

Influenza (Flu)

Weekly U.S. Influenza Surveillance Report

FLUVIEW



A Weekly Influenza Surveillance Report Prepared by the Influenza Division

Key Updates for Week 5, ending February 1, 2020

Key indicators that track flu activity remain high and, after falling during the first two weeks of the year, increased over the last three weeks. Indicators that track overall 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 increased from 28.4% last week to 29.8% this week.

Public Health Labs

Numbers of influenza B/Victoria and A(H1N1)pdm09 viruses are approximately equal for the season overall, with continued increases in influenza A(H1N1)pdm09 viruses in recent weeks.

Virus Characterization

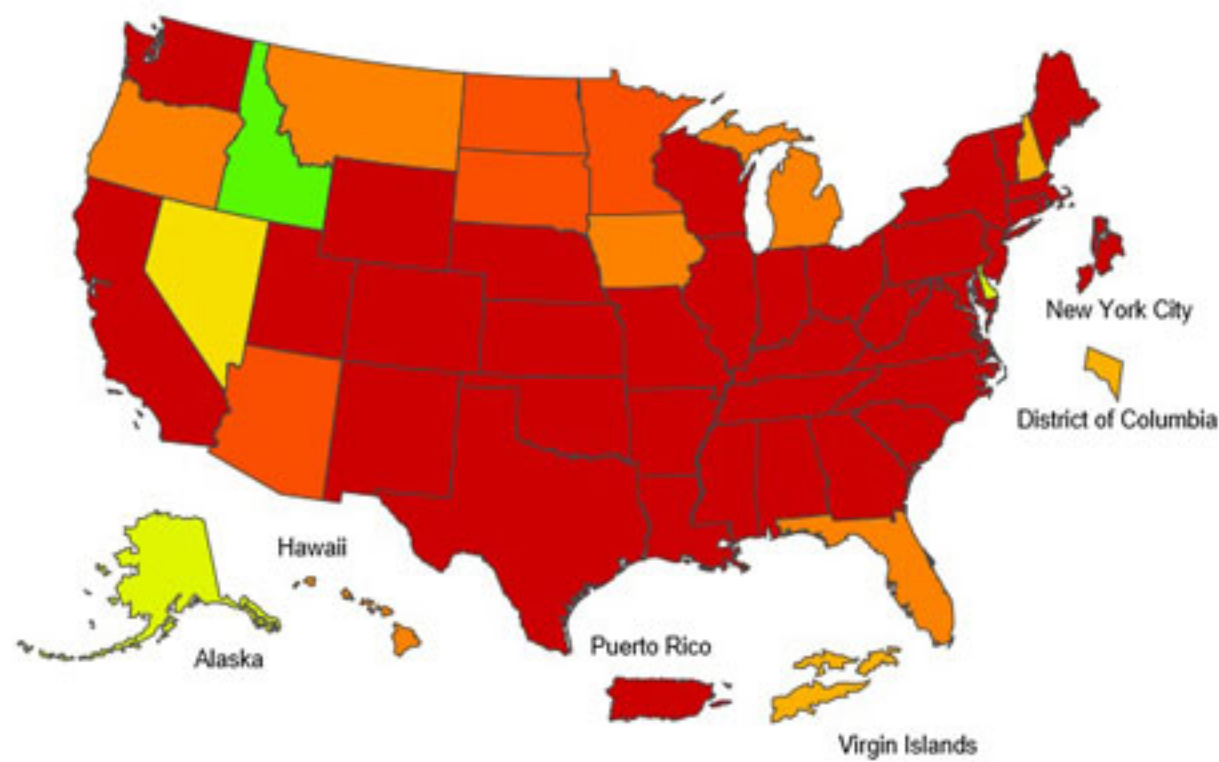
Genetic and antigenic characterization and antiviral susceptibility of influenza viruses collected in the U.S. are summarized in this report.

Illness

Outpatient Illness: ILINet

Visits to health care providers for influenza-like illness (ILI) increased from 6.0% last week to 6.7% this week. All regions remain above their baselines.

Outpatient Illness: ILINet Activity Map



The number of jurisdictions experiencing high ILI activity increased from 44 last week to 47 this week.

Geographic Spread



The number of jurisdictions reporting regional or widespread influenza activity remained at 51 this week.

Severe Disease

Hospitalizations

The overall hospitalization rate for the season increased to 35.5 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 is 7.1%, below the epidemic threshold of 7.2%.

Pediatric Deaths

10 influenza-associated pediatric deaths occurring during the 2019-2020 season were reported this week. The total for the season is 78.

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 and increased again this week. Nationally, and in some regions, the proportion of influenza A(H1N1)pdm09 viruses compared to influenza B viruses is increasing.
- Overall, hospitalization rates remain similar to this time during recent seasons, but rates among children and young adults are higher at this time than in recent seasons.
- Pneumonia and influenza mortality has been low, but 78 influenza-associated deaths in children have been reported so far this season.
- CDC estimates that so far this season there have been at least 22 million flu illnesses, 210,000 hospitalizations and 12,000 deaths from flu.
- Flu vaccine effectiveness estimates will be available later this month, 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.

