Weekly U.S. Influenza Surveillance Report

Print

Updated December 8, 2023

FLUVIEW

A Weekly Influenza Surveillance Report Prepared by the Influenza Division

Key Updates for Week 48, ending December 2, 2023

Seasonal influenza activity continues to increase in most parts of the country, with the southeast and south-central areas of the country reporting the highest levels of activity.

Viruses

Clinical Lab	Public Health Lab	Virus Characterization
6.8% (Trend ↑) positive for influenza this week	The most frequently reported influenza viruses this week were influenza A(H1N1).	Genetic and antigenic characterization and antiviral susceptibility are summarized in this report.

Illness

Outpatient Respiratory Illness

4.0% (Trend →) of visits to a health care provider this week were for respiratory illness ***(above baseline).***

Outpatient Respiratory Illness: Activity Map

This week 9 jurisdictions experienced moderate activity and 16 jurisdictions experienced high or very high activity.

FluSurv-NET	NHSN Hospitalizations
5.5 per 100,000 cumulative hospitalization rate.	**5,753** (Trend ↑) patients admitted to hospitals with influenza this week.

NCHS Mortality	Pediatric Deaths
0.2% (Trend →) of deaths attributed to influenza this week.	**4** influenza-associated deaths were reported this week for a season total of 12.

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

Directional arrows indicate changes between the current week and the previous week. Additional information on the arrows can be found at the bottom of this page.

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

- Seasonal flu activity continues to increase in most parts of the country, with the southeast and south-central areas of the country reporting the highest levels of activity.
- Outpatient respiratory illness is above baseline[1] nationally for the fifth week and is at or above baseline in all 10 HHS Regions. Region 10 (Pacific Northwest) is at its region-specific outpatient respiratory illness baseline, and regions 1-9 are above their region-specific baselines.
- The number of weekly flu hospital admissions continues to increase.
- Four influenza-associated pediatric deaths were reported during Week 48, bringing the 2023-2024 season total to 12 pediatric deaths.
- During Week 48, of the 547 viruses reported by public health laboratories, 437 (79.9%) were influenza A and 110 (20.1%) were influenza B. Of the 294 influenza A viruses subtyped during week 48, 218 (74.1%) were influenza A(H1N1) and 76 (25.9%) were A(H3N2).
- CDC estimates that there have been at least 2.6 million illnesses, 26,000 hospitalizations, and 1,600 deaths from flu so far this season.
- CDC recommends that everyone 6 months and older get an annual flu vaccine, as there are still vaccines available.[2] Now is still a good time to get vaccinated if you haven't already.
- There also are prescription flu antiviral drugs that can be used to treat flu illness; those should be started as early as possible and are especially important for higher risk patients.[3]
- Flu viruses are among several viruses that contribute to respiratory disease activity. CDC is providing updated, integrated information about COVID-19, flu, and RSV activity on a weekly basis.

