

This report summarizes weekly influenza (flu) surveillance data collected during the 2022-2023 flu season and highlights the observed impact of flu in Vermont during that time.

For the 2022-23 season, data were collected between October 2, 2022 and May 20, 2023. These are the Center for Disease Control and Prevention (CDC) Morbidity and Mortality Weekly Report (MMWR) weeks 40-20 (**Detailed MMWR week information and term definitions are included in the references section**). The Health Department reports Vermont flu surveillance data to CDC to help establish weekly flu trends across the country.

In Vermont, as in most other states, individual cases of flu are not reported, except for instances of a newly identified influenza A strain, or pediatric deaths. Because individual cases cannot be counted, surveillance relies on a variety of data sources to estimate the effect of flu on Vermonters:

- Emergency department and urgent care visits for influenza-like illness (ILI)
- ILINet Service Providers
- National Respiratory and Enteric Virus Surveillance System (NREVSS)
- Vermont Department of Health Laboratory
- Reports of flu outbreaks by institutional settings (long-term care facilities, schools, etc.)

By analyzing information from these sources, the Health Department can track where flu is spreading to identify trends and communicate findings to health care providers and the public.

The 2022-23 flu season occurred during the ongoing COVID-19 global pandemic. In pre-pandemic years, patterns observed during the Southern Hemisphere's flu season, which typically begins in March, often foreshadowed the Northern Hemisphere season. Due to the timing of changes in COVID-19 policies which differed nationally and different use of personal preventive measures, it was difficult to [apply trends observed in the Southern Hemisphere](#) to the anticipated Northern Hemisphere flu activity (October 2022 – May 2023). An early season peak of influenza A activity was noted in the Southern Hemisphere, and the season was not as mild as the previous 2021-22 season. Ultimately this was also observed during the Northern Hemisphere's 2022-23 season.

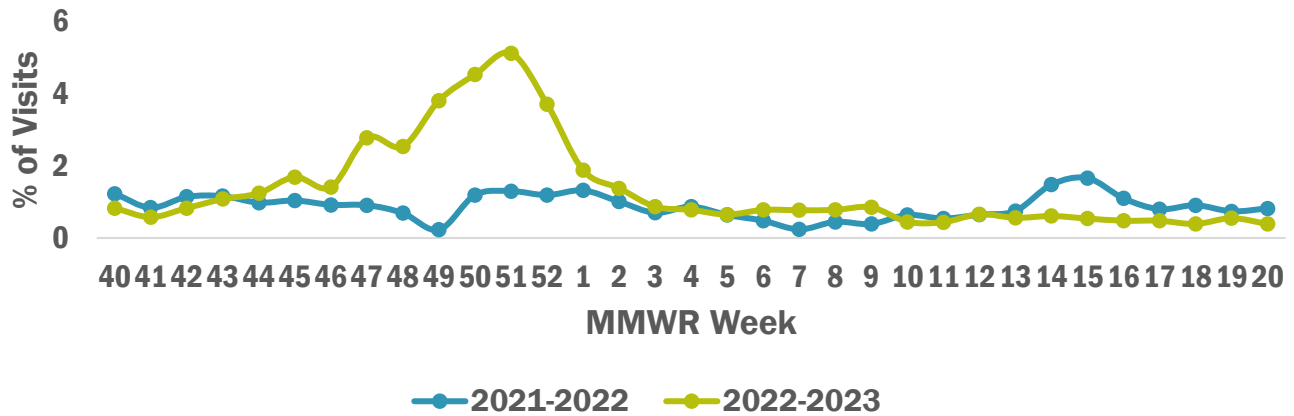
In the Northern Hemisphere, the COVID-19 pandemic continued to present challenges to diagnosing influenza as healthcare seeking patterns and healthcare capacity varied. This report provides information for the Vermont 2022-23 flu season (MMWR weeks 40-20). Due to the unique context of the COVID-19 pandemic, direct comparisons between the pandemic seasons (2020-2021, 2021-2022, 2022-2023) and pre-pandemic seasons should be avoided.