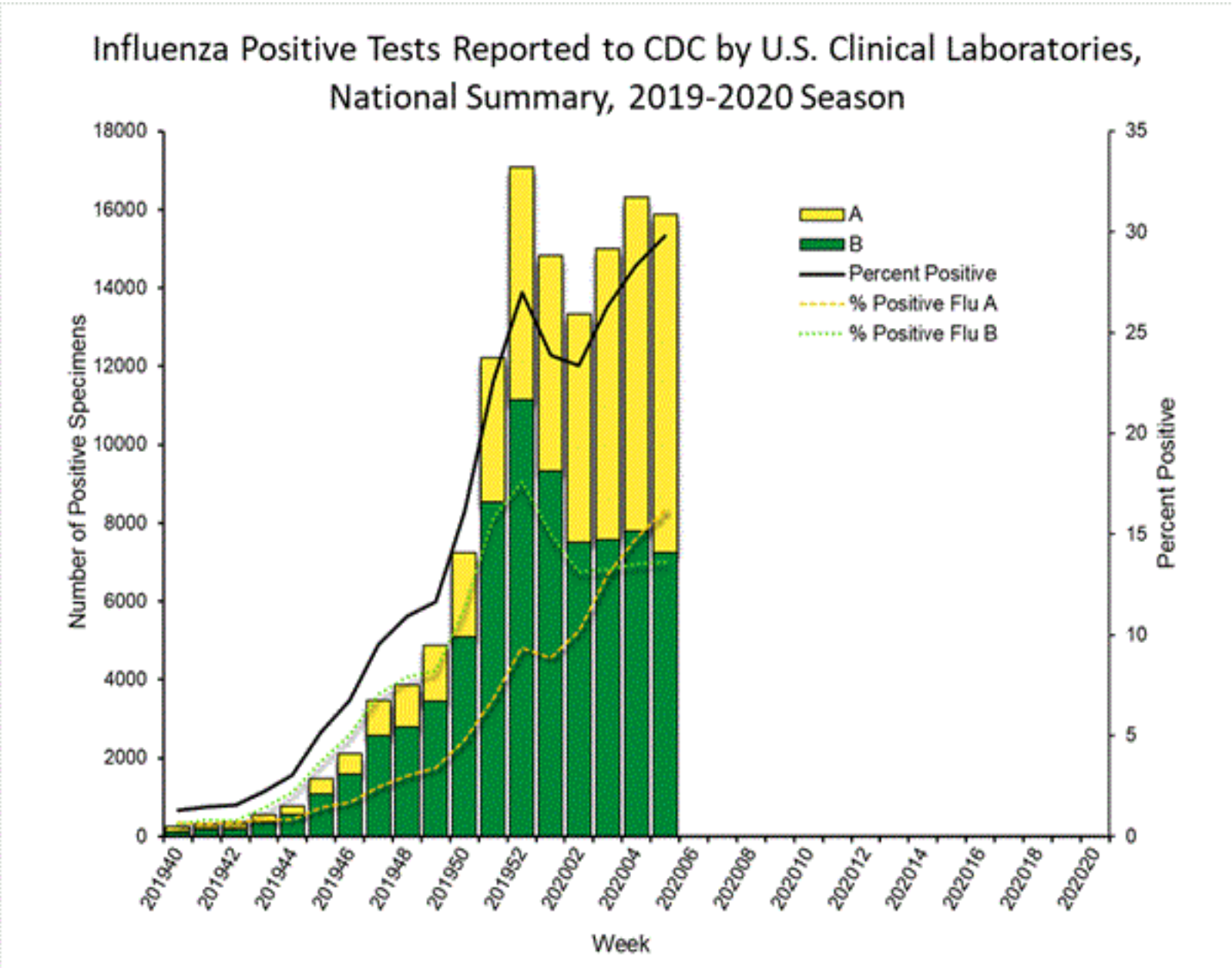
U.S. Virologic Surveillance

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 5	Data Cumulative since September 29, 2019 (week 40)
No. of specimens tested	53,247	738,331
No. of positive specimens (%)	15,875 (29.8%)	129,997 (17.6%)
Positive specimens by type		
Influenza A	8,637 (54.4%)	52,928 (40.7%)
Influenza B	7,238 (45.6%)	77,069 (59.3%)

The predominant virus also varies by age group. Nationally, for the season overall, influenza B viruses are the most commonly reported influenza viruses among children and young adults age 0-4 years (56% of reported viruses) and 5 years (73% of reported viruses), while A(H1N1)pdm09 viruses are the most commonly reported influenza viruses among persons 25-64 years (53% of reported viruses) and 65 years of age and older (60% of reported viruses). For this season, 52% of influenza positive specimens reported by public health laboratories were among persons less than 25 years of age and less than 13% were from persons age 65 and older.