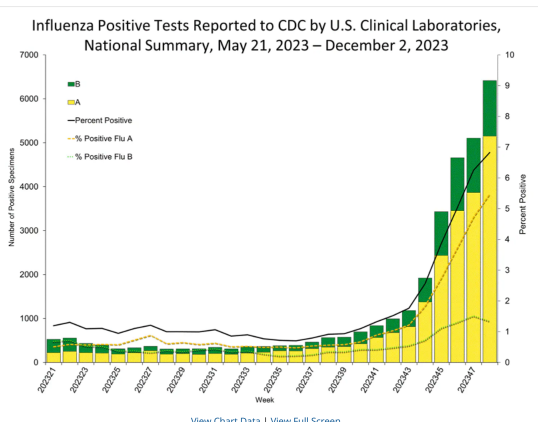
U.S. Virologic Surveillance

Nationally and in HHS Regions 2, 3, 4, 5, 7, and 9, the percentage of respiratory specimens testing positive for influenza in clinical laboratories increased (change of ≥0.5 percentage points) compared to the previous week. Regions 1 and 10 continue trending upward while region 6 and 8 remained stable compared to the previous week. The regions with the highest percent positivity were regions 8 (13.1%), 4 (10.9%), 6 (8.9%), and 9 (8.6%). Since Week 40, influenza A(H1N1)pdm09 has been the predominant virus circulating in all regions. A larger combined proportion (37%) of the viruses detected by public health labs have been influenza B in regions 4 and 6 compared to other regions (7-20%). For regional and state level data and age group distribution, please visit FluView Interactive. Viruses known to be associated with recent receipt of live attenuated influenza vaccine (LAIV) or found upon further testing to be a vaccine virus are not included, as they are not circulating influenza viruses.

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 virus) are used to monitor whether influenza activity is increasing or decreasing.

	Week 48	Data Cumulative since October 1, 2023 (Week 40)
No. of specimens tested	93,944	690,802
No. of positive specimens (%)	6,415 (6.8%)	25,243 (3.7%)
Positive specimens by type		
Influenza A	5,152 (80.3%)	18,772 (74.4%)
Influenza B	1,263 (19.7%)	6,471 (25.6%)



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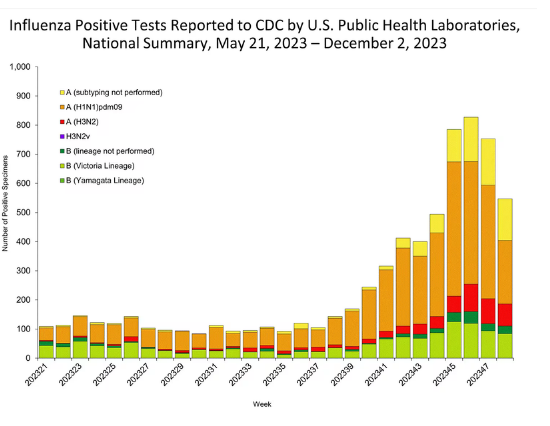
Public Health Laboratories

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 influenza viruses that belong to each influenza subtype/lineage.

	Week 48	Data Cumulative since October 1, 2023 (Week 40)
No. of specimens tested	2,828	27,138
No. of positive specimens	547	4,778
Positive specimens by type/subtype		
Influenza A	437 (79.9%)	3,843 (80.4%)
Subtyping Performed	294 (67.3%)	3,107 (80.8%)
(H1N1)pdm09	218 (74.1%)	2,656 (85.5%)
H3N2	76 (25.9%)	451 (14.5%)
H3N2v	0 (0.0%)	0 (0.0%)
Subtyping not performed	143 (32.7%)	736 (19.2%)
Influenza B	110 (20.1%)	935 (19.6%)
Lineage testing performed	84 (76.4%)	764 (81.7%)
Yamagata lineage	0 (0.0%)	0 (0.0%)
Victoria lineage	84 (100%)	764 (100%)
Lineage not performed	26 (23.6%)	171 (18.3%)



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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 viruses submitted by U.S. state and local public health laboratories according to the Right Size Roadmap submission guidance. These data are used to compare how similar the currently circulating influenza viruses are to the reference viruses representing viruses contained in current influenza vaccines. The data are also used to monitor evolutionary changes that continually occur in influenza viruses circulating in humans. CDC also tests susceptibility of circulating influenza viruses to influenza antiviral medications including the neuraminidase inhibitors (oseltamivir, zanamivir, and peramivir) and the PA endonuclease inhibitor baloxavir.

CDC has genetically characterized 1,005 influenza viruses collected since May 1, 2023.