## KEY POINTS

- **The flu surveillance season began 10/02/22 and ended 5/20/23 (MMWR report weeks 40-20).**
- **To track and prevent flu, Vermont uses a variety of surveillance data sources. Most individual cases of flu are not reportable.**
- **This flu season returned to a more typical pattern of activity observed before the COVID-19 pandemic, though it remained affected by pandemic-related factors.**

## Sentinel Provider Data

**Percent of visits to ILINet Providers for influenza-like illness peaked early in the 2022-23 season (Wk 51). The 2021-22 season had a later, lesser peak (Week 15).**



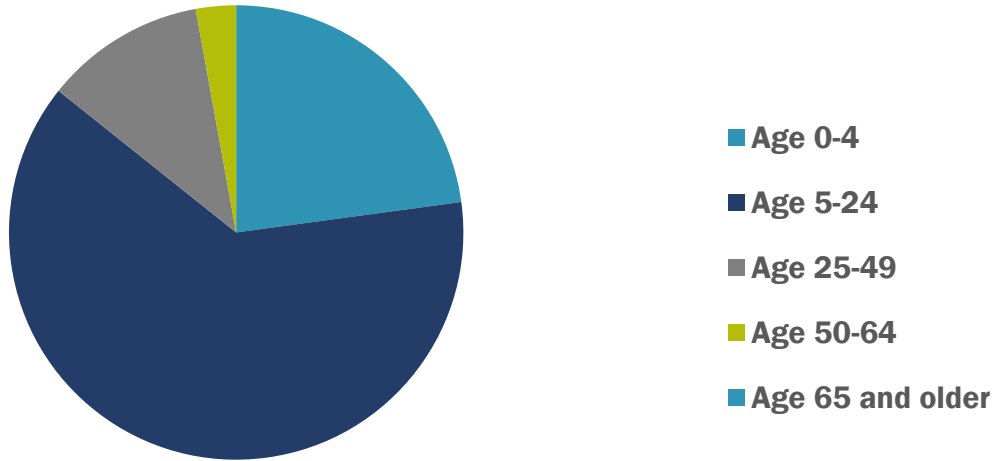
The sentinel provider surveillance data is based on reports from ILINet - a nationwide group of medical offices that act as influenza sentinels. Sentinel providers report the number of patients with an influenza-like illness (ILI) seen by their practices each week throughout the flu season.

During the 2021-22 season, ILI activity peaked twice – once beginning in mid-December (MMWR weeks 50-1), then again in April (MMWR weeks 14-16), at a time when the season is typically ending. This trend was observed nationwide, and influenza activity continued to be elevated above normal through the end of the typical season. A different trend was observed in 2022-23 with an unseasonable and high peak in December (MMWR weeks 49-51); the early peak had also been the trend in the Southern Hemisphere's influenza season. Vermont ILI visits remained at or near the baseline of 2% of total visits for the remainder of the 2022-23 season.

For the 2022-23 season, patients most often seeking care for influenza-like illness were in the 5-24 age range, as they were during the 2021-22 season. During the 2020-21 season, the patients most often seeking care for influenza-like illness were older, in the 25-49 age range, likely due to pandemic-related illness and care-seeking trends. During the entire 2022-23 flu season, there were no weeks where patients ages 65 and older were seen at the highest percentage of total ILI visits.

During the current season, 7 providers and 8 emergency departments reported ILI data to the Vermont Department of Health, an increase from the previous season. ILI data is more robust when a higher percentage of provider reports are received.

The patients most often seeking care for influenza-like illness at sentinel provider offices were 5-25 years old for the majority of the season.



Because these data are only reported by a sample of health care providers, they do not represent the full picture of ILI visits in the state. However, they are an important piece of the surveillance system for monitoring where in the state flu may be having a substantial impact, and on which age groups.

## Laboratory Data

Three hospitals in Vermont report to the National Respiratory and Enteric Virus Surveillance System (NREVSS): Central Vermont Medical Center, Southwestern Vermont Medical Center, and University of Vermont Medical Center. These hospital laboratories report all influenza tests performed at their facility and the test result.

NREVSS Reporting Hospitals	2021-22 Flu Season		2022-23 Flu Season	
	Count		Count	
Total PCR tests	10138		14640	
Total positive results	558	5.5% of total tests	1559	10.6% of total tests
Total positive flu A	552	99% of positive results	1544	99% of positive results
Total positive flu B	6	1% of positive results	15	1% of positive results

## 2022-23 End-of-Season Flu Report

The Vermont Department of Health Laboratory (VDHL) performs PCR influenza testing on specimens submitted from sentinel sites as well as those submitted from facilities during potential influenza outbreaks. During the 2022-23 season, influenza A(H3N2) was the more frequently detected circulating subtype detected by VDHL, with detection of influenza A(H1N1) also occurring. Sample submission was most common following the peak of activity in December 2022.