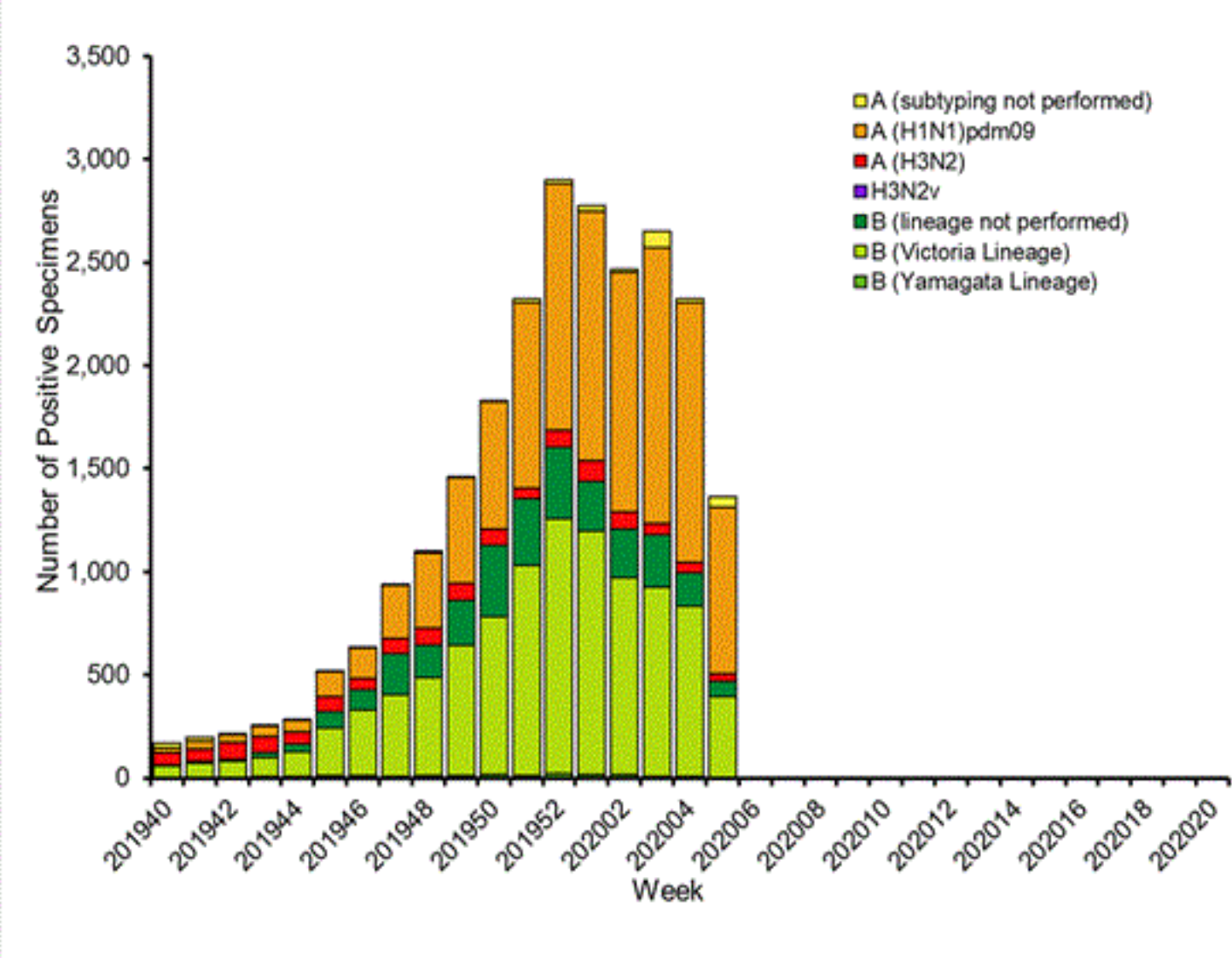
Public Health Laboratories

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 5	Data Cumulative since September 29, 2019 (week 40)
No. of specimens tested	2,129	46,258
No. of positive specimens	1,365	24,403
<i>Positive specimens by type/subtype</i>		
Influenza A	898 (65.8%)	11,670 (47.8%)
(H1N1)pdm09	810 (95.7%)	10,087 (88.9%)
H3N2	36 (4.3%)	1,255 (11.1%)
Subtyping not performed	52	328
Influenza B	467 (34.2%)	12,733 (52.2%)
Yamagata lineage	2 (0.5%)	168 (1.7%)
Victoria lineage	393 (99.5%)	9,765 (98.3%)
Lineage not performed	72	2,800

Nationally, influenza B/Victoria viruses have been reported more frequently than other influenza viruses this season. However, during recent weeks, influenza A(H1N1)pdm09 viruses have been reported more frequently than B/Victoria viruses. The predominant virus varies by region. Regional and state level data about circulating influenza viruses 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. Antigenic characterization data are based on an animal model (influenza-naïve 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** 1,260 influenza viruses collected in the U.S. from September 29, 2019, to February 1, 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	397				
		6B.1A	397 (100%)		
A/H3	301				
		3C.2a	290 (96.3%)	2a1	290 (96.3%)
				2a2	0
				2a3	0
				2a4	0
		3C.3a	11 (3.7%)	3a	11 (3.7%)
B/Victoria	509				
		V1A	509 (100%)	V1A	0
				V1A.1	42 (8.3%)
				V1A.3	467 (91.7%)
B/Yamagata	53				
		Y3	53 (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 241 influenza viruses collected in the United States from September 29, 2019 to February 1, 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 (100%) 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):** 69 A(H3N2) viruses were antigenically characterized by FRA with ferret antisera, and 30 (43.5%) 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:** 88 B/Victoria lineage viruses, including viruses from both co-circulating sub-clades, were antigenically characterized by HI with ferret antisera, and 53 (60.2%) 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:

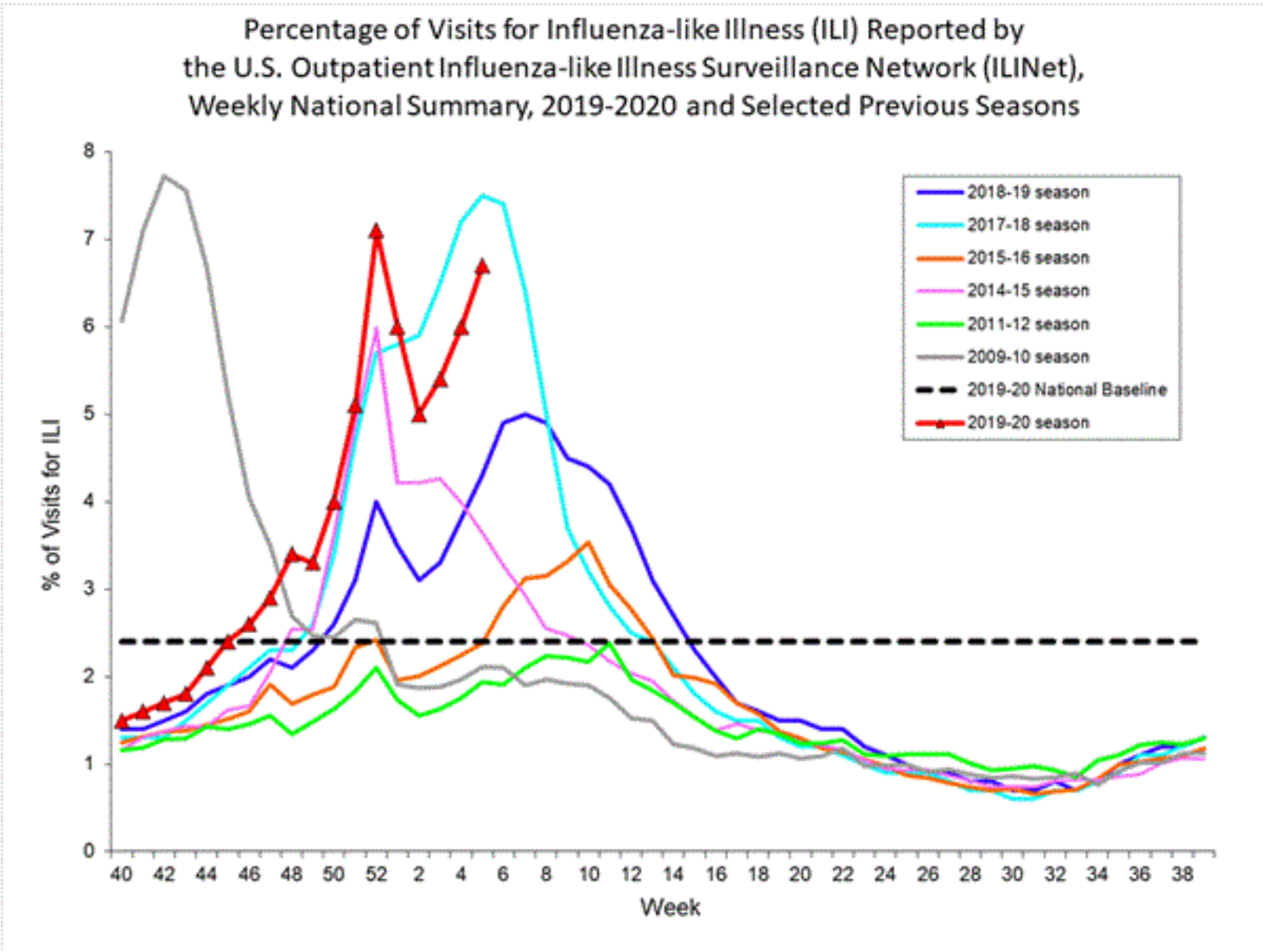
Antiviral Medication			Total Viruses	A/H1	A/H3	B/Victoria	B/Yamagata
Neuraminidase Inhibitors	Oseltamivir	Viruses Tested	1,192	374	287	481	50
		Reduced Inhibition	(0.0%)	(0.0%)	(0.0%)	(0.0%)	(0.0%)
		Highly Reduced Inhibition	1 (0.1%)	1 (0.3%)	(0.0%)	(0.0%)	(0.0%)
	Peramivir	Viruses Tested	1,192	374	287	481	50
		Reduced Inhibition	(0.0%)	(0.0%)	(0.0%)	(0.0%)	(0.0%)
		Highly Reduced Inhibition	1 (0.1%)	1 (0.3%)	(0.0%)	(0.0%)	(0.0%)
	Zanamivir	Viruses Tested	1,192	374	287	481	50
		Reduced Inhibition	1 (0.1%)	(0.0%)	(0.0%)	1 (0.2%)	(0.0%)
		Highly Reduced Inhibition	(0.0%)	(0.0%)	(0.0%)	(0.0%)	(0.0%)
PA Endonuclease Inhibitor	Baloxavir	Viruses Tested	1,246	395	294	504	53
		Reduced Susceptibility	(0.0%)	(0.0%)	(0.0%)	(0.0%)	(0.0%)