Virus Subtype or Lineage	Genetic Characterization				
	Total No. of Subtype/Lineage Tested	HA Clade	Number (% of subtype/lineage tested)	HA Subclade	Number (% of subtype/lineage tested)
A/H1	541				
		6B.1A.5a	541 (100%)	2a	170 (31.4%)
				2a.1	371 (68.6%)
A/H3	113				
		3C.2a1b.2a	113 (100%)	2a.1b	1 (0.9%)
				2a.3a	5 (4.4%)
				2a.3a.1	106 (93.8%)
				2b	1 (0.9%)
B/Victoria	351				
		V1A	351 (100%)	3a.2	351 (100%)
B/Yamagata	0				
		Y3	0	Y3	0 (0%)

CDC antigenically characterizes influenza viruses by hemagglutination inhibition (HI) (H1N1pdm09, H3N2, B/Victoria, and B/Yamagata viruses) or neutralization-based HINT (H3N2 viruses) using antisera that ferrets make after being infected with reference viruses representing the 2023-2024 Northern Hemisphere recommended cell or recombinant-based vaccine viruses. Antigenic differences between viruses are determined by comparing how well the antibodies made against the vaccine reference viruses recognize the circulating viruses that have been grown in cell culture. Ferret antisera are useful because antibodies raised against a particular virus can often recognize small changes in the surface proteins of other viruses. In HI assays, viruses with similar antigenic properties have antibody titer differences of less than or equal to 4-fold when compared to the reference (vaccine) virus. In HINT, viruses with similar antigenic properties have antibody neutralization titer differences of less than or equal to 8-fold. Viruses selected for antigenic characterization are a subset representing the genetic changes in the surface proteins seen in genetically characterized viruses.

Influenza A Viruses

- **A (H1N1)pdm09:** One hundred and thirty-four A(H1N1)pdm09 viruses were antigenically characterized by HI, and all were well-recognized (reacting at titers that were within 4-fold of the homologous virus titer) by ferret antisera to cell-grown A/Wisconsin/67/2022-like reference viruses representing the A(H1N1)pdm09 component for the cell- and recombinant-based influenza vaccines.
- **A (H3N2):** Fifty-one A(H3N2) viruses were antigenically characterized by HI or HINT, and all were well-recognized (reacting at titers that were within 4-fold of the homologous virus titer in HI or reacting at titers that were less than or equal to 8-fold of the homologous virus in HINT) by ferret antisera to cell-grown A/Darwin/6/2021-like reference viruses representing the A(H3N2) component for the cell- and recombinant-based influenza vaccines.

Influenza B Viruses

- **B/Victoria:** Eighty influenza B/Victoria-lineage virus were antigenically characterized by HI, and all were well-recognized (reacting at titers that were within 4-fold of the homologous virus titer) by ferret antisera to cell-grown B/Austria/1359417/2021-like reference viruses representing the B/Victoria component for the cell- and recombinant-based influenza vaccines.
- **B/Yamagata:** No influenza B/Yamagata-lineage viruses were available for antigenic characterization.

Assessment of Virus Susceptibility to Antiviral Medications

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. Information about antiviral susceptibility test methods can be found at U.S. Influenza Surveillance: Purpose and Methods | CDC.

Viruses collected in the U.S. since October 01, 2023 were tested for antiviral susceptibility as follows:

Antiviral Medication			Total Viruses	A/H1	A/H3	B/Victoria
Neuraminidase Inhibitors	**Oseltamivir**	**Viruses Tested**	421	233	67	121
		Reduced Inhibition	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
		Highly Reduced Inhibition	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	Peramivir	**Viruses Tested**	421	233	67	121
		Reduced Inhibition	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
		Highly Reduced Inhibition	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	Zanamivir	**Viruses Tested**	421	233	67	121
		Reduced Inhibition	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
		Highly Reduced Inhibition	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
PA Cap-Dependent Endonuclease Inhibitor	**Baloxavir**	**Viruses Tested**	416	230	67	119
		Decreased Susceptibility	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)