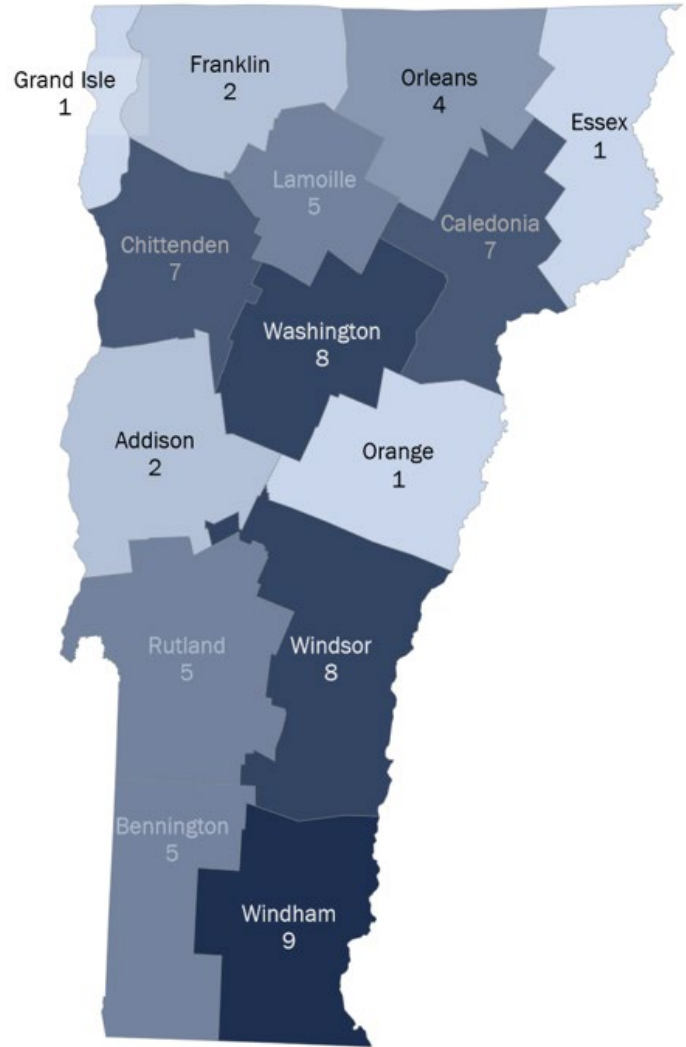
Vermont Department of Health Laboratory	2021-22 Flu Season		2022-23 Flu Season	
	Count		Count	
Total PCR tests	84		119	
Total positive results	65	77% of total tests	98	82% of total tests
Total positive subtypeable flu A	65	100% of positive tests	92	94% of positive tests
H1N1	--		10	11% of subtypeable flu A tests
H3N2	65	100% of positive tests	82	89% of subtypeable flu A tests
H1N1 + flu B co-infection	--		--	
Total positive Flu B	--		--	
Flu B + H1N1 co-infection	--		--	

