

Influenza and Other Respiratory Viruses Weekly Report

California Influenza Surveillance Program

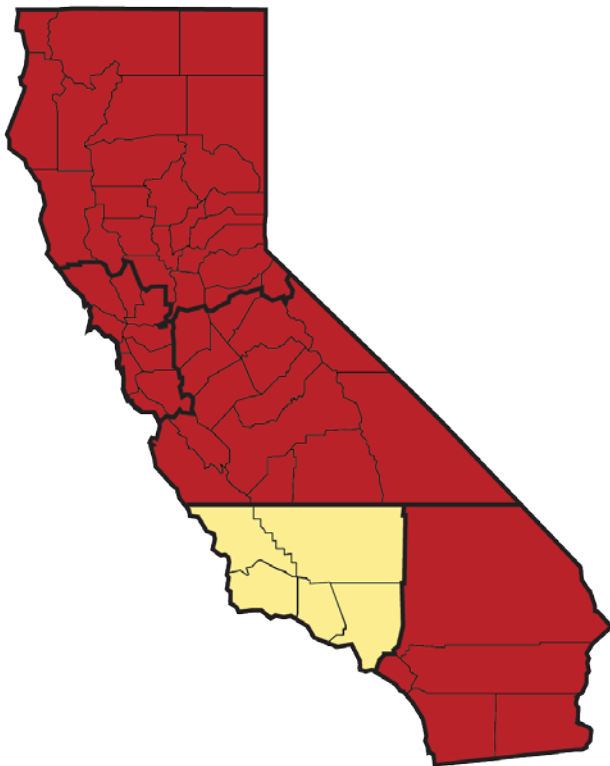


Highlights (Week 49: December 3–9, 2017)

Statewide Activity



Regions with Elevated Activity



- ▶ **Deaths:** 0 (Age 0-64)
- ▶ **Outbreaks:** 5
- ▶ **Laboratory:** 22.0% positive
- ▶ **Outpatient ILI:** Above expected levels
- ▶ **Hospitalizations:** Within expected levels

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Key messages:

- Influenza activity is increasing in California.
- Haven't gotten a flu shot yet? Get immunized now to protect your loved ones this holiday season.
- Flu can be serious for everyone, but adults 65+ are more likely to die or be hospitalized once ill.
- Take action to stop the spread of flu: wash hands often, cover coughs and sneezes, and stay home when sick.

Note: This report includes data from many sources of influenza surveillance and it should be viewed as a preliminary "snapshot" of influenza 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.

