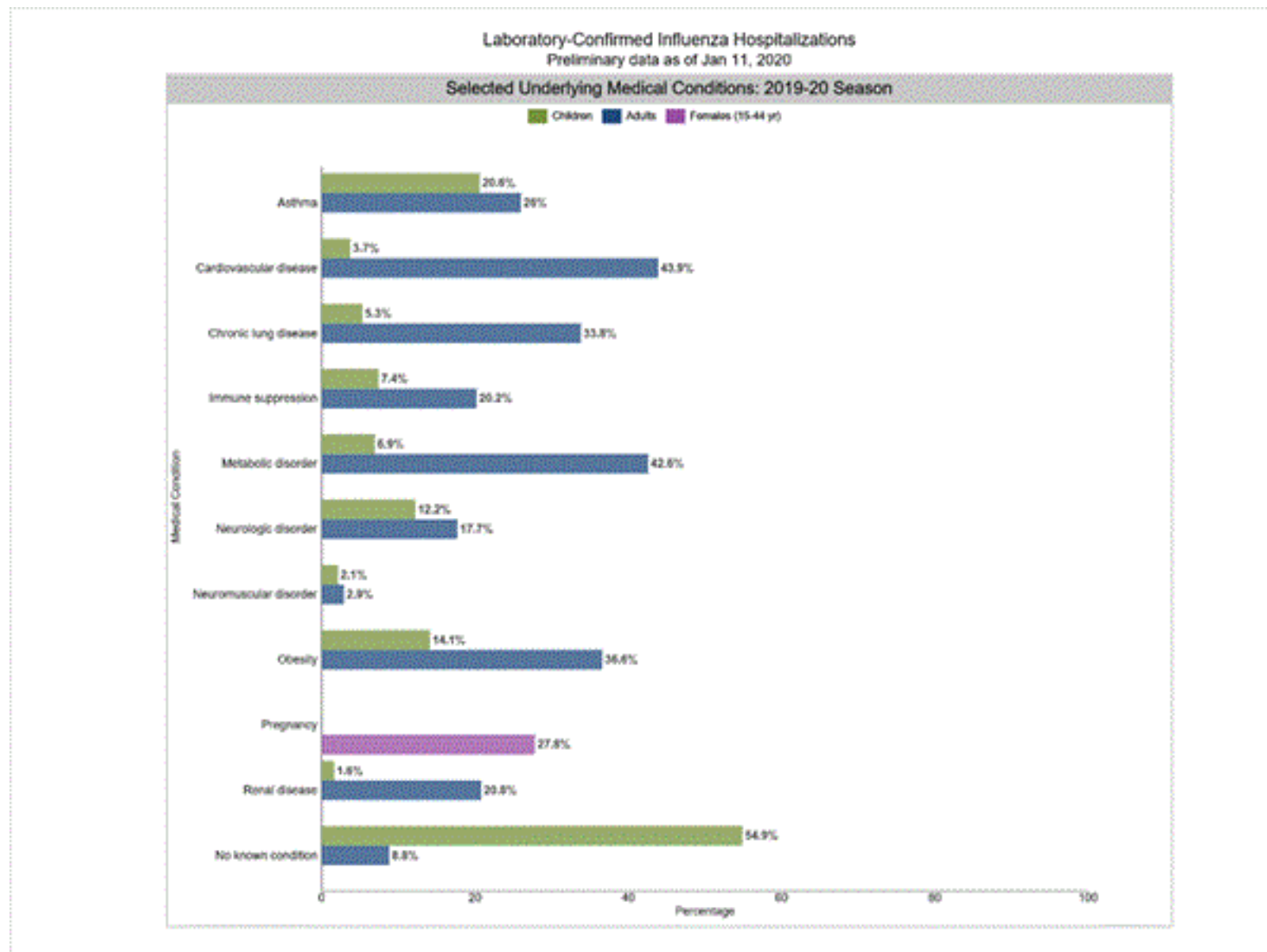
The highest rate of hospitalization is among adults aged  $\geq 65$ , followed by children aged 0-4 years and adults aged 50-64 years.

Age Group	2019-2020 Season Cumulative Rate per 100,000 Population
Overall	19.9
0-4 years	34.4
5-17 years	9.6



18-49 years	11.5
50-64 years	23.2
65+ years	47.6

Among 729 hospitalized adults with information on underlying medical conditions, 91.2% had at least one reported underlying medical condition, the most commonly reported were cardiovascular disease, metabolic disorder, and obesity. Among 193 hospitalized children with information on underlying medical conditions, 45.1% had at least one underlying medical condition; the most commonly reported was asthma. Among 151 hospitalized women of childbearing age (15-44 years) with information on pregnancy status, 27.8% were pregnant.