# 2022-23 End-of-Season Flu Report

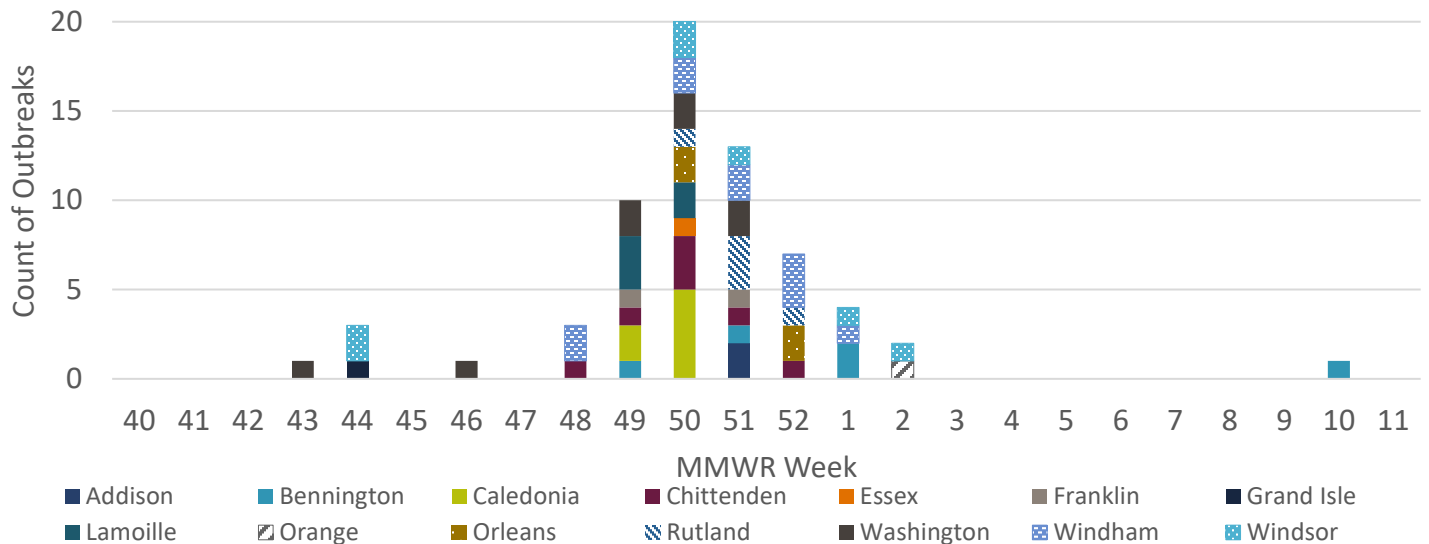
## ILI Outbreak Data

All suspected ILI outbreaks in institutional settings are required to be reported to the Vermont Department of Health. During the 2022-23 season there were 65 outbreaks reported, an increase compared to 9 in 2021-22. Outbreaks were most often reported in school settings (45) followed by reports in long-term care settings (17).

For context, in the pre-COVID-19 seasons 61 flu outbreaks were reported in the 2019-20 season (primarily in school settings), and during the 2018-19 season 39 outbreaks were reported (primarily in long-term care facility settings).



Flu or ILI outbreaks by report date peaked in MMWR week 50 with nine counties reporting at least one outbreak.



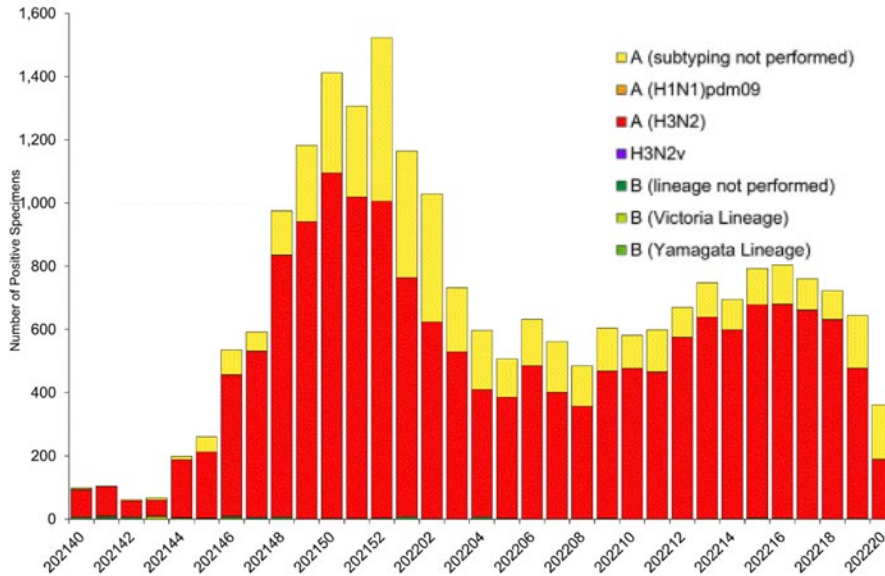
# 2022-23 End-of-Season Flu Report

## CDC Flu Activity Overview

The number of positive specimens reported to CDC increased during the 2022-23 season compared to the 2021-22 season. The total numbers of specimens tested and reported to CDC continued to be high compared to pre-pandemic total numbers of specimens tested and reported.