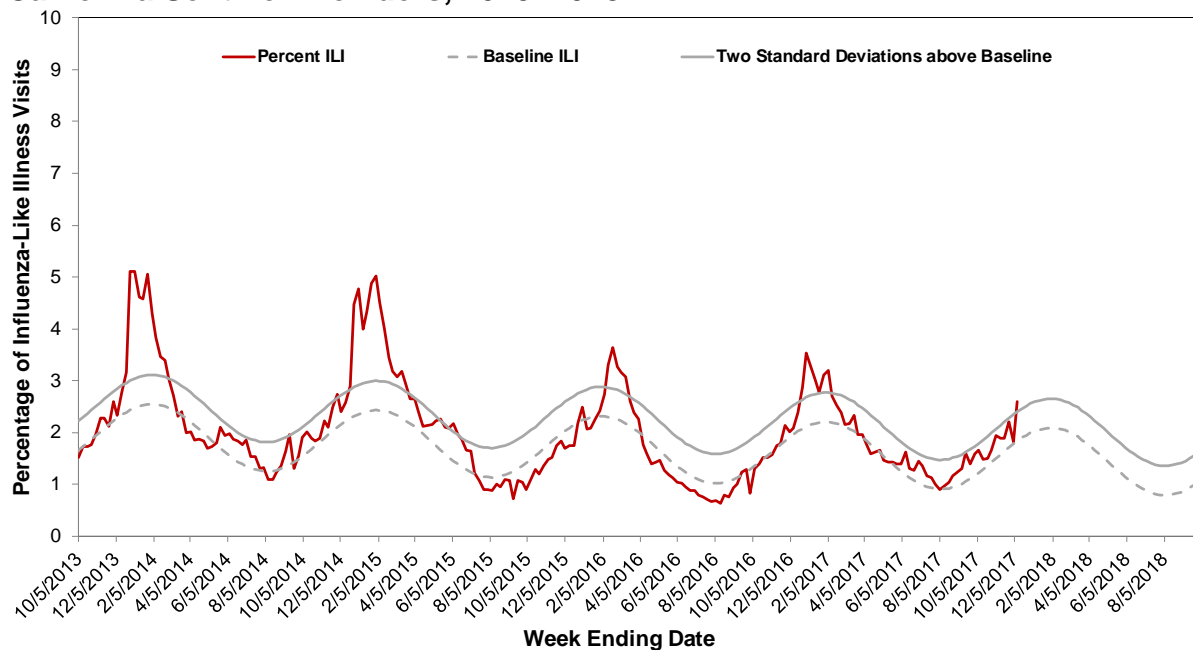
A. Outpatient and Inpatient Data

1. Influenza Sentinel Providers

Sentinel providers (physicians, nurse practitioners, and physician assistants) situated 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 ($\geq 100^{\circ}\text{F}$ or 37.8°C) AND cough and/or sore throat (in the absence of a known cause other than influenza).

A total of 91 enrolled sentinel providers have reported data for Week 49. Based on available data, the percentage of visits for ILI during Week 49 was 2.6% compared to Week 48 (1.8%) and is above expected levels for this time of year (Figure 1).

Figure 1. Percentage of Influenza-like Illness Visits Among Patients Seen by California Sentinel Providers, 2013–2018



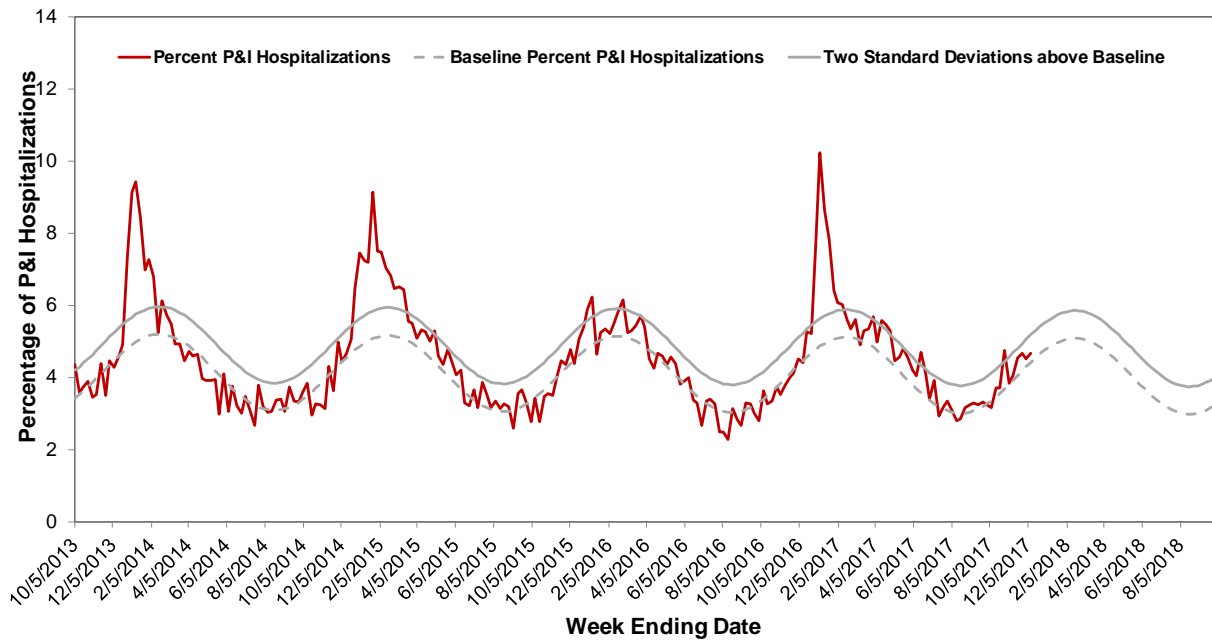
The seasonal baseline was calculated using a regression model applied to data from the previous five years. Two standard deviations above the seasonal baseline is the point at which the observed percentage of ILI is significantly higher than would be expected at that time of year.

