California Weekly Report

Influenza (Flu), RSV, and Other Respiratory Viruses

Week 1: December 31, 2023 – January 6, 2024

Influenza and RSV Highlights

▼ 13.0%
Influenza
positivity

▼ 6.9%
Outpatient
ILI activity

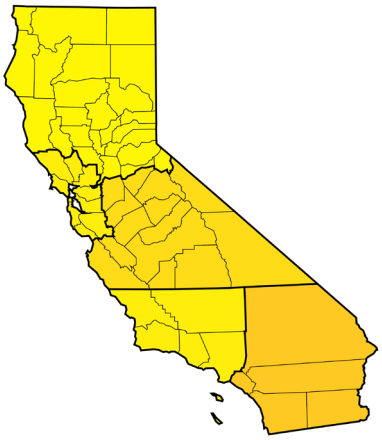
▼ 2.6%
Hospital
flu admissions

190 (+64)
Deaths
since 10/1/23 (new)

▼ 9.0%
RSV
positivity

Influenza Activity Levels+

Minimal | Low | Moderate | High | Very High



Geographic Area	Activity Level
California Statewide	**Moderate**
Northern Region	Moderate
Bay Area Region	Moderate
Central Region	Moderate
Upper Southern Region	Moderate
Lower Southern Region	Moderate

Key Messages

- Influenza activity is elevated in California.
- The majority of detected influenza viruses are A (H1N1)pdm09.
- Now is a good time to get your flu shot to protect yourself against flu, its potentially serious complications, and reduce strain on our healthcare system.
- Respiratory syncytial virus (RSV) activity is decreasing in California.
- Several products are available to prevent RSV infection.

In This Report

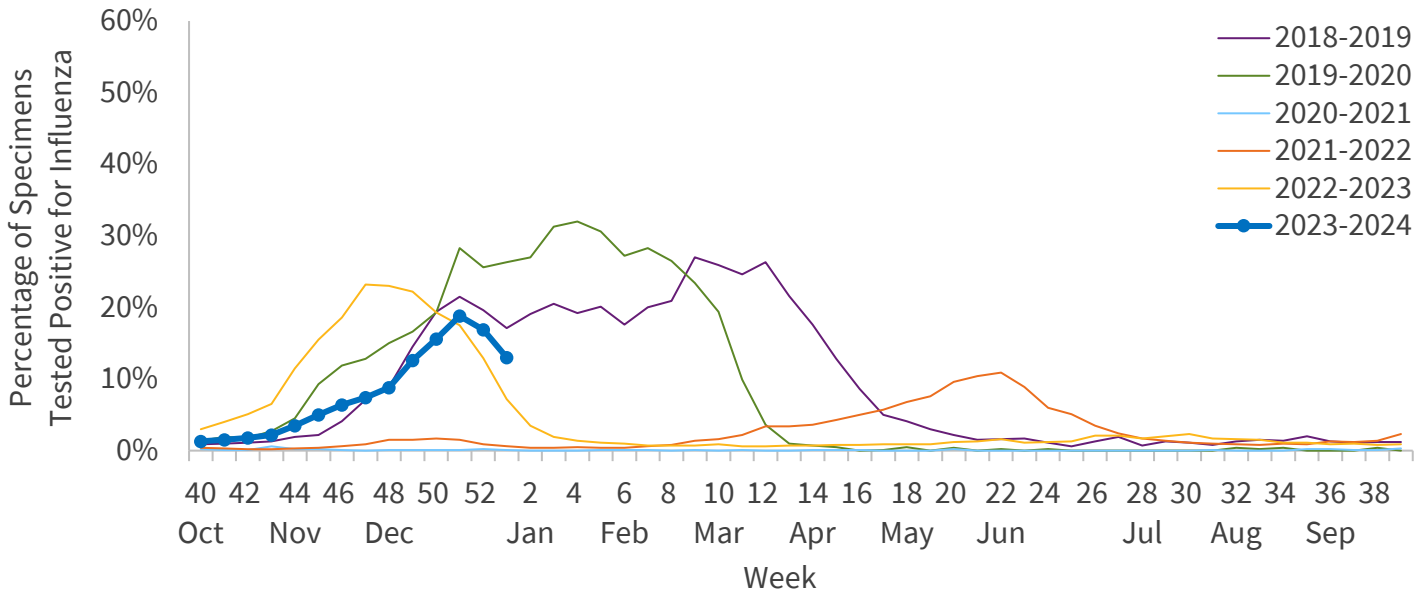
Influenza Laboratory Surveillance

Influenza Detections from Respiratory Laboratory Network and Clinical Sentinel Laboratories

Laboratory surveillance for influenza and other respiratory viruses involves the use of data from clinical sentinel laboratories and public health laboratories in the Respiratory Laboratory Network (RLN) located throughout California. These laboratories report the number of laboratory-confirmed influenza and other respiratory virus detections and isolations on a weekly basis.

The overall percentage of influenza detections in clinical sentinel laboratories during Week 1 was 13.0% compared to 16.9% during Week 52 (Figure 1). Additional details, including influenza typing and subtyping information from public health laboratories can be found in Figures 1 and 2 and Tables 1 and 2.

Figure 1. Percentage of Influenza Detections at Clinical Sentinel Laboratories, 2018–2024 Season to Date



Note: Data have been shifted so that Week 1 aligns across seasons.

Table 1. Respiratory Specimens Testing Positive for Influenza — Clinical Sentinel Laboratories, Current Week and Season to Date

	Current Week Number	Current Week Percent	Season to Date Number	Season to Date Percent
Number of Specimens Tested	27,978		253,428	
Influenza Positive	3,644	13.0	28,862	11.4
A	3,343	91.7*	27,021	93.6*
B	301	8.3*	1,841	6.4*

* Percentage of specimens positive for influenza

Figure 2. Number of Influenza Detections by Type and Subtype Detected in the Respiratory Laboratory Network, 2023–2024 Season to Date

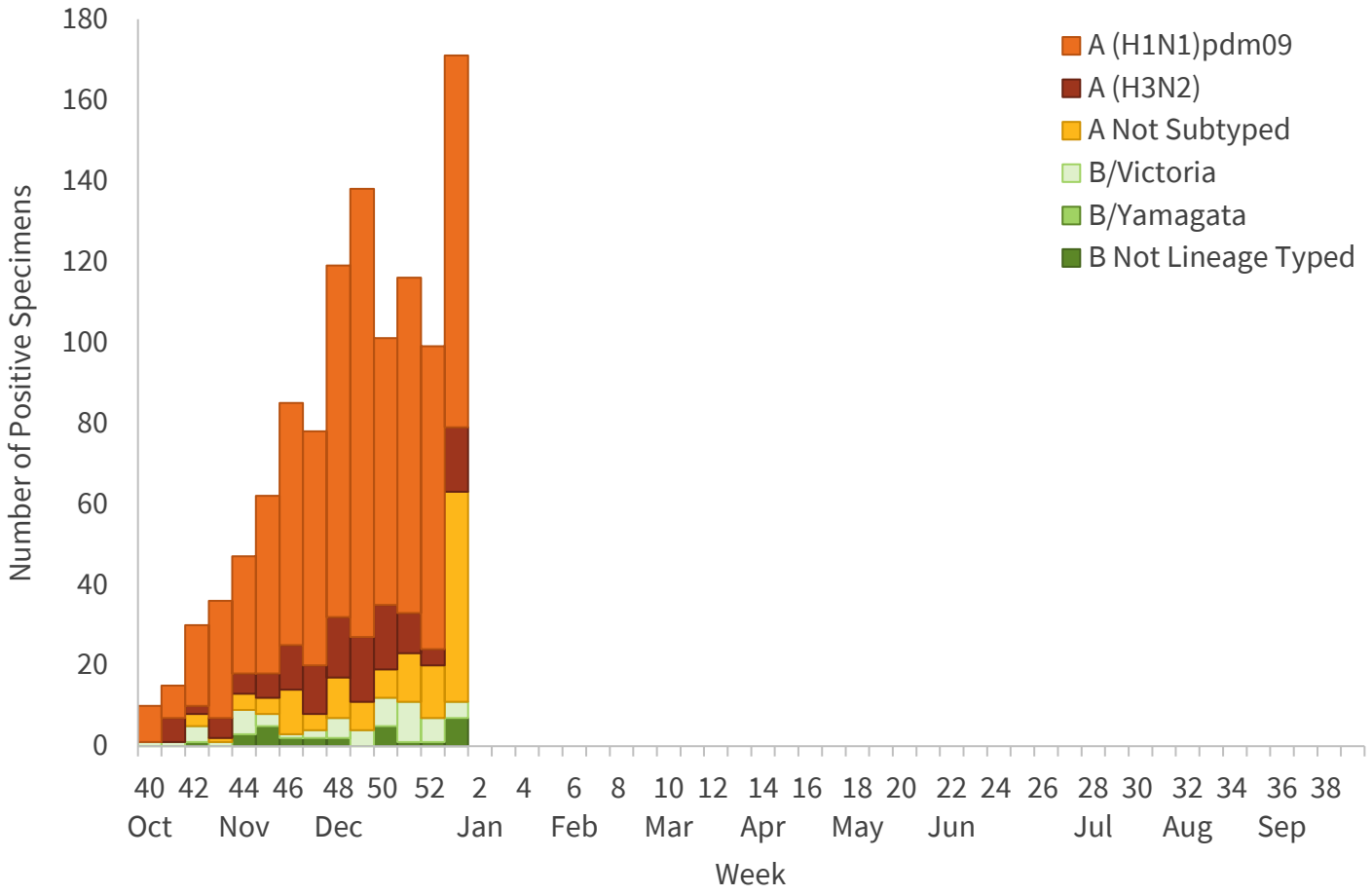


Table 2. Respiratory Specimens Testing Positive for Influenza by Influenza Type and Subtype — Respiratory Laboratory Network, Current Week and Season to Date

	Current Week Number	Current Week Percent	Season to Date Number	Season to Date Percent
Influenza Positive	171		1,107	
A	160	93.6*	1,023	92.4*
A (H1)pdm09	92	57.5†	771	75.4†
A (H3)	16	10.0†	124	12.1†
A, not subtyped	52	32.5†	128	12.5†
B	11	6.4*	84	7.6*
B Victoria	4	36.4‡	55	65.5‡
B Yamagata	0	0.0‡	0	0.0‡
B, not lineage typed	7	63.6‡	29	34.5‡

† Percentage of specimens positive for influenza A
‡ Percentage of specimens positive for influenza B

Antiviral Resistance Testing

The Viral and Rickettsial Disease Laboratory (VRDL) assesses susceptibility of influenza viruses to antiviral drugs, including the neuraminidase inhibitors (oseltamivir, zanamivir, and peramivir) and the polymerase acidic (PA) endonuclease inhibitor (baloxavir), by using next-generation sequence analysis. Neuraminidase gene sequences are analyzed to detect the presence of well-known amino acid substitutions previously associated with reduced or inhibited activity to any of the three neuraminidase inhibitors. Susceptibility to baloxavir is assessed by identifying an amino acid substitution in the PA gene.