### 2021-22 Season:

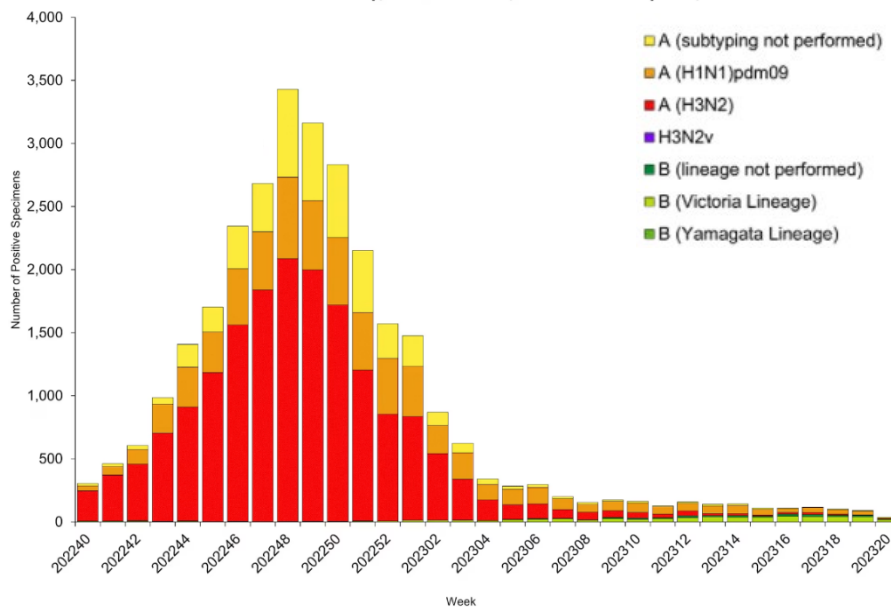
Influenza Positive Tests Reported to CDC by U.S. Public Health Laboratories, National Summary, October 3, 2021 – May 21, 2022



<https://www.cdc.gov/flu/weekly/weeklyarchives2021-2022/Week20.htm>

### 2022-23 Season:

Influenza Positive Tests Reported to CDC by U.S. Public Health Laboratories, National Summary, October 2, 2022 – May 20, 2023