2. Kaiser Permanente Hospitalization Data

Inpatients at Kaiser Permanente facilities with an admission diagnosis including the keywords “flu,” “influenza,” “pneumonia,” or variants of the keywords are defined as pneumonia and influenza (P&I)-related admissions. The number of P&I admissions is divided by the total number of hospital admissions occurring in the same time period to estimate the percentage of P&I admissions. Admissions for pregnancy, labor and delivery, birth, and outpatient procedures are excluded from the denominator.

The percentage of hospitalizations for pneumonia and influenza (P&I) in Kaiser Permanente facilities in northern California during Week 49 was 4.7% compared to Week 48 (4.5%) and is within expected levels for this time of the year (Figure 2).

Figure 2. Percentage of P&I Hospitalizations in Kaiser Permanente Northern California Hospitals, 2013–2018



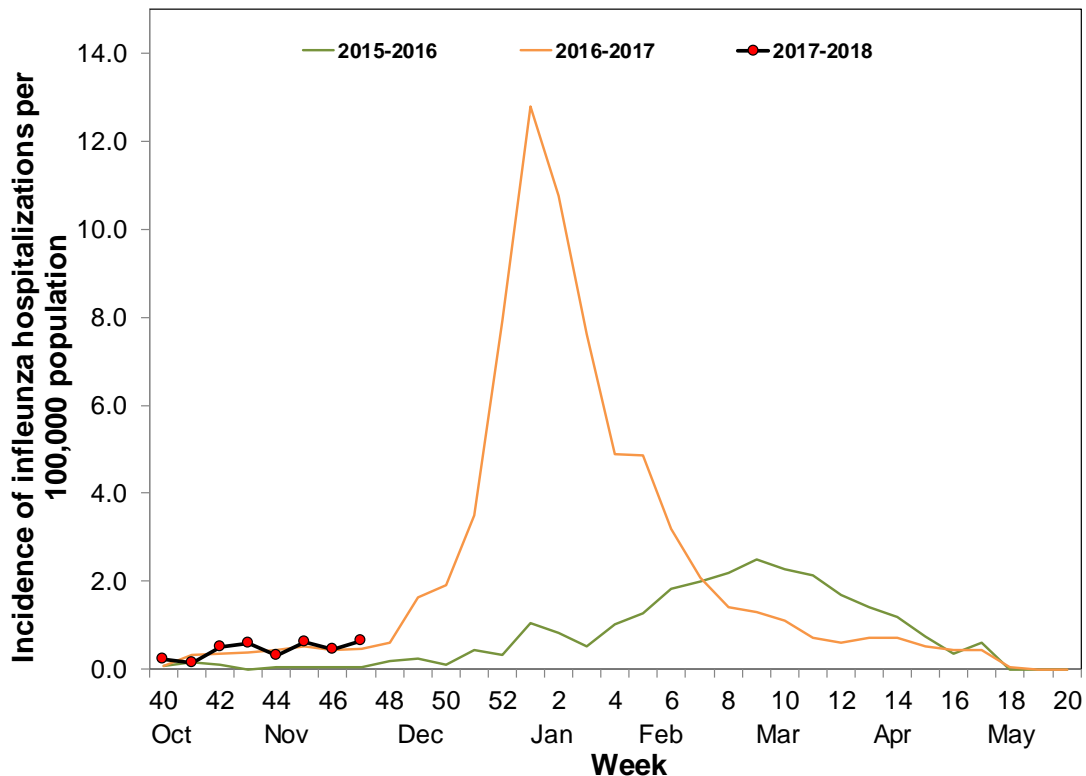
The seasonal baseline was calculated using a regression model applied to data from the previous five years. Two standard deviations above the seasonal baseline is the point at which the observed percentage of pneumonia and influenza hospitalizations in Kaiser Permanente hospitals in northern California is significantly higher than would be expected at that time of year.