Of the influenza specimens tested by the CDPH-VRDL to date this season, none have been found to be resistant to neuraminidase and PA endonuclease inhibitors (Table 3).

Table 3. Number of Specimens Tested for Antiviral Resistance, 2023–2024 Season to Date

	Neuraminidase Inhibitor Resistance	PA Endonuclease Inhibitor
Influenza A (H1)pdm09	0/35	0/35
Influenza A (H3)	0/14	0/14
Influenza B	0/6	0/6

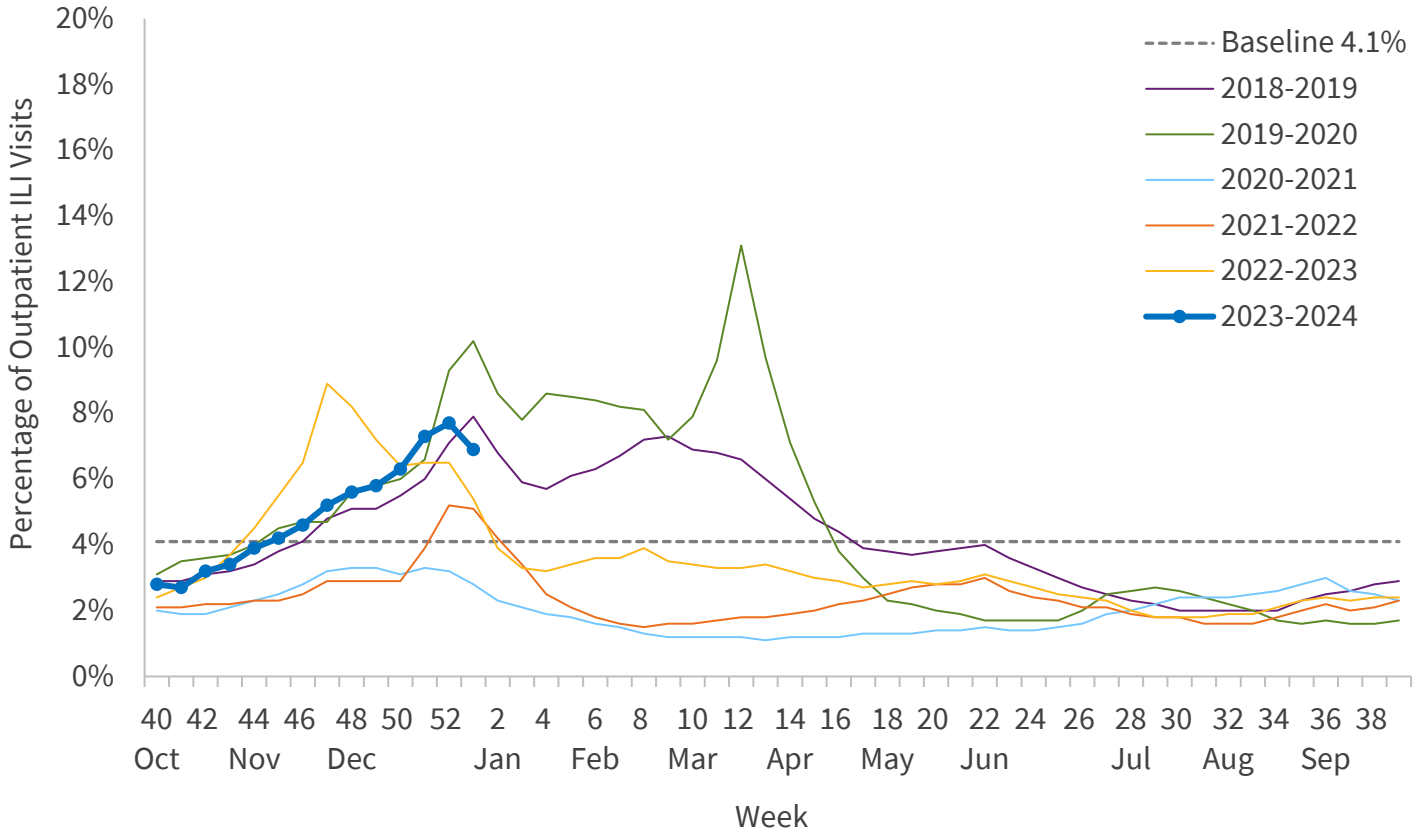
Influenza Outpatient, Inpatient, and Death Surveillance

Sentinel Provider Outpatient Visits for Influenza-like Illness

Sentinel providers (physicians, nurse practitioners, physician assistants) throughout California report on a weekly basis the number of patients seen with influenza-like illness (ILI) and the total number of patients seen for any reason. ILI is defined as any illness with fever (≥100°F or 37.8°C) AND cough and/or sore throat. Methods for calculating the 2023–2024 season baseline can be found on the CDC website.

A total of 195 enrolled sentinel providers have reported data for Week 1. The percentage of visits for ILI during Week 1 was 6.9% compared to 7.7% during Week 52 and was above the baseline (Figure 3). Increases in ILI-related outpatient visits might also include people seeking care for other respiratory illnesses, including COVID-19.

Figure 3. Percentage of Influenza-like Illness Visits Among Patients Seen by California Sentinel Providers, 2018–2024 Season to Date



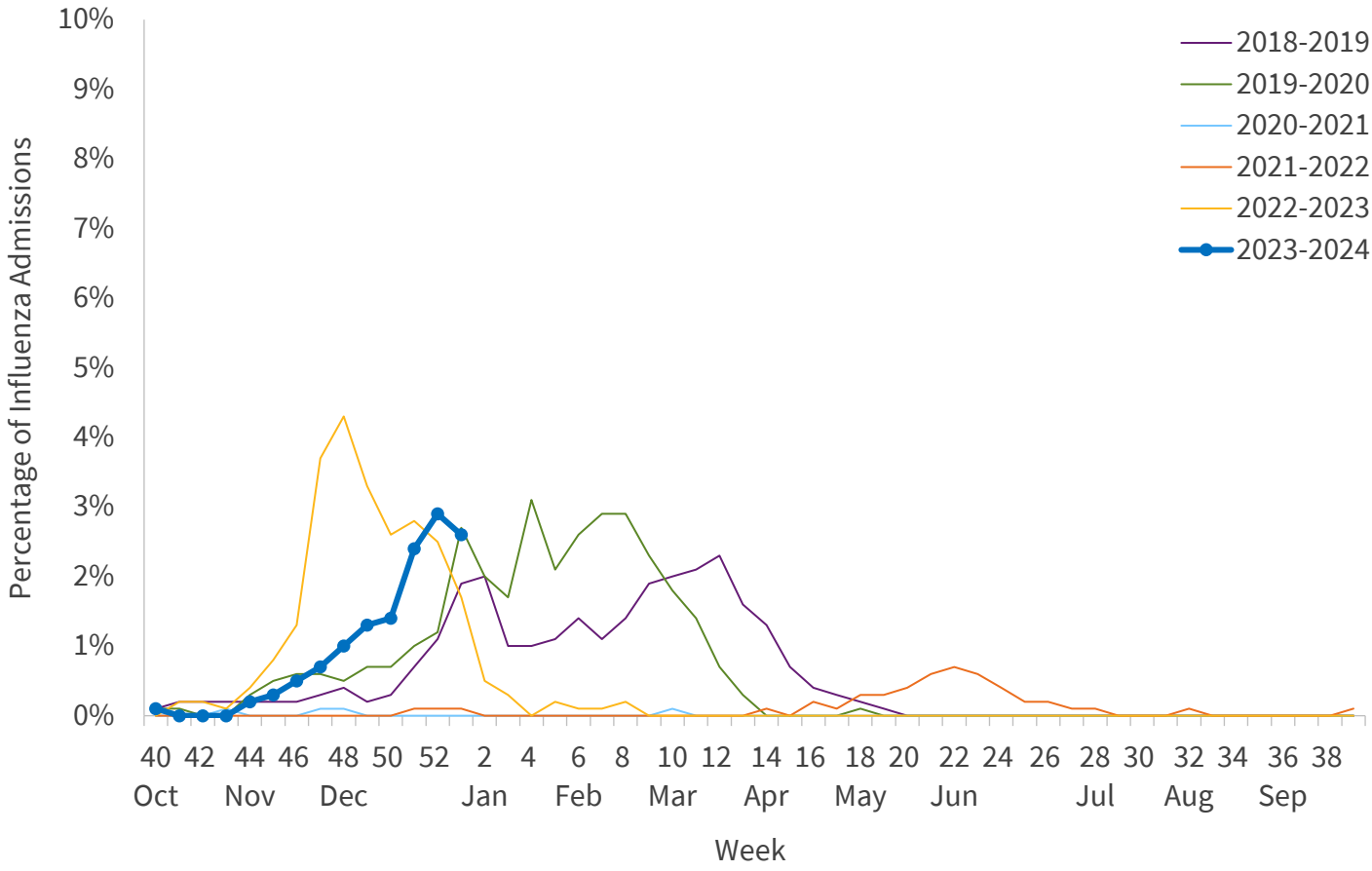
Note: Data have been shifted so that Week 1 aligns across seasons. The 2023–2024 baseline is developed by calculating the mean percentage of patient visits for ILI during non-influenza weeks for the most recent three seasons, excluding the COVID-19 pandemic, and adding two standard deviations. Additional information can be found on the CDC website.