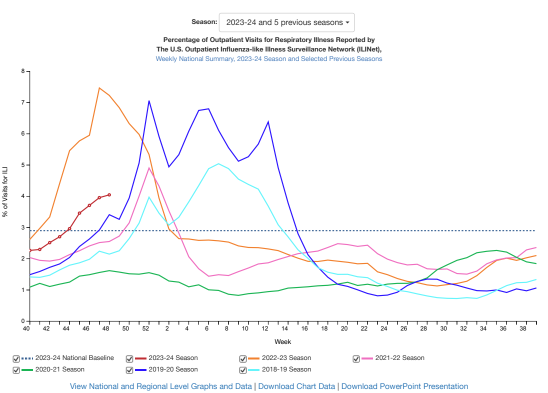
High levels of resistance to the adamantanes (amantadine and rimantadine) persist among influenza A(H1N1)pdm09 and influenza A(H3N2) viruses (the adamantanes are not effective against influenza B viruses). Therefore, use of these antivirals for treatment and prevention of influenza A virus infection is not recommended and data from adamantane resistance testing are not presented.

Outpatient Respiratory Illness Surveillance

The U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet) monitors outpatient visits for respiratory illness referred to as influenza-like illness [ILI (fever plus cough or sore throat)], not laboratory-confirmed influenza, and will therefore capture respiratory illness visits due to infection with pathogens that can present with similar symptoms, including influenza viruses, SARS-CoV-2, and RSV. It is important to evaluate syndromic surveillance data, including that from ILINet, in the context of other sources of surveillance data to obtain a more complete and accurate picture of influenza, SARS-CoV-2, and other respiratory virus activity. CDC is providing integrated information about COVID-19, influenza and RSV activity on a website that is updated weekly. Information about other respiratory virus activity can be found on CDC's National Respiratory and Enteric Virus Surveillance System (NREVSS) website.

Outpatient Respiratory Illness Visits

Nationwide during Week 48, 4.0% of patient visits reported through ILINet were due to respiratory illness that included fever plus a cough or sore throat, also referred to as ILI. This has remained stable compared to Week 47 and is above the national baseline of 2.9% for the fifth consecutive week. ILI activity increased in regions 1, 3, 5, and 9, decreased slightly in Region 6, and remained stable but trending upward in all other regions (regions 2, 4, 7, 8, and 10) during Week 48 compared to Week 47. All regions are at or above their region-specific baselines this week. Multiple respiratory viruses are co-circulating, and the relative contribution of influenza virus infection to ILI varies by location.

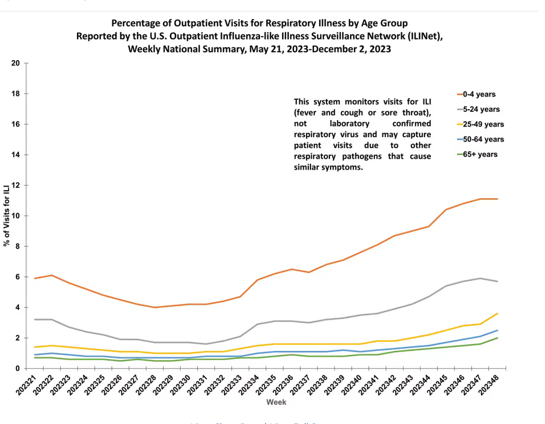


View National and Regional Level Graphs and Data | Download Chart Data | Download PowerPoint Presentation

Outpatient Respiratory Illness Visits by Age Group

About 70% of ILINet participants provide both the number of patient visits for respiratory illness and the total number of patient visits for the week broken out by age group. Data from this subset of providers are used to calculate the percentages of patient visits for respiratory illness by age group.

The percentage of visits for respiratory illness reported in ILINet has increased (change of > 0.1 percentage points) in the 25-49 years, 50-64 years, and 65+ years age groups, decreased in the 5-24 years age group, and remained stable in the 0-4 years age group in Week 48 compared to Week 47.