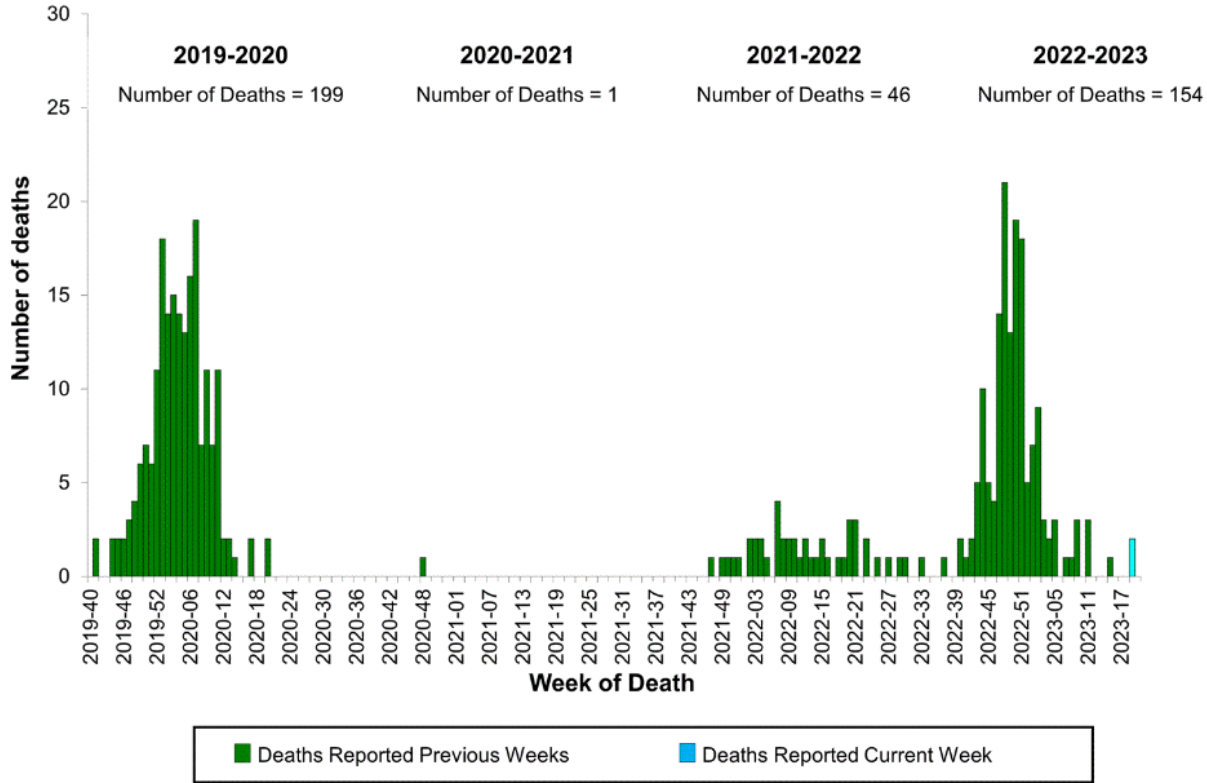


<https://www.cdc.gov/flu/weekly/weeklyarchives2022-2023/week20.htm>

# 2022-23 End-of-Season Flu Report

In the 2022-23 season there were 154 influenza-associated pediatric deaths reported nationally, which is more aligned with the reported season totals prior to the COVID-19 pandemic. No influenza-associated pediatric deaths were reported to the Vermont Department of Health.

## Influenza-Associated Pediatric Deaths by Week of Death, 2019-2020 season to 2022-2023 season



<https://www.cdc.gov/flu/weekly/weeklyarchives2022-2023/Week20.htm>



### Key Takeaways

The 2022-23 flu season was less impacted by the COVID-19 global pandemic compared to the two seasons before it. Personal strategies to prevent COVID-19 illness such as physical distancing, mask-wearing, avoiding large gatherings, and hand washing were less commonly practiced following widespread access to vaccination. Additional factors related to the pandemic, such as hesitancy to seek health care (or availability of health care) and a prioritization on the COVID-19 response continued to present challenges for monitoring the spread of flu. However, the information available in Vermont consistently mirrored what was being seen in most of the country; influenza outbreaks were once again reported by institutional settings (especially those with school-age children attending) and a distinct peak of activity occurred during the season.

Points of interest for the 2022-23 flu season include the early peak of reported outbreaks in Vermont aligning with early-season activity across the country. This trend followed the same pattern as was seen in the Southern Hemisphere for their 2022 flu season, which is sometimes a useful planning tool for the northern hemisphere's season. The same influenza A subtype, A(H3N1), continued to be the primarily documented subtype of circulating influenza in the US. Patients who visited sentinel sites with influenza-like illness (ILI) trended younger for the second season in a row; fewer visits were reported by patients ages 50 years or older compared to the 2020-21 season.

Compared to the pre-pandemic seasons (2019-20 and earlier), fewer flu tests were performed at the Vermont Public Health Laboratory. NREVSS laboratories performed a similar number of flu tests compared to pre-pandemic seasons. In Vermont and [the US](#), a higher number of positive results, mostly influenza A, were seen throughout the season from clinical laboratories compared to the previous season. Nationally more flu tests were reported by clinical laboratories than in the previous season, and a larger percentage were positive for influenza. Fewer influenza specimens were tested at public health laboratories compared to the previous season, likely due to fewer public health laboratories participating in respiratory illness diagnostic testing activities.

A sharp increase in Vermont institutions reporting flu outbreaks occurred, likely due to changes in pandemic response activities. Nine outbreaks in the 2021-22 season were reported compared to the 2022-23 season's 65, primarily occurring in school settings. The number of reported outbreaks is expected to be an under-representation as required reporters remain focused on pandemic response activity and become re-acquainted with other routine reporting. No pediatric flu deaths were reported to the Vermont Department of Health in the 2022-23 season. The total number of national pediatric flu deaths was more on trend with the pre-COVID-19 pandemic period. While the previous two seasons had one and 46 deaths reported, the 2022-23 season has 154 deaths reported to date (MMWR week 20).

In spring 2022, an outbreak of highly pathogenic avian influenza (influenza A(H5N1)) affecting birds around North America ([USDA](#)) and is ongoing. Though the risk of transmission to humans from birds is low, influenza monitoring resources continue to be active for H5 detection in humans.

As the dominance of COVID-19 as the circulating respiratory illness begins to lessen and regulatory controls end with the Public Health Emergency (expired May 2023), respiratory illness surveillance systems will adapt, applying knowledge gained by the experience of the COVID-19 pandemic to broader applications including influenza.