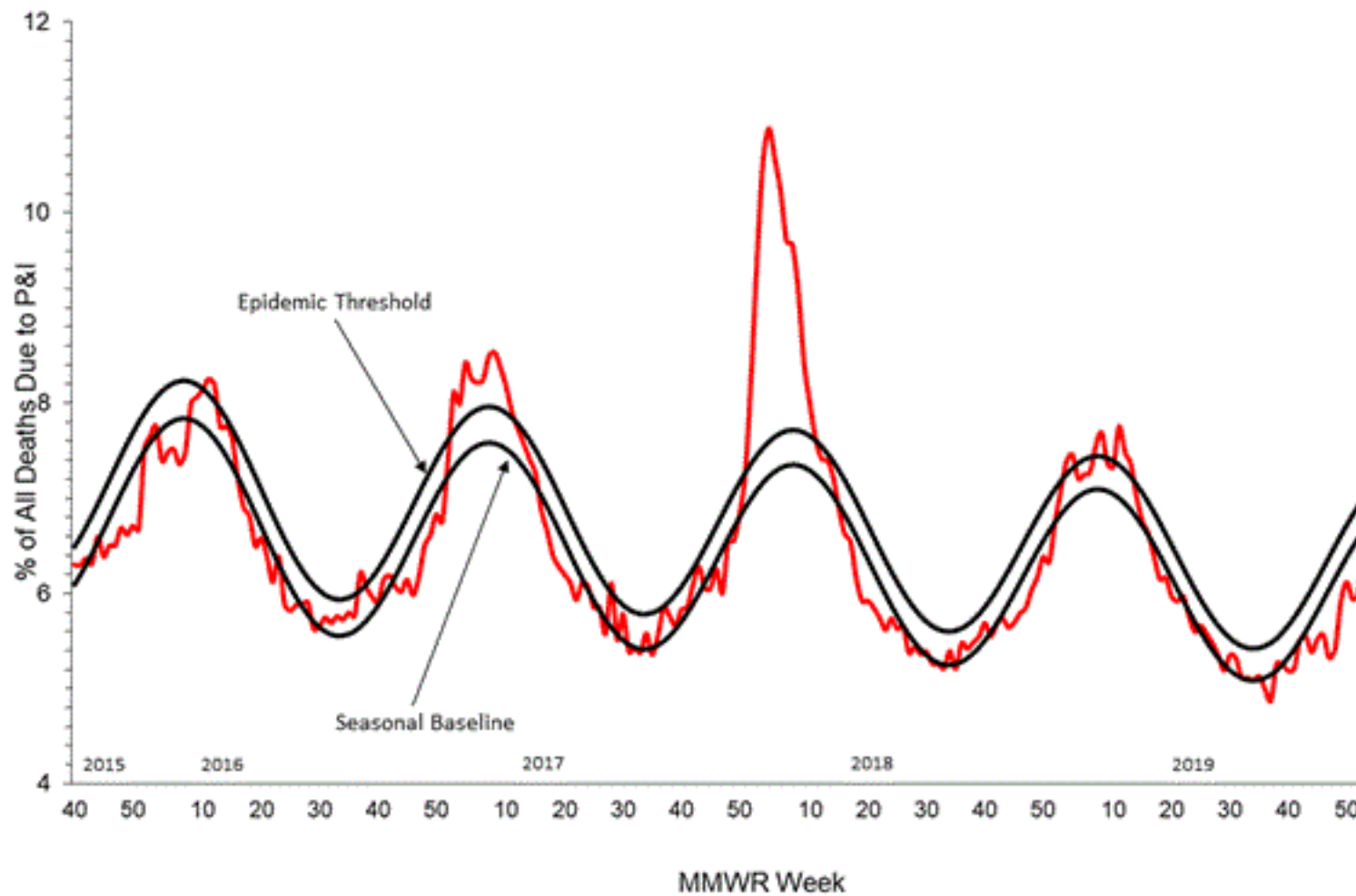
[View Full Screen](#)

**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 January 16, 2020, 6.9% of the deaths occurring during the week ending January 4, 2020 (week 1) were due to P&I. This percentage is below the epidemic threshold of 7.0% for week 1.

Pneumonia and Influenza Mortality from  
the National Center for Health Statistics Mortality Surveillance System  
Data through the week ending January 4, 2020, as of January 16, 2020



[View Chart Data](#) | [View Full Screen](#)

**Additional pneumonia and influenza mortality surveillance information for current and past seasons:**  
[Surveillance Methods](#) | [FluView Interactive](#)