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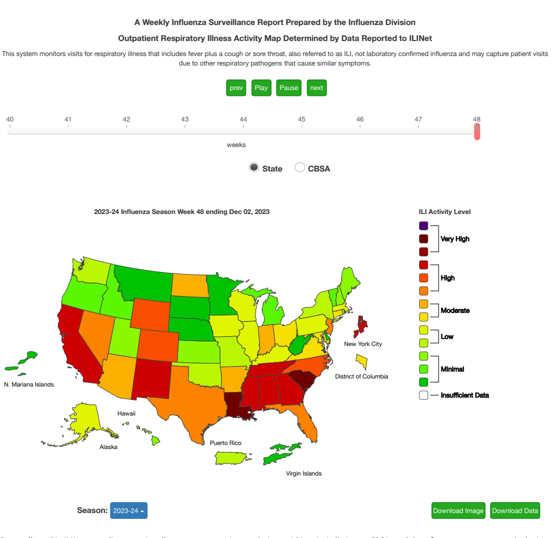
Outpatient Respiratory Illness Activity Map

Data collected in ILINet are used to produce a measure of ILI activity* by state/jurisdiction and Core Based Statistical Areas (CBSA).

Activity Level	Number of Jurisdictions		Number of CBSAs	
	Week 48 (Week ending Dec. 2, 2023)	Week 47 (Week ending Nov. 25, 2023)	Week 48 (Week ending Dec. 2, 2023)	Week 47 (Week ending Nov. 25, 2023)
Very High	2	2	7	10
High	14	13	86	58
Moderate	9	9	82	89
Low	12	12	149	156
Minimal	18	19	346	392
Insufficient Data	0	0	259	224



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

Hospitalization Surveillance

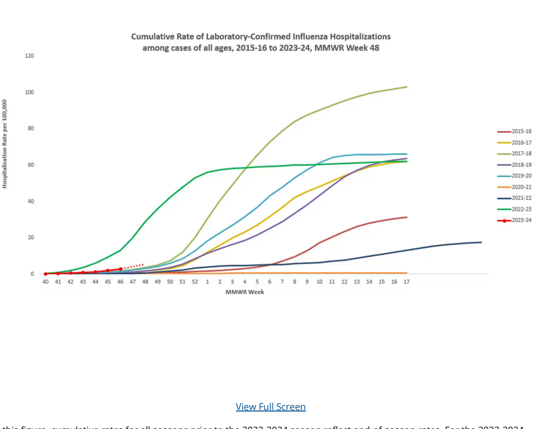
FluSurv-NET

The Influenza Hospitalization Surveillance Network (FluSurv-NET) conducts population-based surveillance for laboratory-confirmed influenza-related hospitalizations in select counties in 14 states and represents approximately 9% of the U.S. population. FluSurv-NET hospitalization data are preliminary. As data are received each week, prior case counts and rates are updated accordingly.

A total of 1,696 laboratory-confirmed influenza-associated hospitalizations were reported by FluSurv-NET sites between October 1, 2023, and December 2, 2023; 1,452 (85.6%) were associated with influenza A virus, 229 (13.5%) with influenza B virus, 4 (0.2%) with influenza A virus and influenza B virus co-infection, and 11 (0.6%) with influenza virus for which the type was not determined. Among those with influenza A subtype information, 273 (83.7%) were A(H1N1)pdm09 and 52 (16.0%) were A(H3N2).

The weekly hospitalization rate observed in Week 48 was 1.4 per 100,000 population. The overall cumulative hospitalization rate for the season was 5.5 per 100,000 population. This cumulative hospitalization rate is the second highest cumulative in-season hospitalization rate observed in Week 48, following the 2022-2023 season (26.0). Cumulative in-season hospitalization rates observed in Week 48 from 2010-2011 through 2021-2022 ranged from 0.2 to 2.7.