3. Influenza-Associated Hospitalizations, California Emerging Infections Program

The California Emerging Infections Program (CEIP), Influenza Surveillance Network (FluSurv-NET) conducts population-based surveillance for laboratory-confirmed influenza-associated hospitalizations among patients of all ages in Alameda, Contra Costa, and San Francisco counties.

The incidence of influenza-associated hospitalizations per 100,000 population was higher in Week 47 (0.64) compared to Week 46 (0.44) (Figure 3). Data for the most current two weeks are not presented because results are still being collected and are likely to change.

Figure 3. Incidence of Influenza Hospitalizations in CEIP Counties, 2015–2018



Note: The 2014-15 season contains a week 53. Data have been shifted so that week 1 aligns across years.

B. Laboratory Update – Influenza

1. Respiratory Laboratory Network (RLN) and Clinical Sentinel Laboratory Surveillance Results

Laboratory surveillance for influenza and other respiratory viruses involves the use of data from clinical sentinel laboratories (hospital, academic, and private laboratories) and public health laboratories in the Respiratory Laboratory Network 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 in Week 49 (22.0%) was significantly higher than Week 48 (11.7%) (Figure 4). Additional details, including influenza typing and subtyping information from public health laboratories, can be found in Figures 4 and 5 and Tables 1 and 2.

Neither the RLN nor CDPH-VRDL has identified any influenza viruses by polymerase chain reaction (PCR) that are suggestive of a novel influenza virus.

Figure 4. Percentage of Influenza Detections at Clinical Sentinel Laboratories, 2013–2018