A total of 259 additional viruses (118 H1pdm09, 19 H3, and 122 B) collected in Alabama, Alaska, Florida, Illinois, Iowa, Michigan, Nevada, New York, North Carolina, Pennsylvania, Virginia, and Wisconsin were analyzed for resistance to neuraminidase inhibitors by pyrosequencing assay. Two (1.7%) of the 118 A(H1N1)pdm09 viruses tested had the H274Y amino acid substitution in the neuraminidase that confers resistance to oseltamivir and potential resistance to peramivir. No markers of resistance to neuraminidase inhibitors were detected in A(H3N2) and type B viruses tested.

Outpatient Illness Surveillance

ILINet

Nationwide during week 5, 6.7% 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 4.0% to 10.9% during week 5. All regions reported a percentage of outpatient visits for ILI 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 5, the following ILI activity levels were experienced:

- High – New York City, Puerto Rico, and 45 states (Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Florida, Georgia, Hawaii, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts,

Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, 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, and Wyoming)

- Moderate – the District of Columbia, the U.S. Virgin Islands, and two states (Nevada and New Hampshire)
- Low - two states (Alaska and Delaware)
- Minimal - one state (Idaho)

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

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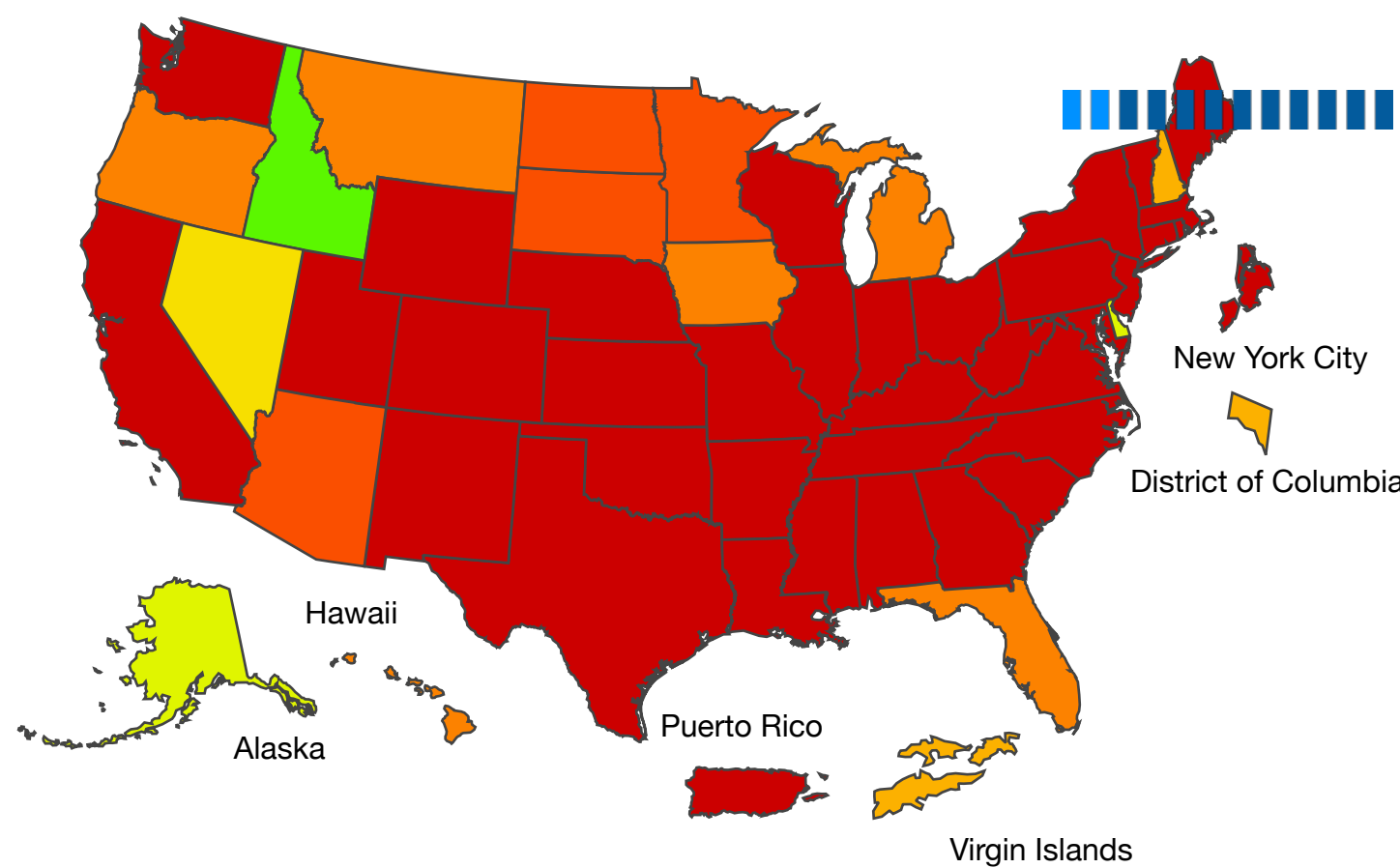
next