Influenza Admissions at Kaiser Permanente Northern California Facilities

Inpatients at Kaiser Permanente Northern California facilities with an admission diagnosis including the keywords “flu,” “influenza,” or variants of the keywords are defined as influenza-related admissions. The number of influenza admissions is divided by the total number of hospital admissions occurring in the same time period to estimate the percentage of influenza admissions. Admissions for pregnancy, labor and delivery, birth, and outpatient procedures are excluded from the denominator. Influenza admission data is not comparable to previous seasons reports which included pneumonia and influenza (P&I) admissions.

The percentage of admissions for influenza in Kaiser Permanente Northern California facilities during Week 1 was 2.6% compared to 2.9% during Week 52 (Figure 4).

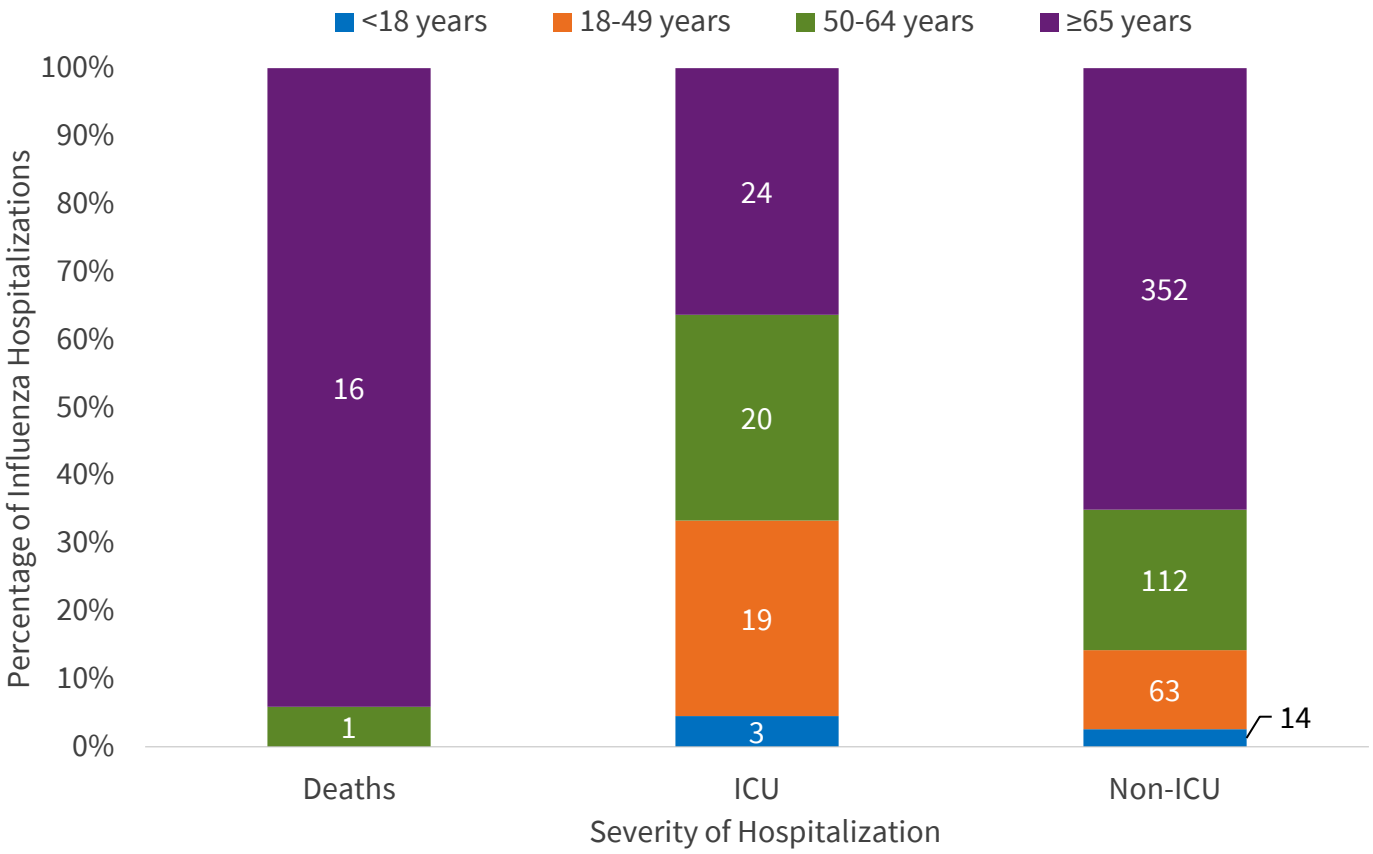
Figure 4. Percentage of Influenza Admissions at Kaiser Permanente Northern California Facilities, 2018-2024 Season to Date



Note: Data have been shifted so that Week 1 aligns across seasons.

To date, 541 non-intensive care unit (ICU) hospitalizations, 66 ICU admissions, and 17 deaths have occurred among persons with influenza admission diagnoses. Most influenza admissions occurred among persons ≥65 years (Figure 5). Please note that influenza admissions serve as a proxy for influenza activity, but do not necessarily represent laboratory-confirmed influenza infections.

Figure 5. Age Group Distribution of Non-ICU, ICU, and Deaths Associated with Influenza Admissions at Kaiser Permanente Northern California Facilities, 2023–2024 Season to Date

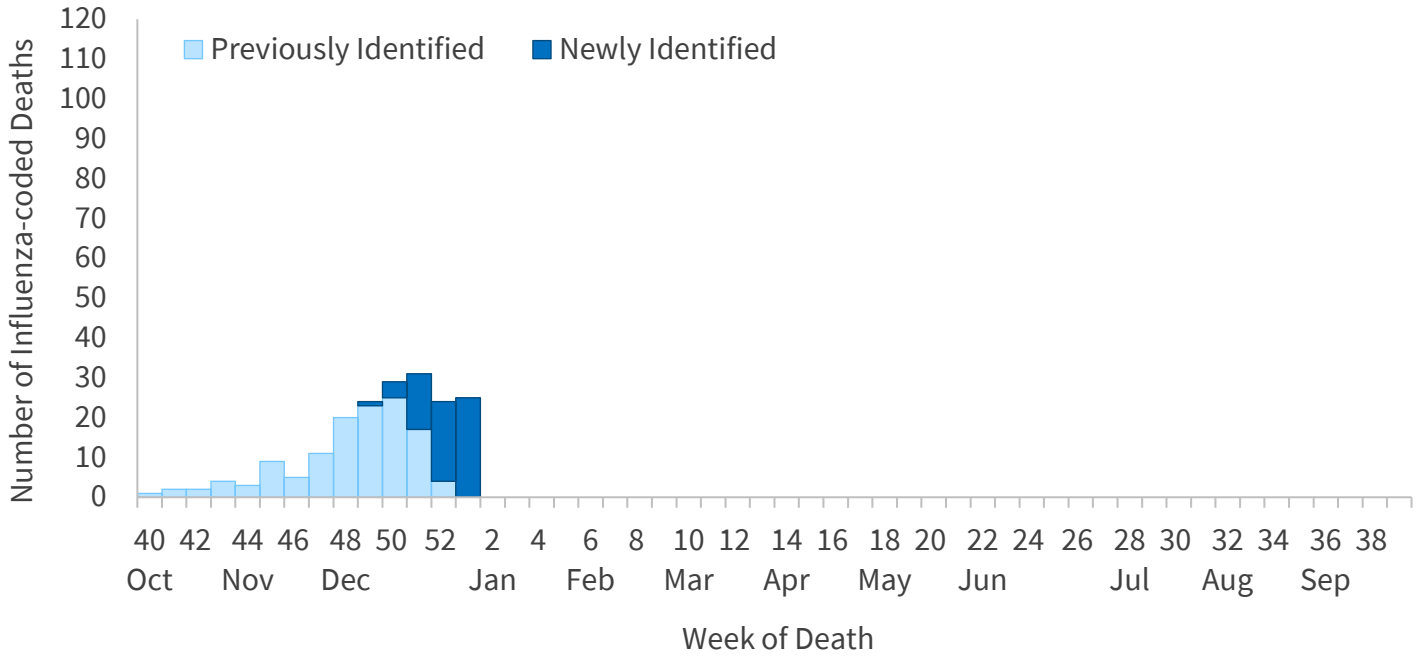


Influenza Mortality Surveillance from Death Certificates

Deaths occurring in California among residents who had influenza noted in any cause of death field on the death certificate (text or coded) are defined as "influenza-coded deaths." The percentage of influenza-coded deaths is calculated by dividing the number of influenza-coded deaths by the total number of all-cause deaths during the same period. Influenza-coded deaths are not necessarily laboratory-confirmed and are an underestimate of all influenza-associated deaths. Please note that during the 2023–2024 season, an update to the methods used to identify influenza-coded deaths resulted in some changes to data from previous seasons.

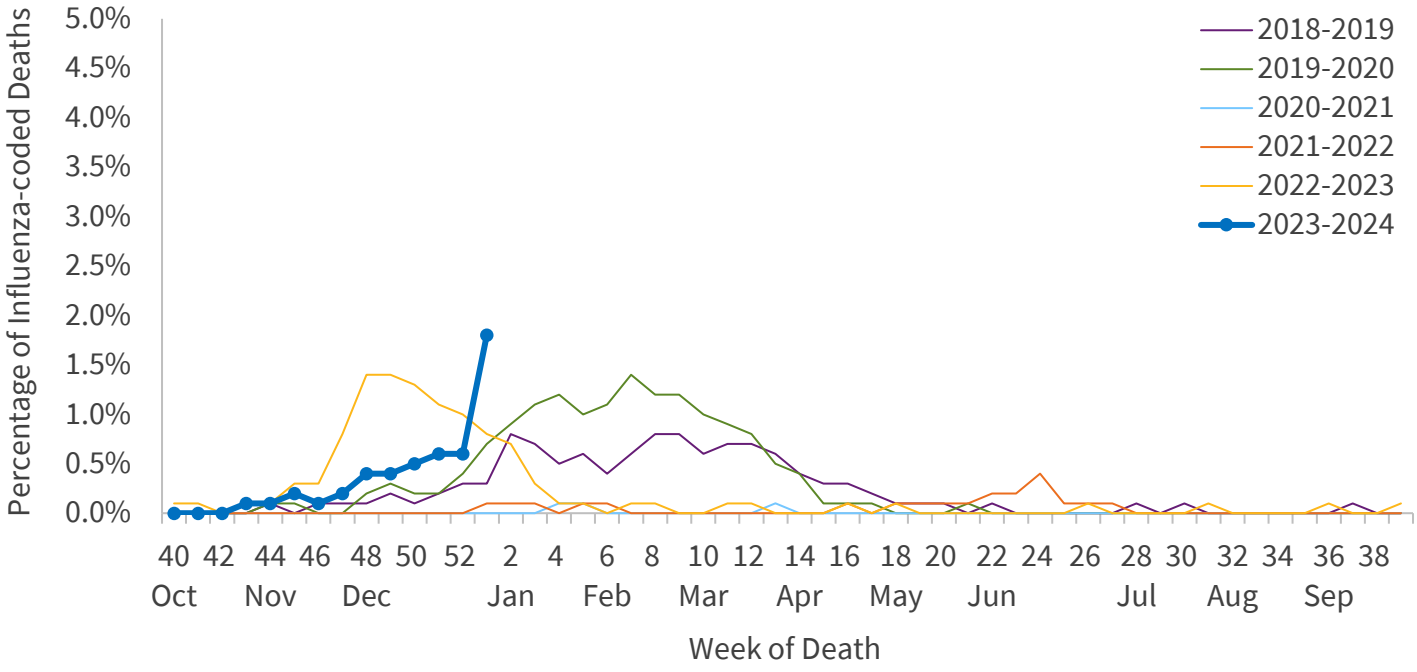
During Week 1, 64 influenza-coded deaths were identified. To date during the 2023–2024 winter respiratory virus season, 190 influenza-coded deaths have been identified (Figure 6). The percentage of deaths coded as influenza during Week 1 was 1.8% compared to 0.6% during Week 52 (Figure 7).