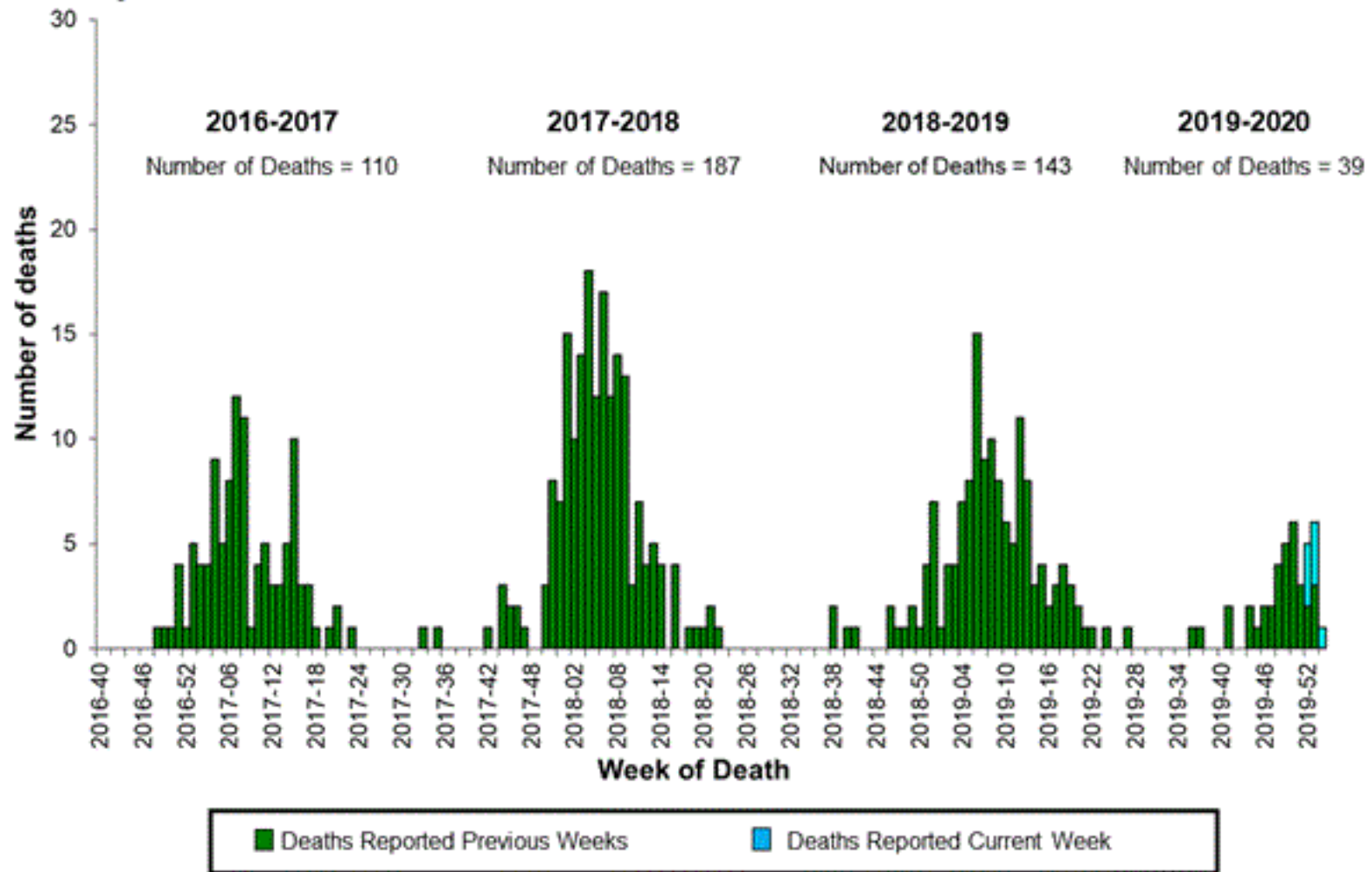
## Influenza-Associated Pediatric Mortality

Seven influenza-associated pediatric deaths occurring in weeks 52 (the week ending December 28, 2019), 1 (the week ending January 4, 2020), and 2 (the week ending January 11, 2020) were reported to CDC during week 2. All seven were associated with influenza B viruses that did not have a lineage determined.

A total of 39 influenza-associated pediatric deaths occurring during the 2019-2020 season have been reported to CDC.

- 28 deaths were associated with influenza B viruses. Five of these had the lineage determined and all were B/Victoria viruses.
- 11 deaths were associated with influenza A viruses. Six of these had subtyping performed and all were A(H1N1)pdm09 viruses.

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



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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 visualizations 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.

- |                          |                             |                          |                                      |                            |
|--------------------------|-----------------------------|--------------------------|--------------------------------------|----------------------------|
| <a href="#">Alabama</a>  | <a href="#">Alaska</a>      | <a href="#">Arizona</a>  | <a href="#">Arkansas</a>             | <a href="#">California</a> |
| <a href="#">Colorado</a> | <a href="#">Connecticut</a> | <a href="#">Delaware</a> | <a href="#">District of Columbia</a> | <a href="#">Florida</a>    |
| <a href="#">Georgia</a>  | <a href="#">Hawaii</a>      | <a href="#">Idaho</a>    | <a href="#">Illinois</a>             | <a href="#">Indiana</a>    |
| <a href="#">Iowa</a>     | <a href="#">Kansas</a>      | <a href="#">Kentucky</a> | <a href="#">Louisiana</a>            | <a href="#">Maine</a>      |

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 nation 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>

**Any links provided to non-Federal organizations are provided solely as a service to our users. These links do not constitute an endorsement of these organizations or their programs by CDC or the Federal Government and none should be inferred. CDC is not responsible for the content of the individual organization web pages found at these links.**

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>.