40
%

Weeks

2019-20 Influenza Season Week 5 ending Feb 01, 2020

ILI Activity Level



Season: 2019-20 ▲

Download Image

Download Data

<https://www.cdc.gov/flu/weekly/flu-report.xml> View Full Screen (<http://ais.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 5, 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 – two states (Hawaii and Oregon)
- Local – the District of Columbia
- Sporadic – the U.S. Virgin Islands
- Guam did not report.

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Weekly Influenza Activity Estimates Reported by State and Territorial Epidemiologists*

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Weeks

Week Ending Feb 01, 2020 - Week 5

Influenza Activity Estimates

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



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>)

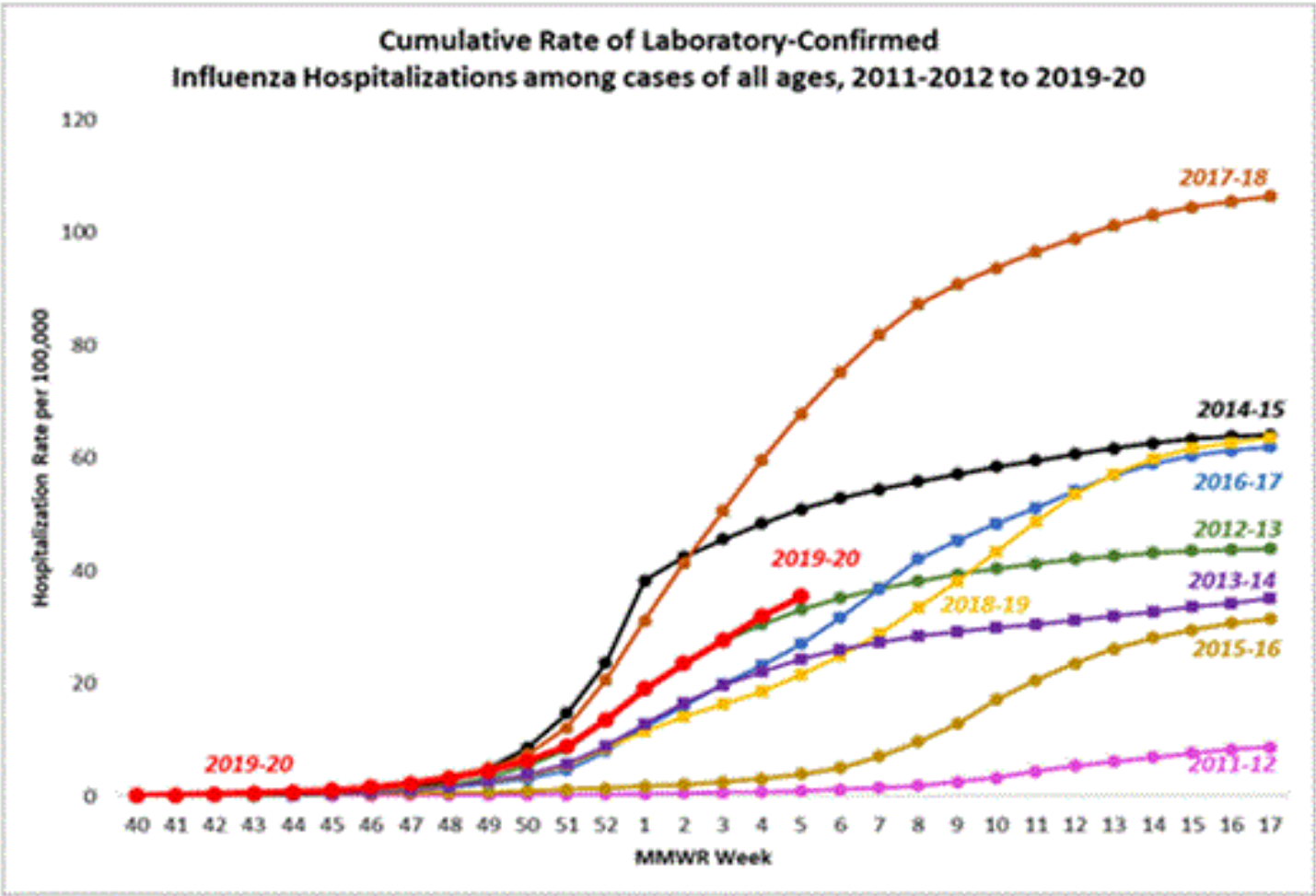
Additional geographic spread surveillance information for current and past seasons:
[Surveillance Methods](#) | [FluView Interactive](#)

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 10,314 laboratory-confirmed influenza-associated hospitalizations were reported by FluSurv-NET sites between October 1, 2019 and February 1, 2020; 6,416 (62.2%) were associated with influenza A virus, 3,835 (37.2%) with influenza B virus, 31 (0.3%) with influenza A virus and influenza B virus co-infection, and 32 (0.3%) with influenza virus for which the type was not determined. Among those with influenza A subtype information, 1,397 (92.6%) were A(H1N1)pdm09 virus and 112 (7.4%) were A(H3N2).