Figure 6. Number of Influenza-coded Deaths Identified from Death Certificates by Week of Death, 2023–2024 Season to Date



Note: Coding of deaths can be delayed by several weeks. Influenza-coded deaths will be included once enough information is available to identify them.

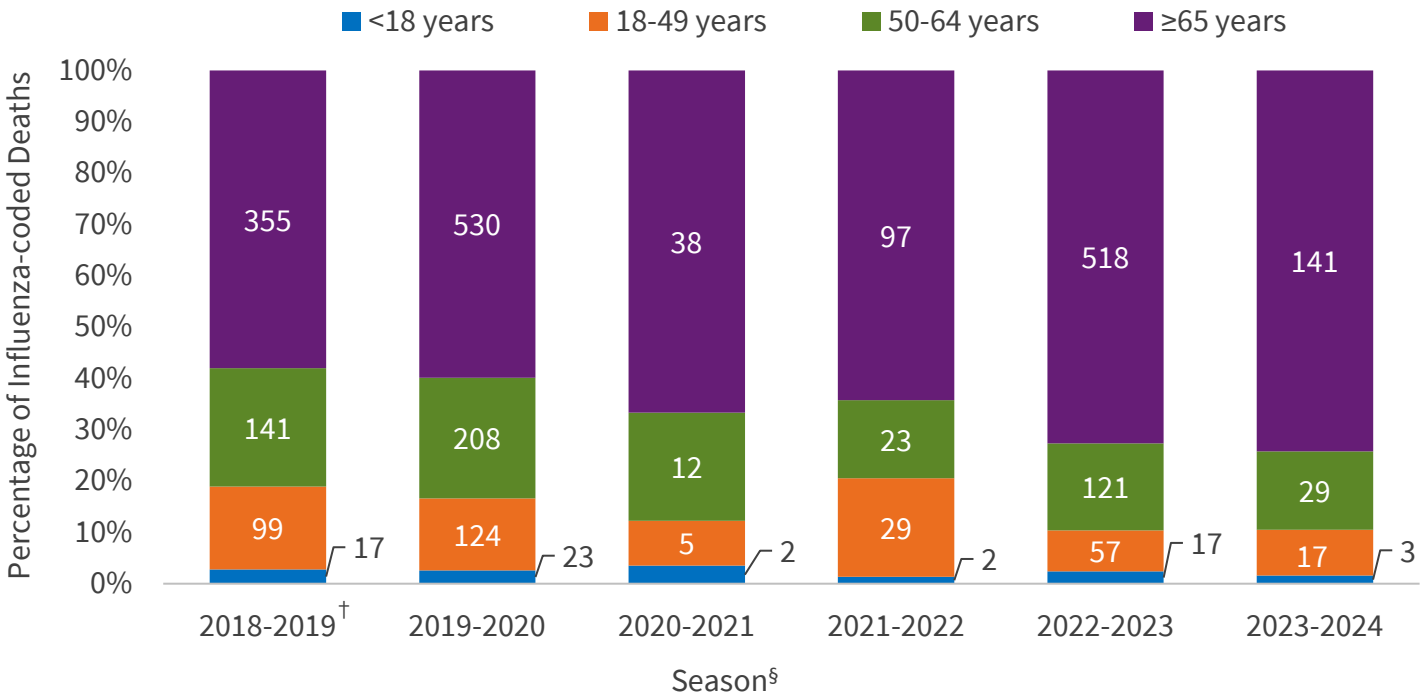
Figure 7. Percentage of Influenza-coded Deaths from Death Certificates, 2018–2024 Season to Date



Note: Data have been shifted so that Week 1 aligns across seasons.

To date, 141 (74.2%) influenza-coded deaths have been identified among persons ≥65 years of age during the 2023–2024 winter respiratory virus season (Figure 8).

Figure 8. Age Distribution of Influenza-coded Deaths from Death Certificates, 2018–2024 Season to Date



* Methods used to identify pediatric influenza-coded deaths on death certificates do not consider laboratory testing and thus differ from those used to identify the influenza-associated pediatric deaths presented below, which require laboratory confirmation of influenza.

† One death during the 2018–2019 winter respiratory virus season has unknown age and is not included in the figure.

§ 2018–2019 season: Sept. 30, 2018–Sept. 28, 2019; mixed influenza A (H1N1)pdm09 and influenza A (H3N2) season
2019–2020 season: Sept. 29, 2019–Sept. 26, 2020; mixed influenza B (Victoria) and influenza A (H1N1)pdm09 season
2020–2021 season: Sept. 27, 2020–Oct. 2, 2021; influenza activity was too low to determine a predominant strain
2021–2022 season: Oct. 3, 2021–Oct. 1, 2022; influenza A (H3N2) predominant season
2022–2023 season: Oct. 2, 2022–Sept 30, 2023; influenza A (H3N2) predominant season
2023–2024 season: Oct. 1, 2023–Sept 28, 2024; influenza A (H1N1)pdm09 predominant season

Laboratory-confirmed Influenza-associated Pediatric Deaths

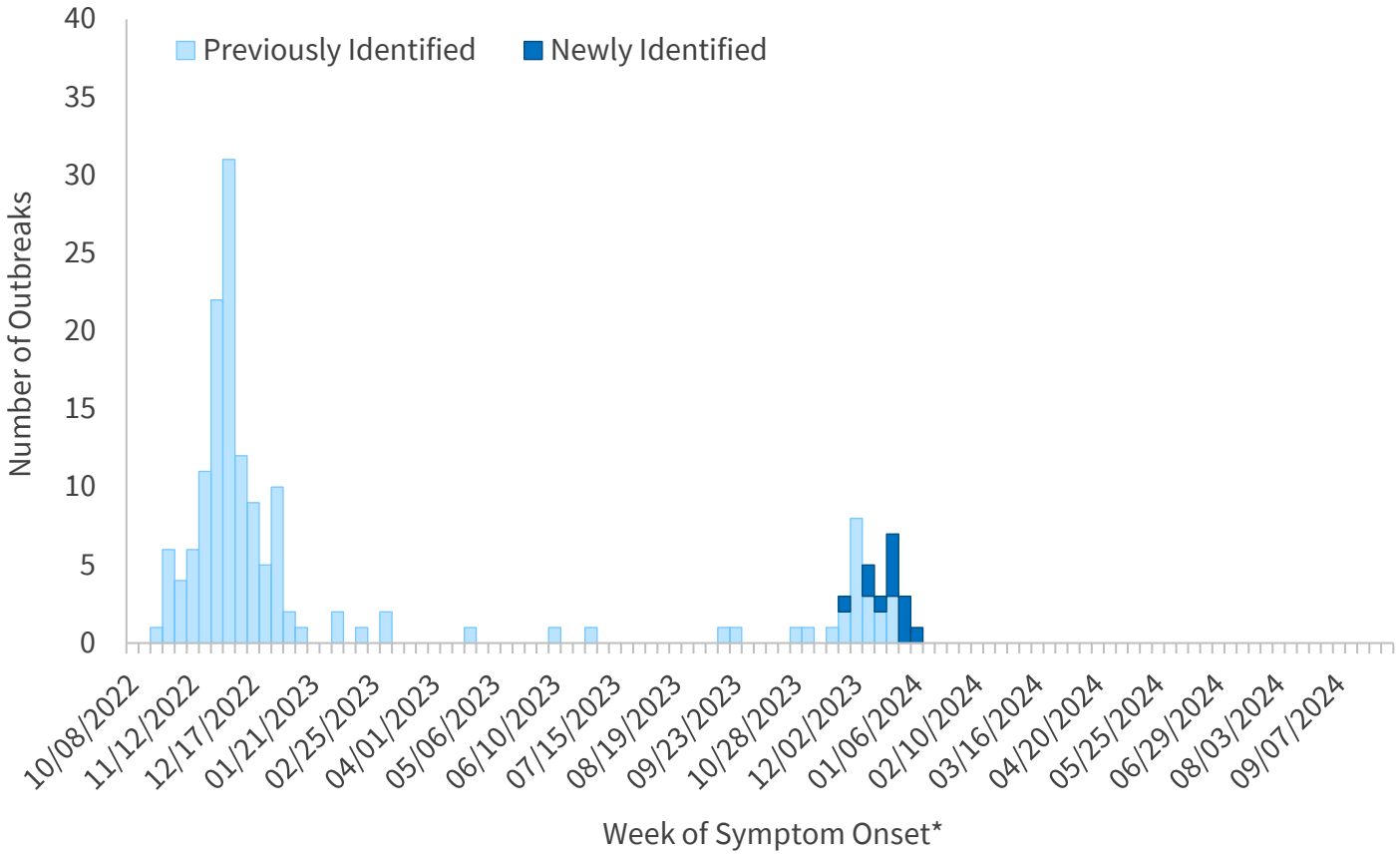
Influenza-associated deaths in children <18 years of age are nationally notifiable. The weekly influenza report includes confirmed deaths formally reported to CDPH through January 6, 2024 (Week 1). Methods used to identify pediatric influenza-coded deaths on death certificates differ from those used to identify the influenza-associated pediatric deaths presented below, which require laboratory confirmation of influenza, and might not include the same individuals.