# 2022-23 End-of-Season Flu Report

## Terms:

**CDC** – The Centers for Disease Control and Prevention: [The Influenza Division at CDC collects, compiles, and analyzes information on influenza activity year-round in the United States.](#)

**COVID-19** – [Defined by the World Health Organization \(WHO\)](#): COVID-19 is a disease caused by a new strain of coronavirus. ‘CO’ stands for corona, ‘VI’ for virus, and ‘D’ for disease. Formerly, this disease was referred to as ‘2019 novel coronavirus’ or ‘2019-nCoV.’ The COVID-19 virus is a new virus linked to the same family of viruses as Severe Acute Respiratory Syndrome (SARS) and some types of common cold.

**Highly pathogenic avian influenza** – Highly pathogenic (HP) avian influenza (AI) (HPAI) is an extremely contagious, multi-organ systemic disease of poultry leading to high mortality, and caused by some H5 and H7 subtypes of type A influenza virus, family Orthomyxoviridae ([NIH](#)).

**ILINet** – The U.S. Outpatient Influenza-like Illness (ILI) Surveillance Network: approximately 3,000 outpatient healthcare providers around the country report data to CDC on the total number of patients seen for any reason and the number of those patients with ILI by age group.

**Influenza-like illness (ILI)** – determined by using the patient’s chief complaint and/or discharge diagnosis. ILI is the presence of a fever equal to or exceeding 100° F with the addition of cough or sore throat. As of 2021, the ILI definition no longer excludes patients with another diagnosed non-influenza illness.

**Institutional settings** – Examples include schools (including higher education), long-term care facilities, childcare facilities, and correctional facilities.

**MMWR** – Morbidity and Mortality Weekly Report: The MMWR is the [CDC’s weekly scientific publication of public health information and recommendations](#). Weekly reports are numbered 1-52 or 1-53 depending on the number of weeks in the year.

**NREVSS** - The National Respiratory and Enteric Virus Surveillance System: [NREVSS](#) collects data on the number of PCR flu tests performed by participating labs across the country, and how many tests were positive. This helps determine flu activity in the community.

**PCR test** – polymerase chain reaction: a test, or assay, that is a rapid and sensitive method for detecting the genetic material of influenza viruses, and is now the first-choice laboratory test for influenza infection in both humans and animals ([WHO](#)).

**Physical distancing** – or social distancing – requires staying at least 6 feet from other people who are not from your household in both indoor and outdoor spaces ([CDC](#)).

**Respiratory illness** – illnesses which affect the lungs and may cause coughing, wheezing, difficulty breathing and other symptoms. Examples: colds, flu, respiratory syncytial virus (RSV), bronchitis, pneumonia, and COVID-19 ([MedExpress](#)).

**Subtype** - a more specific classification of the influenza A virus based on proteins unique to that strain of virus (example: influenza A(H1N1) is classified by its hemagglutinin and neuraminidase protein types H1 and N1). Influenza B strains are not subtyped. Influenza B strains are classified by their lineage, or where the strain was isolated (example: Victoria).

# 2022-23 End-of-Season Flu Report

**MMWR Weeks 2022-23** – flu season weeks (2022 40-52, 2023 1-20) are highlighted in green:

MMWR Week	ENDING Dates for MMWR Weeks (Week starts on Sunday and ends on Saturday with this date)	
	2022	2023
1	1/8/2022	1/7/2023
2	1/15/2022	1/14/2023
3	1/22/2022	1/21/2023
4	1/29/2022	1/28/2023
5	2/5/2022	2/4/2023
6	2/12/2022	2/11/2023
7	2/19/2022	2/18/2023
8	2/26/2022	2/25/2023
9	3/5/2022	3/4/2023
10	3/12/2022	3/11/2023
11	3/19/2022	3/18/2023
12	3/26/2022	3/25/2023
13	4/2/2022	4/1/2023
14	4/9/2022	4/8/2023
15	4/16/2022	4/15/2023
16	4/23/2022	4/22/2023
17	4/30/2022	4/29/2023
18	5/7/2022	5/6/2023
19	5/14/2022	5/13/2023
20	5/21/2022	5/20/2023
–	--	--
40	10/8/2022	10/7/2023
41	10/15/2022	10/14/2023
42	10/22/2022	10/21/2023
43	10/29/2022	10/28/2023
44	11/5/2022	11/4/2023
45	11/12/2022	11/11/2023
46	11/19/2022	11/18/2023
47	11/26/2022	11/25/2023
48	12/3/2022	12/2/2023
49	12/10/2022	12/9/2023
50	12/17/2022	12/16/2023
51	12/24/2022	12/23/2023
52	12/31/2022	12/30/2023

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