The overall cumulative hospitalization rate was 35.5 per 100,000 population which is similar to what has been seen during recent previous influenza seasons at this time of year. Rates in children and young adults are higher than at the same time in recent seasons.



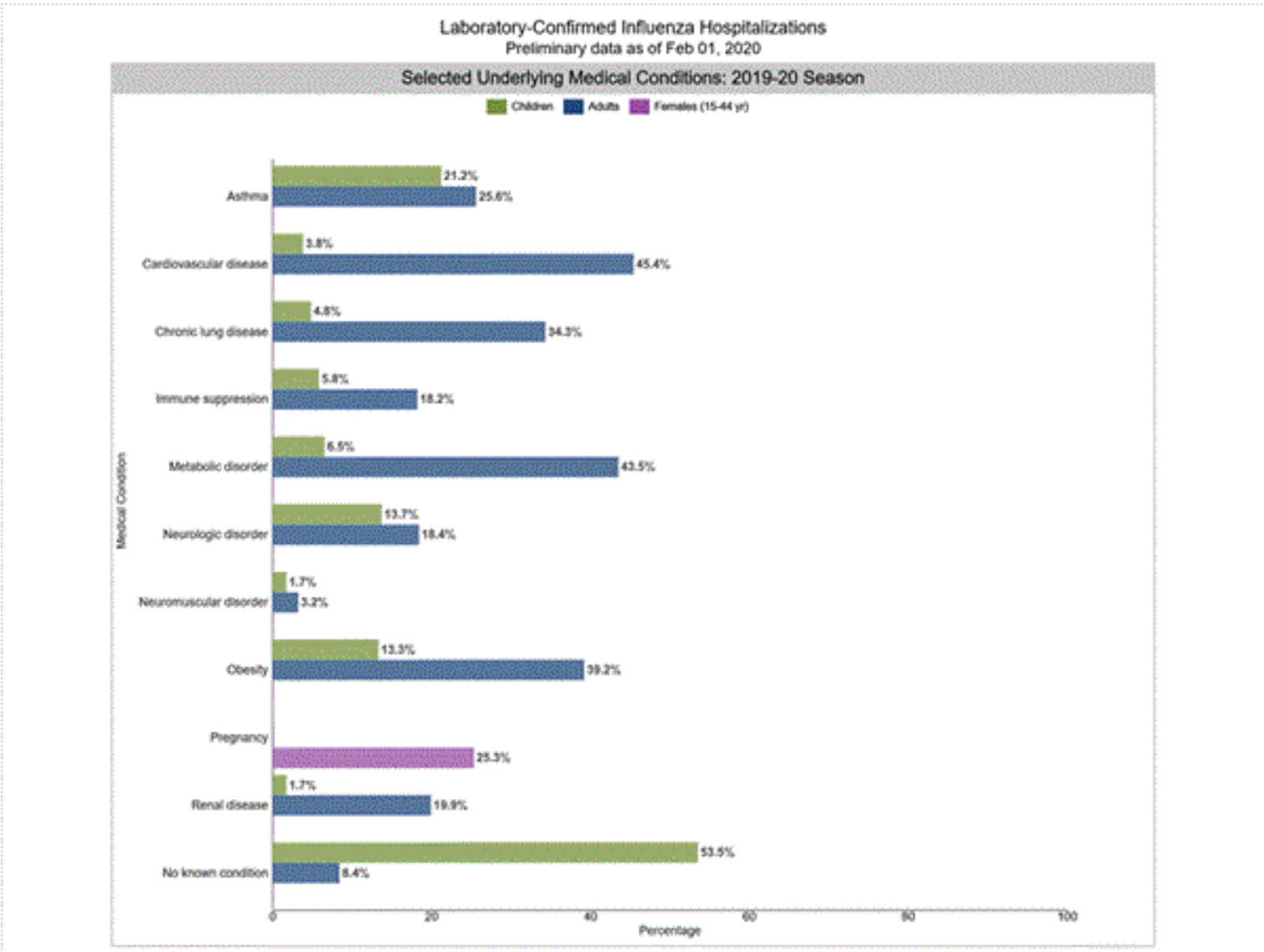
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The highest rate of hospitalization is among adults aged ≥65, followed by children aged 0-4 years and adults aged 50-64 years.