Two laboratory-confirmed influenza-associated deaths in children <18 years of age were reported to CDPH during Week 1. To date, CDPH has received three reports of laboratory-confirmed influenza-associated deaths among children <18 years of age during the 2023–2024 winter respiratory virus season.

Influenza-associated Outbreaks

Twelve laboratory-confirmed influenza outbreaks were reported during Week 1. To date, 33 laboratory-confirmed influenza outbreaks have been reported to CDPH during the 2023–2024 season. One previously reported outbreak was removed because it did not meet the outbreak definition.

Figure 9. Number of Laboratory-confirmed Influenza-associated Outbreaks by Week of First Onset, 2022–2024 Season to Date



*Earliest date associated with the outbreak was used for outbreaks without reported date of first patient's symptom onset.

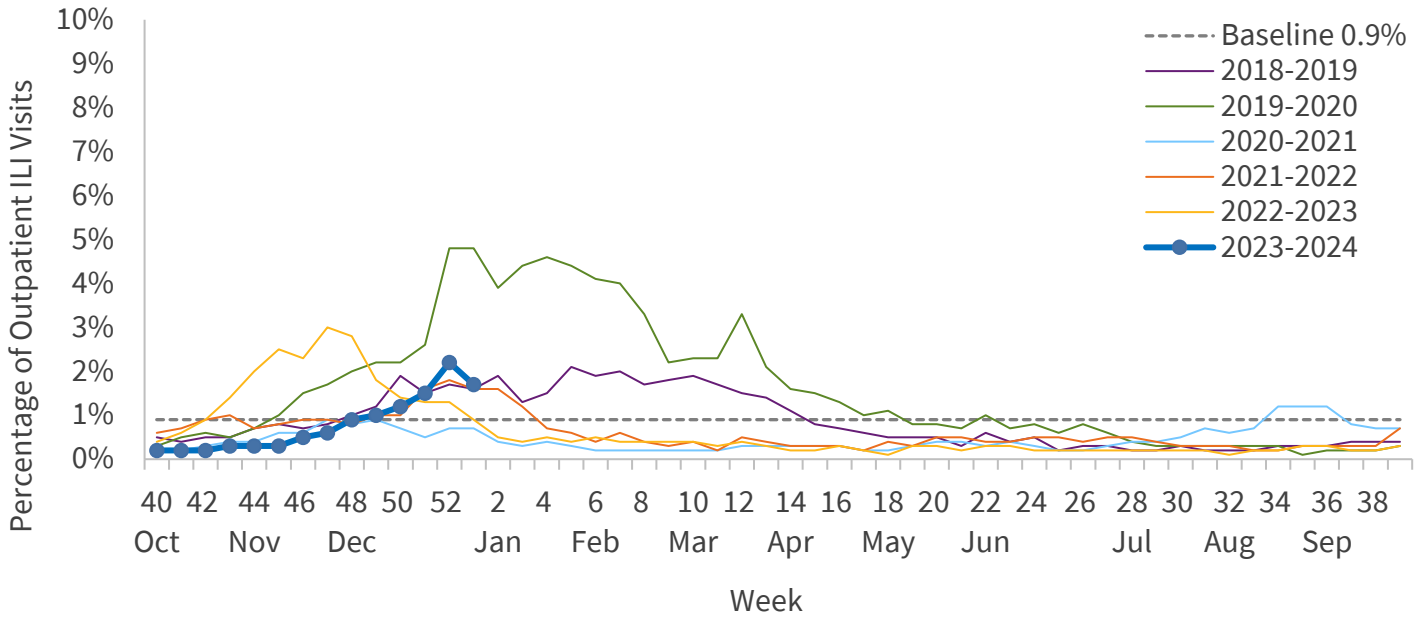
California Border Region Influenza Surveillance Network

The border influenza surveillance network is comprised of outpatient sentinel provider sites whose geographical coverage extends approximately 100 kilometers (60 miles) north of the California-Baja California border and includes Imperial and San Diego Counties, as well as some parts of Riverside County.

Syndromic Surveillance Update

A total of 13 border region sentinel providers reported data during Week 1. The total number of patients screened by all sentinel sites for ILI during Week 1 was 11,953. Outpatient ILI activity was 1.7% in Week 1 (Figure 10). All influenza syndromic data summarized for the border region represent a subset of CDC influenza sentinel providers in California. Increases in ILI-related outpatient visits might also include people seeking care for other respiratory illness, including COVID-19. Methods for calculating the 2023–2024 season baseline can be found on the CDC website.

Figure 10. Percentage of Influenza-like Illness Visits among Patients Seen by Sentinel Providers — California Border Region, 2018–2024 Season to Date



Note: Data have been shifted so that Week 1 aligns across seasons. The 2023–2024 baseline is developed by calculating the mean percentage of patient visits for ILI during non-influenza weeks for the most recent three seasons, excluding the COVID-19 pandemic, and adding two standard deviations. Additional information can be found on the CDC website.

Virologic Surveillance Update

The percentage of influenza detections in border region clinical sentinel laboratories during Week 1 was 16.6% (Figure 11). Additional details, including influenza typing, subtyping, and lineage typing information from border region clinical sentinel laboratories and RLN laboratories can be found in Figure 11 and Table 4.

Figure 11. Number of Influenza Detections by Type and Subtype Detected in RLN Laboratories and the Percentage of Specimens Testing Positive at Clinical Sentinel Laboratories — California Border Region, 2023–2024 Season to Date

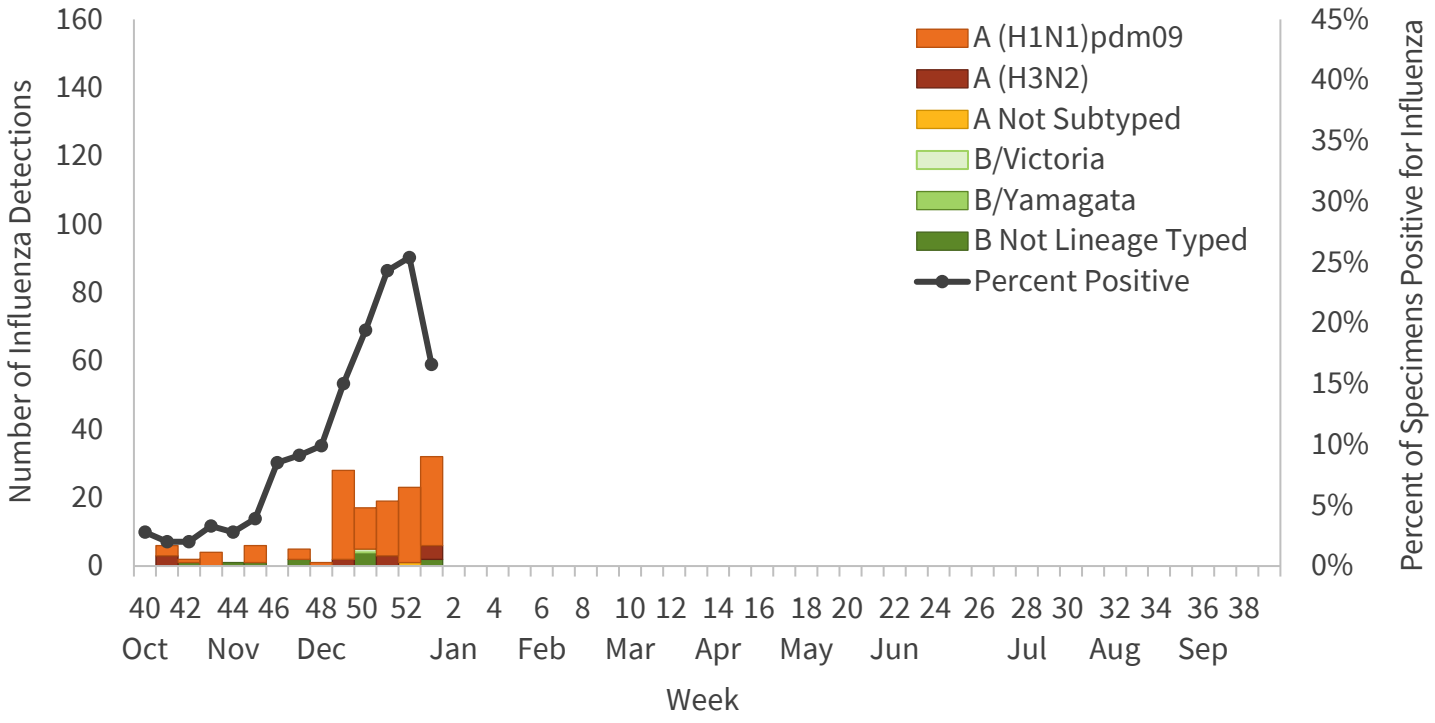


Table 4. Respiratory Specimens Testing Positive for Influenza by Influenza Type, Subtype, and Lineage Type — Clinical Sentinel Laboratories and RLN, California Border Region, Current Week and Season to Date