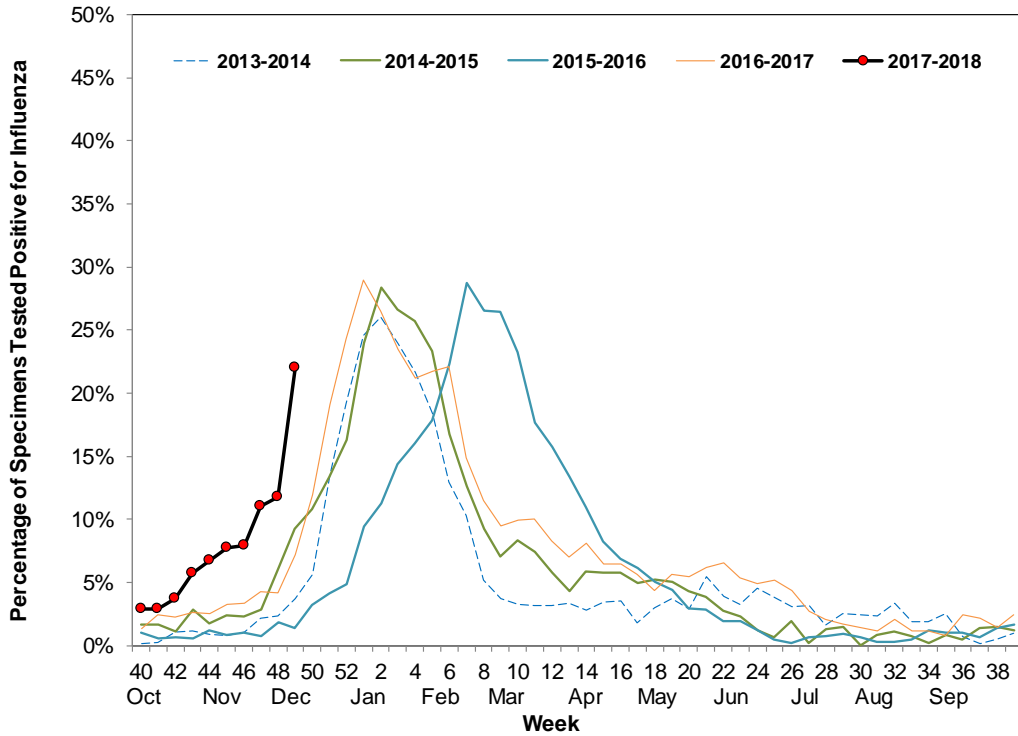


Figure 5. Number of Influenza Detections by Type and Subtype Detected in the Respiratory Laboratory Network, 2017–2018

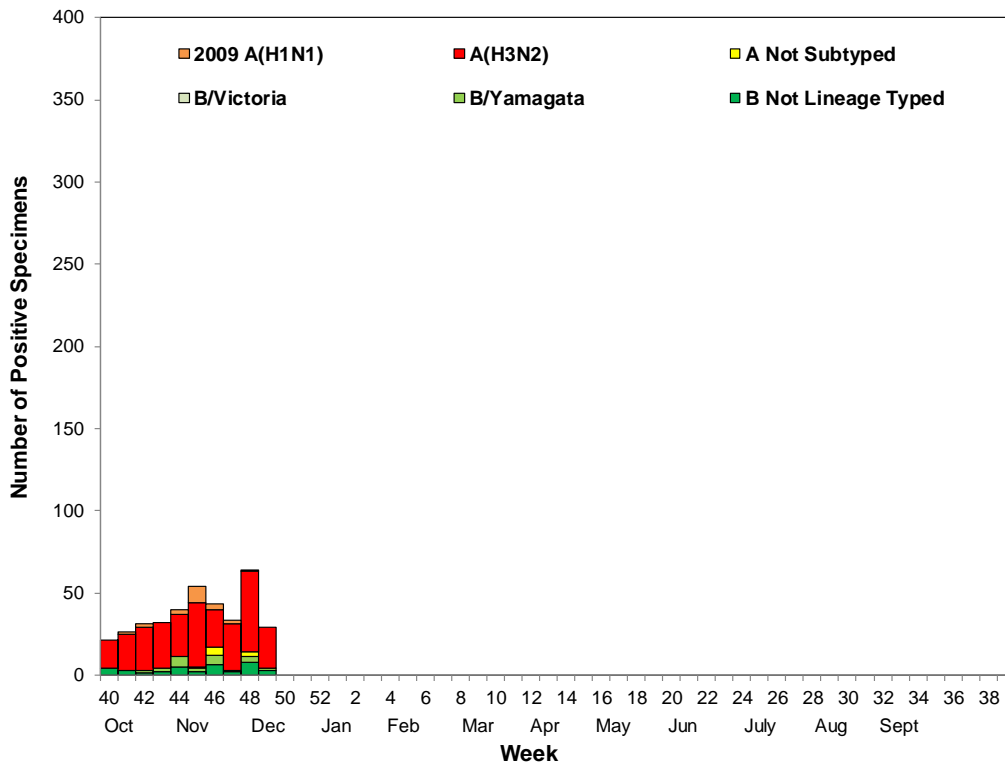


Table 1. Respiratory Specimens Testing Positive for Influenza — Clinical Sentinel Laboratories, Current Week and Season to Date

	Current Week Number	Current Week Percent	Season to Date Number	Season to Date Percent
Number of Specimens Tested	2,226		25,292	
Influenza Positive	490	22.0	2,119	8.4
A	405	82.7*	1,690	79.8*
B	85	17.3*	429	20.2*

* Percent of specimens positive for influenza

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	29		383	
A	25	86.2*	314	82.0*
2009 A (H1)	0	0.0†	22	7.0†
A (H3)	25	100.0†	283	90.1†
A, not subtyped	0	0.0†	9	2.9†
B	4	13.8*	69	18.0*
B Victoria	0	0.0‡	10	14.5‡
B Yamagata	1	25.0‡	23	33.3‡
B, not lineage typed	3	75.0‡	36	52.2‡