When examining rates by age, the highest cumulative hospitalization rate per 100,000 population was among adults aged 65 years and older (13.6), followed by adults aged 50-64 years (7.1) and children aged 0-4 years (5.9). When examining unadjusted rates by race and ethnicity, the highest rate of hospitalization per 100,000 population was among non-Hispanic Black persons (9.9), followed by non-Hispanic American Indian or Alaska Native persons (5.5), Hispanic persons (5.2), non-Hispanic Asian/Pacific Islander persons (4.2), and non-Hispanic White persons (3.9).



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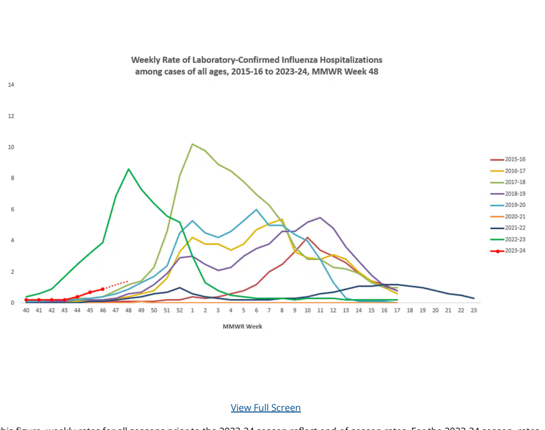
In this figure, cumulative rates for all seasons prior to the 2023-2024 season reflect end-of-season rates. For the 2023-2024 season, rates for recent hospitals admissions are subject to reporting delays. As hospitalization data are reviewed each week, prior case counts and rates are updated accordingly.



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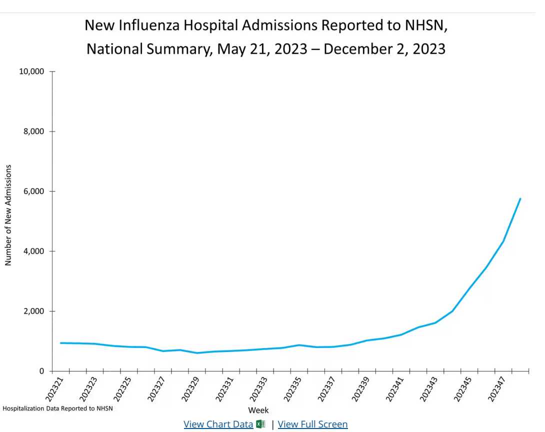
In this figure, weekly rates for all seasons prior to the 2023-24 season reflect end-of-season rates. For the 2023-24 season, rates for recent hospital admissions are subject to reporting delays and are shown as a dashed line for the current season. As hospitalization data are received each week, prior case counts and rates are updated accordingly.

Additional FluSurv-NET hospitalization surveillance information for current and past seasons and additional age groups:
Surveillance Methods | FluView Interactive: Rates by Age, Sex, and Race/Ethnicity or Data on Patient Characteristics | RESP-NET Interactive

National Healthcare Safety Network (NHSN) Hospitalization Surveillance

Hospitals report to NHSN the weekly number of patients admitted with laboratory-confirmed influenza. During Week 48, 5,753 patients with laboratory-confirmed influenza were admitted to a hospital. The number of patients admitted to a hospital with laboratory-confirmed influenza for Week 48 increased compared to Week 47 (change of >5%) nationally and in all 10 HHS Regions (1- 10).



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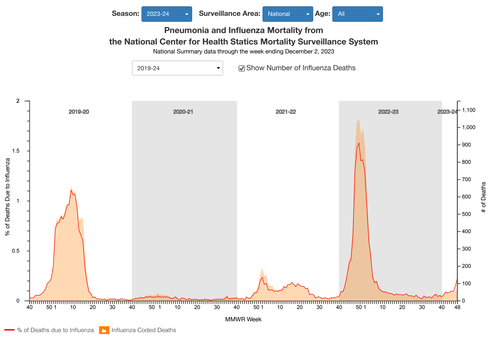
Additional NHSN Hospitalization Surveillance information:
Surveillance Methods | Additional Data | FluView Interactive

Mortality Surveillance

National Center for Health Statistics (NCHS) Mortality Surveillance

Based on NCHS mortality surveillance data available on December 7, 2023, 0.2% of the deaths that occurred during the week ending December 2, 2023 (Week 48), were due to influenza. This percentage remained stable (< 0.1 percentage point change) compared to Week 47 but is trending upward. The data presented are preliminary and may change as more data are received and processed.