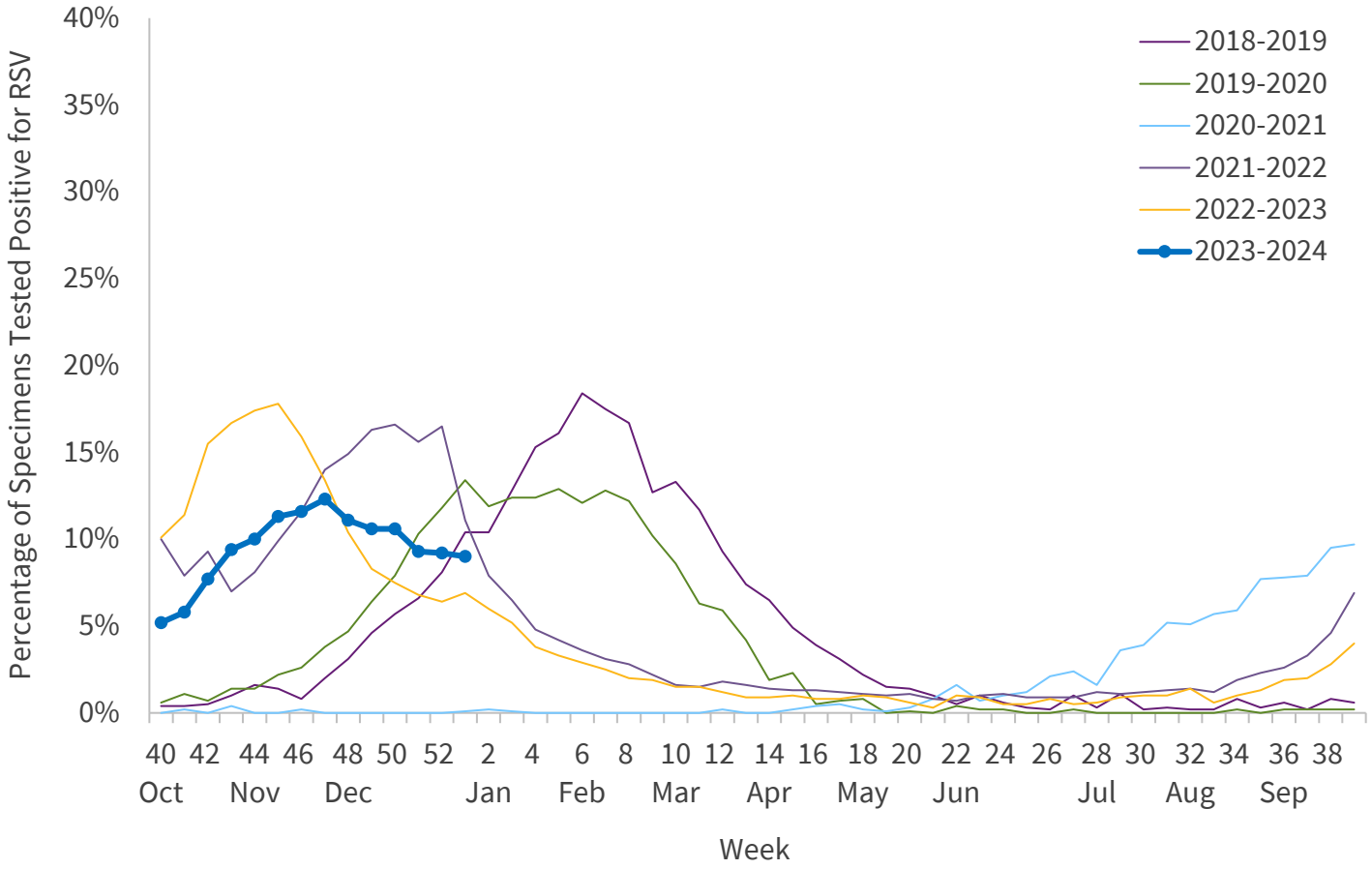
	Current Week Number	Current Week Percent	Season to Date Number	Season to Date Percent
Clinical Sentinel Laboratories				
Number of Specimens Tested	686		8,250	
Influenza Positive	114	16.6	980	11.9
A	82	71.9*	844	86.1*
B	32	28.1*	136	13.9*
Respiratory Laboratory Network				
Influenza Positive	32		144	
A	30	93.8*	132	91.7*
A (H1)pdm09	26	86.7†	119	90.2†
A (H3)	4	13.3†	12	9.1†
A, not subtyped	0	0.0†	1	0.8†
B	2	6.3*	12	8.3*
B Victoria	0	0.0‡	1	8.3‡
B Yamagata	0	0.0‡	0	0.0‡
B, not lineage typed	2	100.0‡	11	91.7‡

Respiratory Syncytial Virus Surveillance

RSV Detections from Clinical Sentinel Laboratories

The overall percentage of RSV detections in clinical sentinel laboratories during Week 1 was 9.0% compared to 9.2% during Week 52 (Figure 12).

Figure 12. Percentage of RSV Detections at Clinical Sentinel Laboratories, 2018–2024 Season to Date



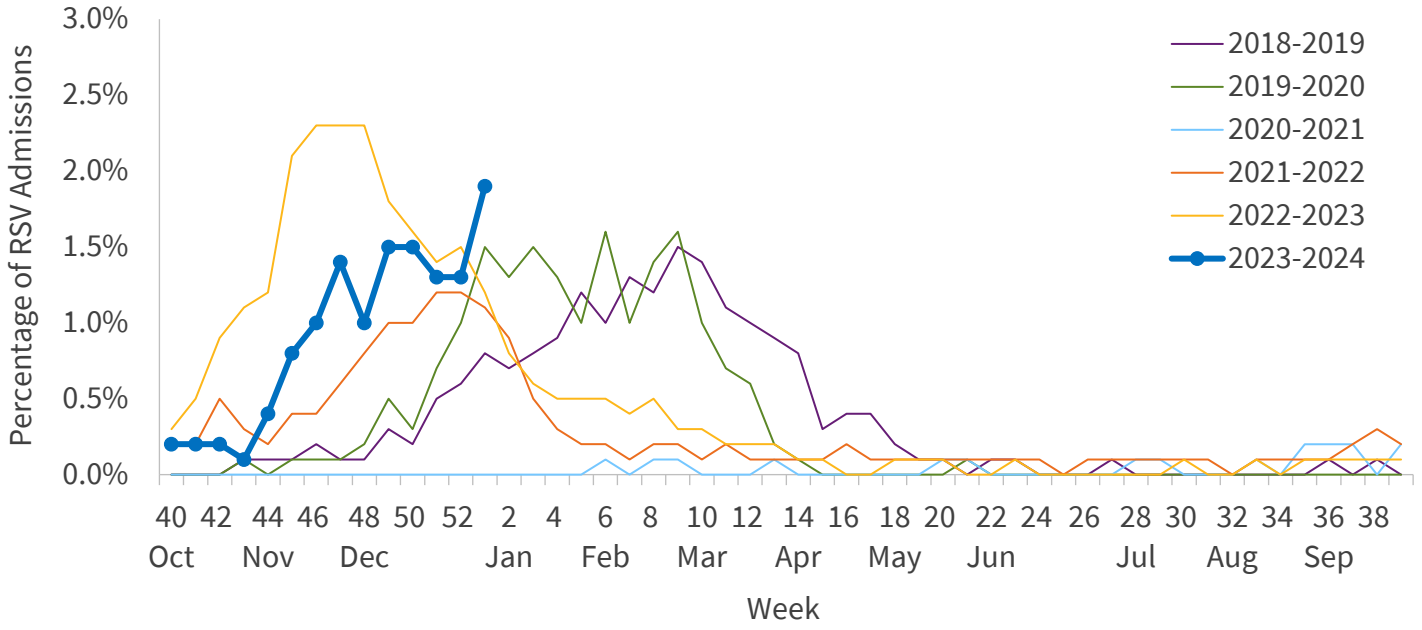
Note: Data have been shifted so that Week 1 aligns across seasons.

RSV Admissions at Kaiser Permanente Northern California Facilities

Inpatients at Kaiser Permanente Northern California facilities with an admission diagnosis including the keywords “RSV,” “syncytial,” “bronchiolitis,” and variants of the keywords are defined as respiratory syncytial virus (RSV)-related admissions. The number of RSV admissions is divided by the total number of hospital admissions occurring in the same period to estimate the percentage of RSV admissions. Admissions for pregnancy, labor and delivery, birth, and outpatient procedures are excluded from the denominator.

The percentage of admissions for RSV in Kaiser Permanente facilities in northern California during Week 1 was 1.9% compared to 1.3% during Week 52 (Figure 13).

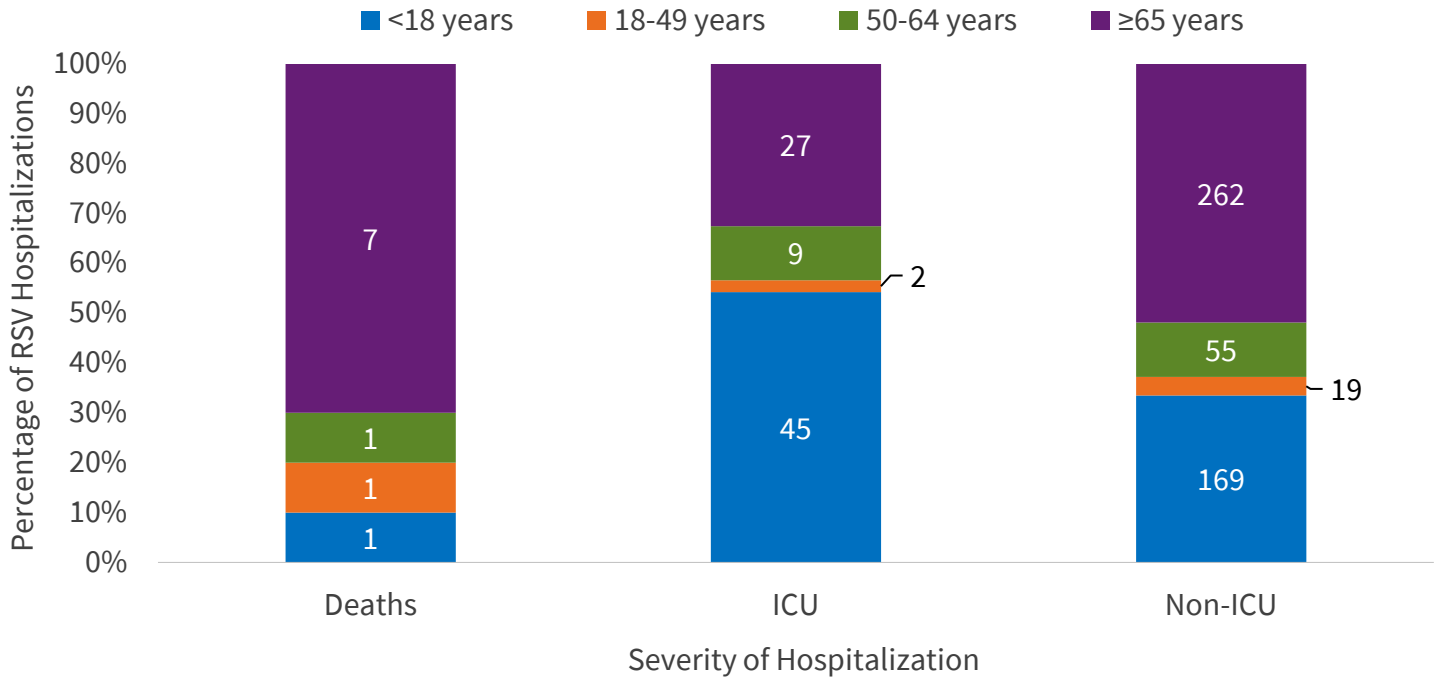
Figure 13. Percentage of RSV Admissions in Kaiser Permanente Northern California Facilities, 2018–2024 Season to Date



Note: Data have been shifted so that Week 1 aligns across seasons.