* Percent of specimens positive for influenza

† Percent of influenza A positives

‡ Percent of influenza B positives

2. Antiviral Resistance Testing

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

Table 3. Number of Specimens Tested for Oseltamivir Resistance, 2017–2018

	Oseltamivir Resistance
Influenza 2009A (H1)	0/7
Influenza A (H3)	0/41
Influenza B	0/9

3. Influenza Virus Strain Characterization

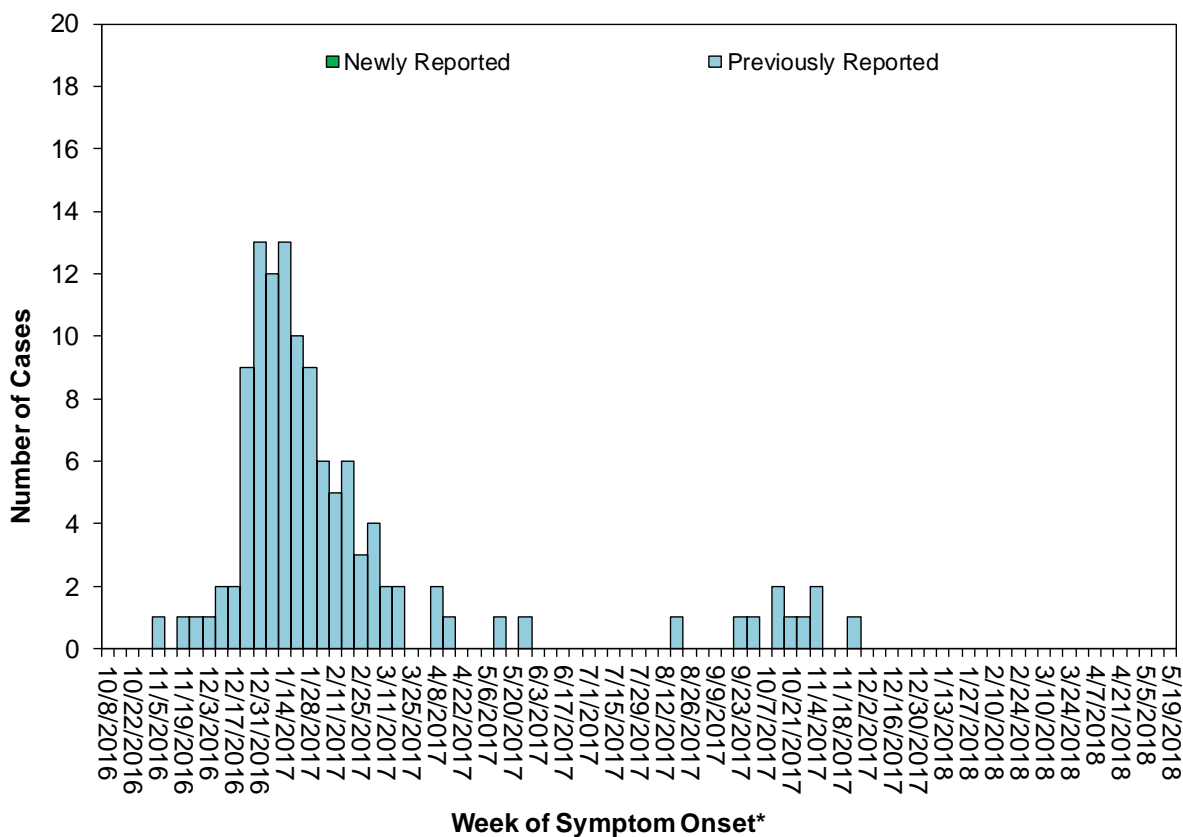
No California specimens have been strain-typed to date during the 2017–2018 season

C. Laboratory-Confirmed Severe Influenza-associated Case Reports

Currently, as mandated under Section 2500 of the California Code of Regulations, deaths among patients aged 0–64 years with laboratory-confirmed influenza are reportable to CDPH. The weekly influenza report includes confirmed deaths formally reported to CDPH through December 9, 2017 (Week 49).