Age Group	2019-2020 Season Cumulative Rate per 100,000 Population
Overall	35.5
0-4 years	56.9
5-17 years	15.1
18-49 years	20.2
50-64 years	44.9
65+ years	85.1

Among 1,332 hospitalized adults with information on underlying medical conditions, 91.6% had at least one reported underlying medical condition, the most commonly reported were cardiovascular disease, metabolic disorder, obesity, and chronic lung disease. Among 297 hospitalized children with information on underlying medical conditions, 46.5% had

least one underlying medical condition; the most commonly reported was asthma. Among 253 hospitalized women of childbearing age (15-44 years) with information on pregnancy status, 25.3% were pregnant.

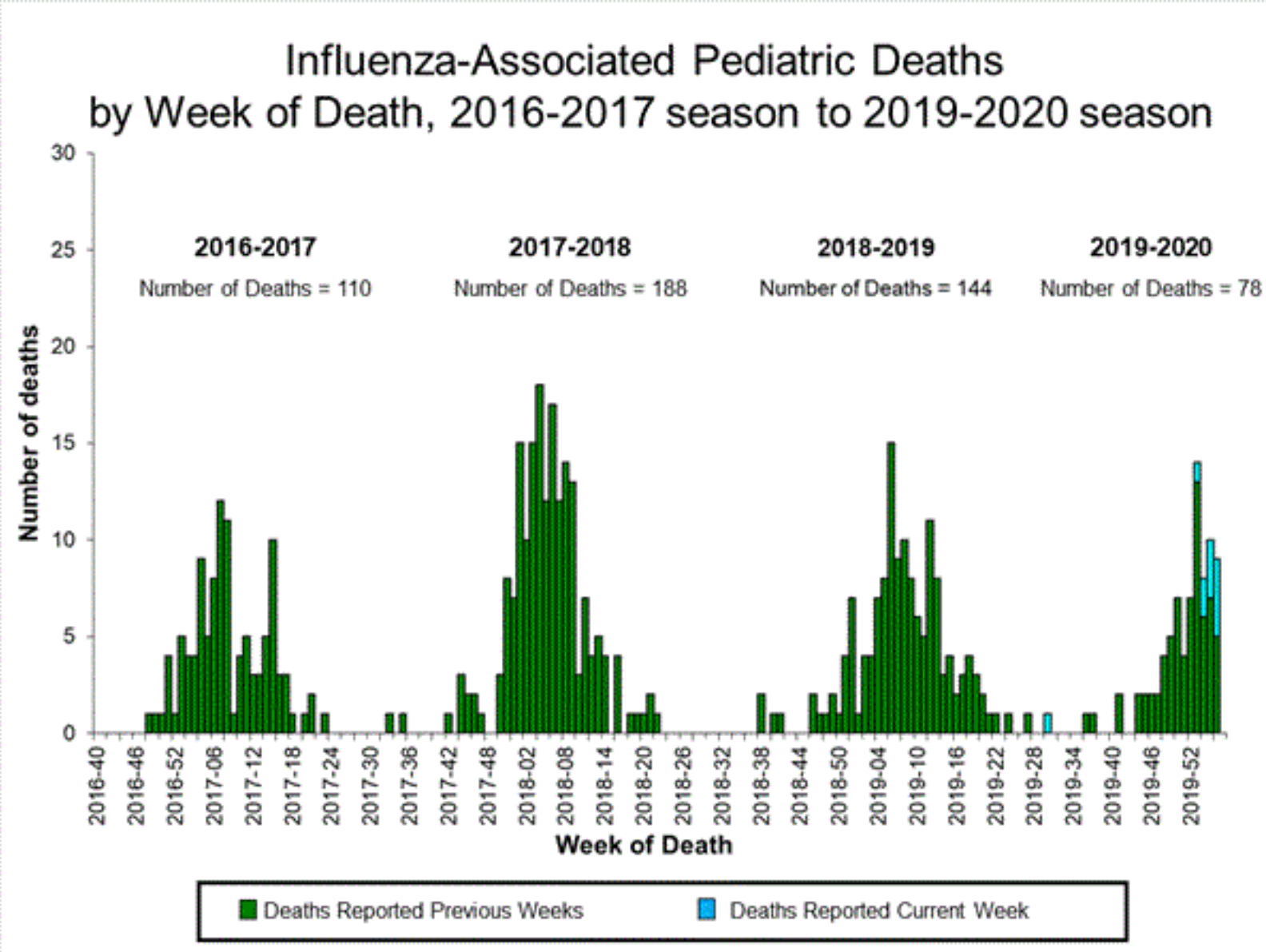


[View Full Screen](#)

Additional hospitalization surveillance information for current and past seasons and additional age group
[Surveillance Methods](#) | [FluView Interactive: Rates by Age or Patient Characteristics](#)

Pneumonia and Influenza (P&I) Mortality Surveillance

Based on National Center for Health Statistics (NCHS) mortality surveillance data available on February 6, 2020, 7.1% of the deaths occurring during the week ending January 25, 2020 (week 4) were due to P&I. This percentage is below the epidemic threshold of 7.2% for week 4.



[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 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

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 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>

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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>.