To date, 505 non-intensive care unit (ICU) hospitalizations, 83 ICU admissions, and ten deaths have occurred among persons with RSV admission diagnoses. Most RSV admissions occurred among persons ≥65 years (Figure 14). Please note that RSV admissions serve as a proxy for RSV activity, but do not necessarily represent laboratory-confirmed RSV infections.

Figure 14. Age Group Distribution of Non-ICU, ICU, and Deaths Associated with RSV Admissions in Kaiser Permanente Northern California Facilities, 2023–2024 Season to Date

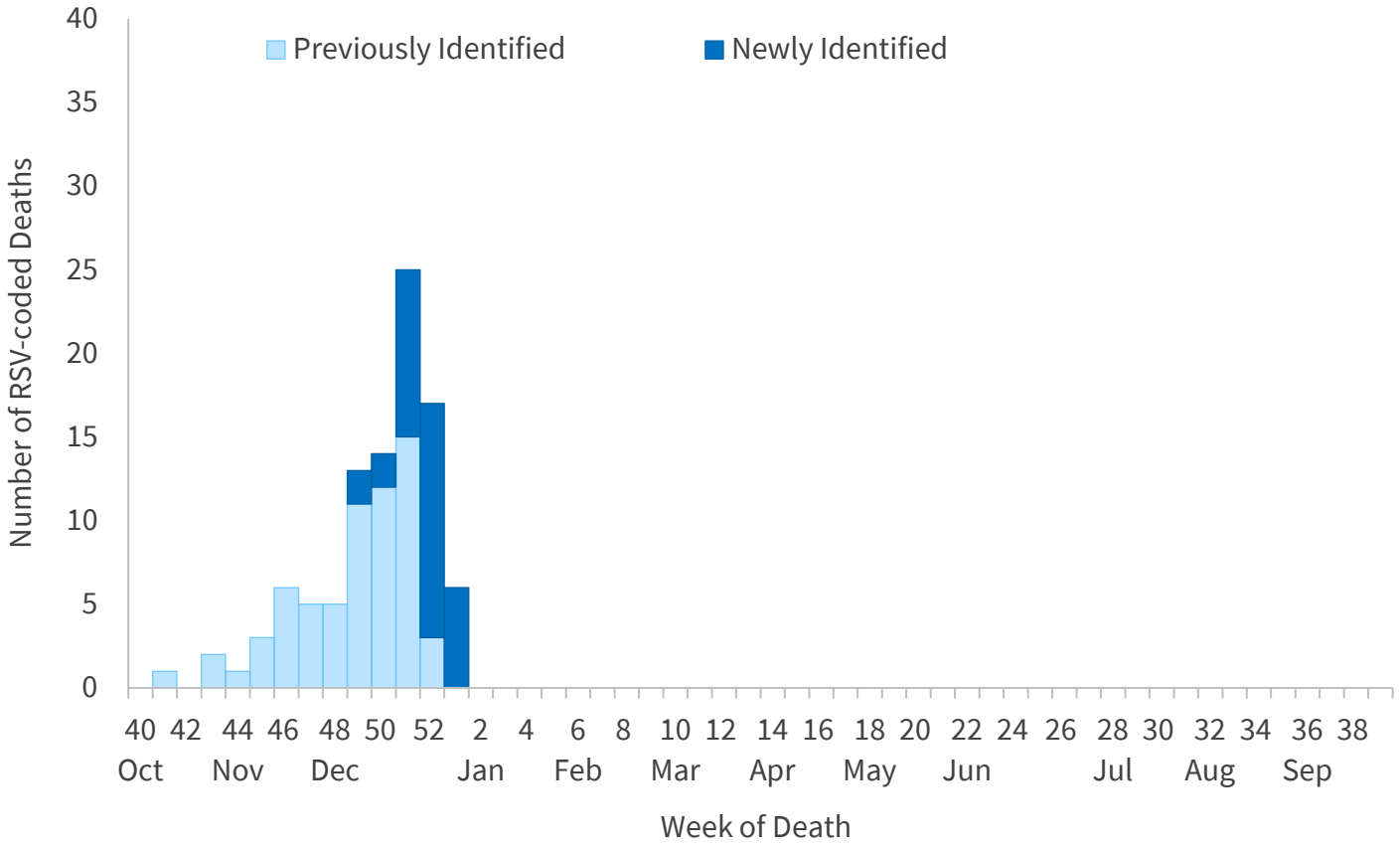


RSV Mortality Surveillance from Death Certificates

Deaths occurring in California among residents who had RSV noted in any cause of death field on the death certificate (text or coded) are defined as "RSV-coded deaths." The percentage of RSV-coded deaths is calculated by dividing the number of RSV-coded deaths by the total number of all-cause deaths during the same period. RSV-coded deaths are not necessarily laboratory-confirmed and are likely to be an underestimate of all RSV-associated deaths.

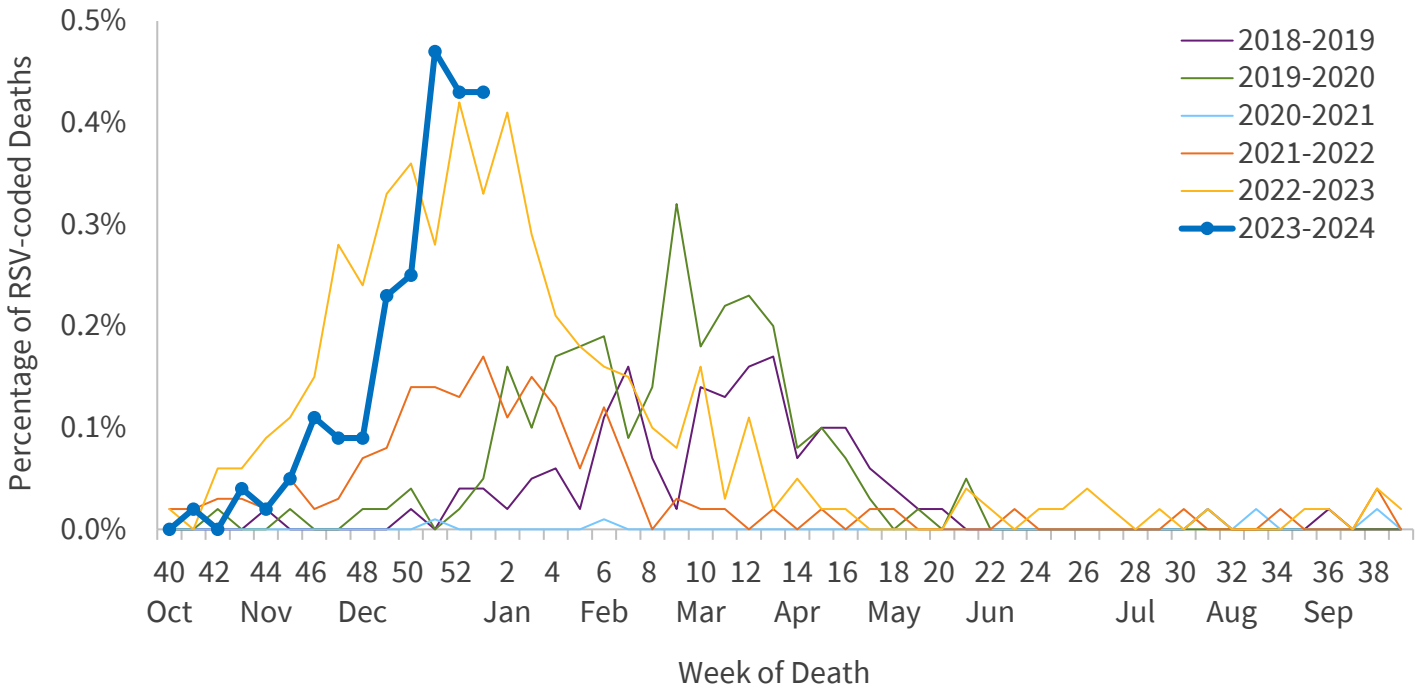
During Week 1, 34 RSV-coded deaths were identified. To date during the 2023–2024 winter respiratory virus season, 98 RSV-coded deaths have been identified (Figure 15). The percentage of deaths coded as RSV during Week 1 was 0.43% compared to 0.43% during Week 52 (Figure 16).

Figure 15. Number of RSV-coded Deaths Identified from Death Certificates by Week of Death, 2023–2024 Season to Date



Note: Coding of deaths can be delayed by several weeks. RSV-coded deaths will be included once enough information is available to identify them.