No laboratory-confirmed influenza-associated fatalities were reported to CDPH during Week 49. To date, CDPH has received eight reports of laboratory-confirmed influenza-associated deaths among patients <65 years of age during the 2017–2018 influenza season.

Figure 6. Number of Laboratory-Confirmed Influenza-Associated Fatalities in Persons <65 Years of Age by Week of Onset, 2016–2018

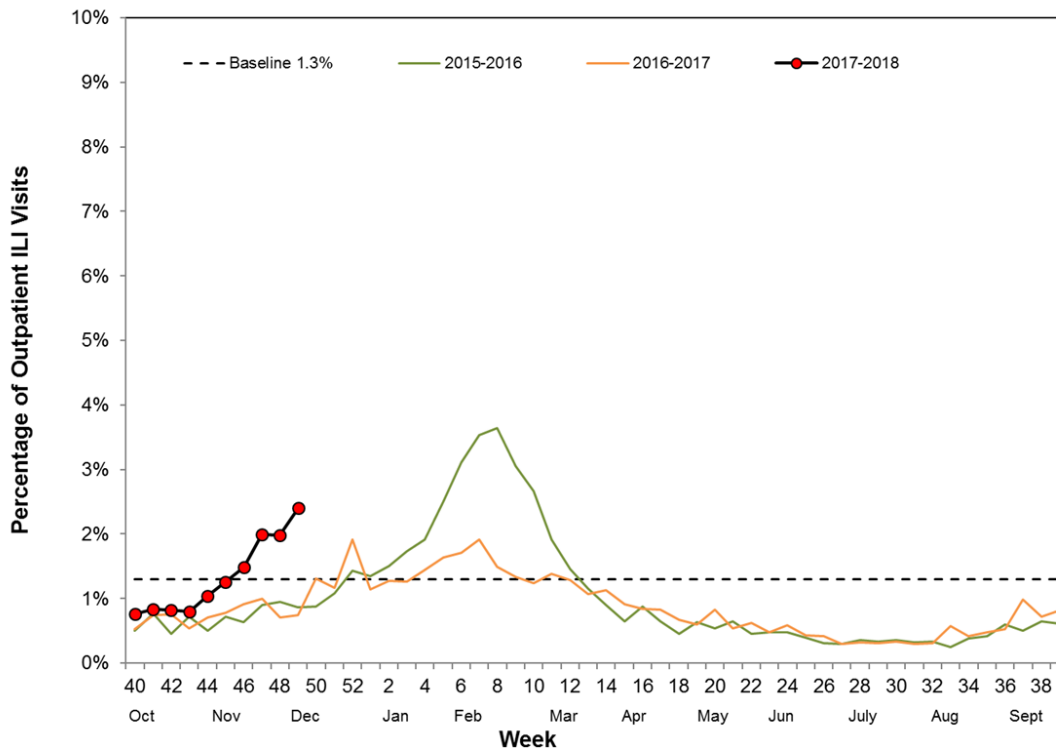


*Earliest date associated with the illness was used for cases without reported date of symptom onset.

D. Influenza-Associated Outbreaks

Five laboratory-confirmed influenza outbreaks were reported to CDPH during Week 49. To date, 14 laboratory-confirmed influenza outbreaks have been reported to CDPH for the 2017–2018 season.