The percentages of deaths due to pneumonia and influenza (P&I) and due to pneumonia, influenza, or COVID-19 (PIC) will no longer be displayed in FluView but are available in FluView Interactive.



View Regional and State Level Data | Download Chart Data | Download PowerPoint Presentation

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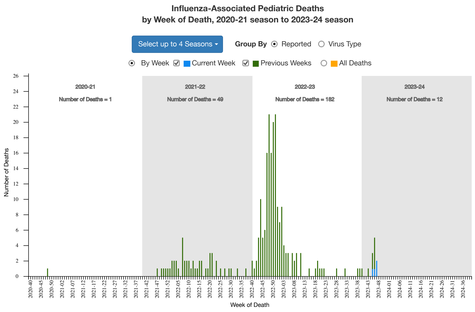
Additional pneumonia, influenza and COVID-19 mortality surveillance information for current and past seasons:
Surveillance Methods | FluView Interactive

Influenza-Associated Pediatric Mortality

Four influenza-associated pediatric deaths occurring during the 2023-2024 season were reported to CDC during Week 48. The deaths occurred during weeks 45, 46 and 47 of 2023 (the weeks ending November 11, November 18, and November 25, respectively). Three deaths were associated with influenza A(H1N1) viruses and one death was associated with an influenza B virus with no lineage determined.

A total of 12 influenza-associated pediatric deaths occurring during the 2023-2024 season have been reported to CDC.



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

Trend Indicators

Increasing:
Decreasing:
Stable:

Indicators Status by System

Clinical Labs: Up or down arrows indicate a change of greater than or equal to 0.5 percentage points in the percent of specimens positive for influenza compared to the previous week.
Outpatient Respiratory Illness (ILINet): Up or down arrows indicate a change of greater than 0.1 percentage points in the percent of visits due to respiratory illness (ILI) compared to the previous week.
NHSN Hospitalizations: Up or down arrows indicate change of greater than or equal to 5% of the number of patients admitted with laboratory-confirmed influenza compared to the previous week.
NCHS Mortality: Up or down arrows indicate change of greater than 0.1 percentage points of the percent of deaths due to influenza compared to the previous week.

Reference Footnotes

[1]U.S. Influenza Surveillance: Purpose and Methods (2023 Oct). Centers for Disease Control and Prevention. https://www.cdc.gov/flu/weekly/overview.htm#ILINet.

[2]Grohskopf LA, Blanton LH, Ferdinands JM, Chung JR, Broder KR, Talbot HK. Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices — United States, 2023–24 Influenza Season. MMWR Recomm Rep 2023;72(No. RR-2):1–25. DOI: http://dx.doi.org/10.15585/mmwr.rr7202a1

[3]Influenza Antiviral Medications: Summary for Clinicians (2023 Sept). Centers for Disease Control and Prevention. https://www.cdc.gov/flu/professionals/antivirals/summary-clinicians.htm.

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.

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.

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:
Australia , China , Japan , the United Kingdom , and the United States (CDC in Atlanta, Georgia)

Europe:
The most up-to-date influenza information from Europe is available from WHO/Europe and the European Centre for Disease Prevention and Control .

Public Health Agency of Canada:
The most up-to-date influenza information from Canada is available in Canada's weekly FluWatch report .

Public Health England:
The most up-to-date influenza information from the United Kingdom is available from Public Health England .

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.

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

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