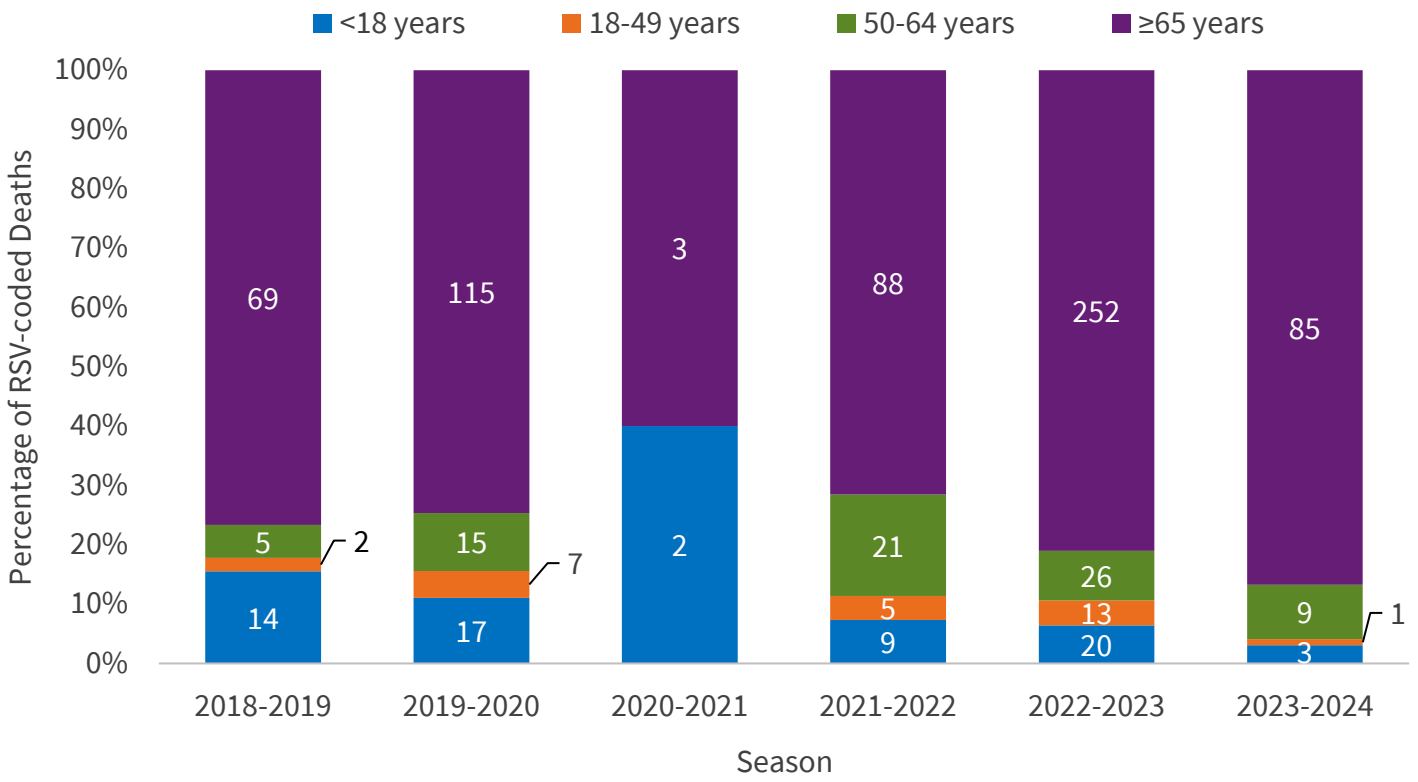
Figure 16. Percentage of RSV-coded Deaths from Death Certificates, 2018–2024 Season to Date



Note: Data have been shifted so that Week 1 aligns across seasons.

To date, 85 (86.7%) RSV-coded deaths have been identified among persons ≥65 years of age during the 2023–2024 winter respiratory virus season (Figure 17).

Figure 17. Age Distribution of RSV-coded Deaths from Death Certificates, 2018–2024 Season to Date



Laboratory-confirmed Respiratory Syncytial Virus-associated Deaths

Currently, as mandated under Section 2500 of the California Code of Regulations, deaths among children aged 0–4 years with laboratory-confirmed RSV are reportable to CDPH. The weekly influenza report includes confirmed deaths formally reported to CDPH through January 6, 2024 (Week 1).

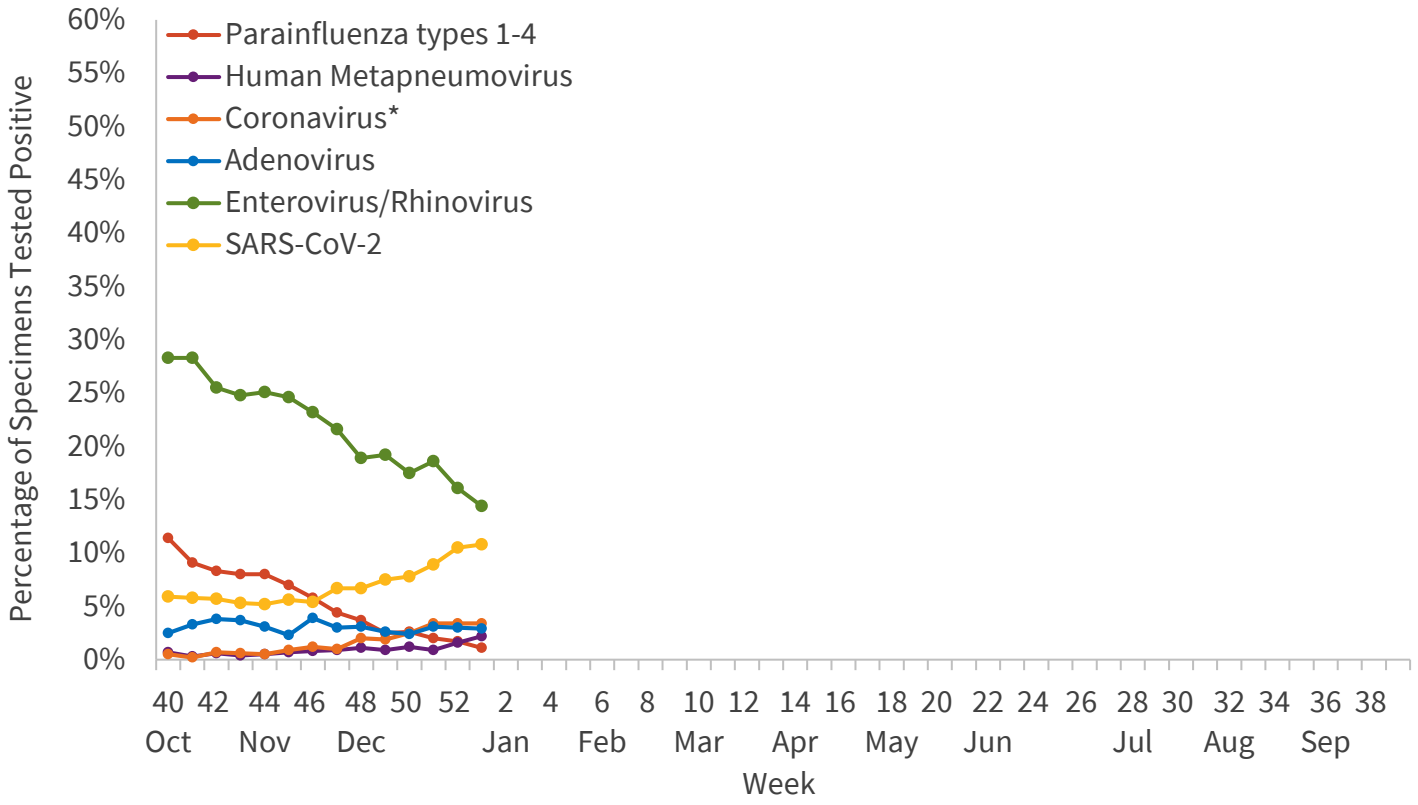
One laboratory-confirmed RSV-associated death in a child <5 years of age was reported to CDPH during Week 1. To date, CDPH has received one report of a laboratory-confirmed RSV-associated death among children <5 years of age during the 2023–2024 winter respiratory virus season.

[The report continues on the next page.]

Other Respiratory Viruses Surveillance

The percentage of other respiratory viruses detections in clinical sentinel laboratories can be found in (Figure 18) and (Table 5).

Figure 18. Percentage of Other Respiratory Pathogen Detections at Clinical Sentinel Laboratories, 2023-2024 Season to Date



*Coronaviruses identified include common human coronaviruses 229E, NL63, OC43, and HKU1 and do NOT include SARS-CoV-2.

Table 5. Respiratory Specimens Testing Positive for Other Respiratory Viruses — Clinical Sentinel Laboratories, Current Week and Previous Week

	Current Week Percent	Previous Week Percent
Adenovirus	2.9	3.0
Coronavirus (non SARS-CoV-2)	3.4	3.4
Enterovirus/Rhinovirus	14.4	16.1
Human Metapneumovirus	2.2	1.6
Parainfluenza types 1-4	1.1	1.7
SARS-CoV-2	10.8	10.5

About This Report

This report includes data from many sources of influenza and other respiratory virus surveillance, and it should be viewed as a preliminary "snapshot" of activity for each surveillance week. Because data are preliminary, the information may be updated in later reports as additional data are received. These data should not be considered population-based or representative of all California public health jurisdictions.

More Information

- An accessible Excel file with data for all figures can be downloaded from the CDPH Flu webpage (www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/Immunization/Week2023-2401_DataTables.xlsx).
- For questions regarding influenza surveillance and reporting in California, please email InfluenzaSurveillance@cdph.ca.gov.
- To obtain additional information regarding influenza, please visit the CDPH Influenza website.
- For information about national influenza activity, please visit the U.S. Centers for Disease Control and Prevention's FluView and FluView Interactive websites.
- For more information on respiratory virus surveillance, including COVID-19, please visit the CDPH Respiratory Virus Dashboard.

Highlights Indicators

Triangle symbols are used to indicate direction of change between the previous week and the current week for laboratory flu positivity, outpatient ILI activity, and hospital flu admissions: Increase (▲), decrease (▼), no change (▶).

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Influenza Activity Levels[+]

Minimal: The percentage of specimens positive for influenza is <2%.

Low: The percentage of specimens positive for influenza is between 2% and <10%.

Moderate: The percentage of specimens positive for influenza is between 10% and <20%.

High: The percentage of specimens positive for influenza is between 20% and <40%.

Very High: The percentage of specimens positive for influenza is ≥40%.

Insufficient Data: Total number of specimens tested is below the threshold for activity level determination.

California Regions

Northern: Alpine, Amador, Butte, Colusa, Del Norte, El Dorado, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Siskiyou, Sutter, Tehama, Trinity, Yolo, and Yuba counties

Bay Area: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, and Sonoma counties

Central Valley: Calaveras, Fresno, Inyo, Kings, Madera, Mariposa, Merced, Mono, Monterey, San Benito, San Joaquin, Stanislaus, Tulare, and Tuolumne counties

Upper Southern: Kern, Los Angeles, San Luis Obispo, Santa Barbara, and Ventura counties

Lower Southern: Imperial, Orange, Riverside, San Bernardino, and San Diego counties

[+] Influenza activity levels are derived from the percentage of specimens from clinical sentinel laboratories that tested positive for influenza.