Figure 8. Percentage of Influenza-like Illness Visits among Patients Seen by Sentinel Providers — California Border Region, 2015–2018



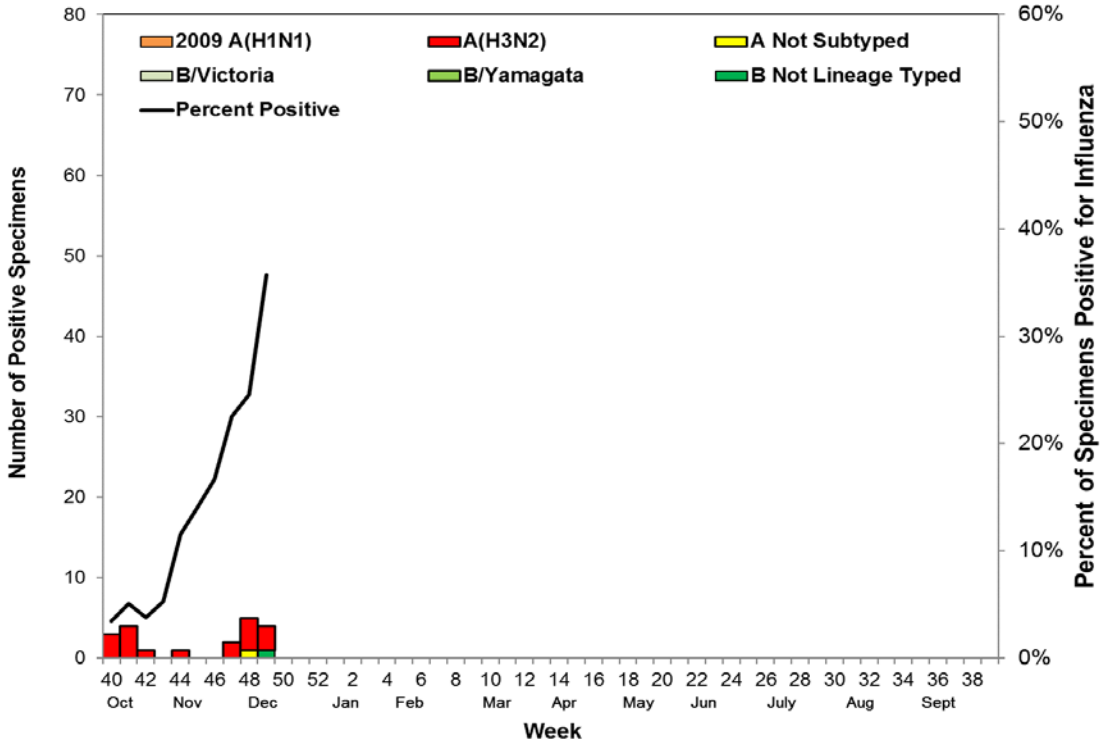
2. Virologic Surveillance Update

During Week 49, a total of 867 respiratory specimens were tested from border region sentinel clinical laboratories; of these, 310 (35.8%) tested positive for influenza (279 [90.0%] influenza A; 31 [10.0%] influenza B). Cumulatively this season, a total of 4,749 respiratory specimens were tested from border region sentinel clinical laboratories; of these, 878 (18.5%) tested positive for influenza (798 [90.9%] influenza A, 80 [9.1%] influenza B).

During Week 49, four influenza positive specimens were detected at border region RLN laboratories, of which three (75.0%) were influenza A, and one (25.0%) was influenza B. Among the three specimens that tested positive for influenza A at RLN laboratories, all (100%) were subtyped as A (H3). The one specimen that tested positive for influenza B had no further subtyping performed. Cumulatively this season, a total of 20 influenza positive specimens have been detected at border region RLN laboratories, of which 19 (95.0%) were influenza A, and one (5.0%) was influenza B. Of the 19 specimens that tested positive for influenza A at RLN laboratories, 18 (94.7%) were subtyped as A (H3), and one (5.3%) had no further subtyping performed.

Laboratory data summarized in Figure 9 include data from border region influenza clinical sentinel laboratories (percentage of specimens testing positive for influenza) as well as data from border region RLN laboratories (influenza type and subtype/lineage type).

Figure 9. Number of Influenza Detections by Type and Subtype Detected in Respiratory Laboratory Network Laboratories and the Percentage of Specimens Testing Positive at Clinical Sentinel Laboratories – California Border Region, 2017–2018



F. Other Respiratory Viruses

1. Laboratory-Confirmed Severe Respiratory Syncytial Virus Case Reports

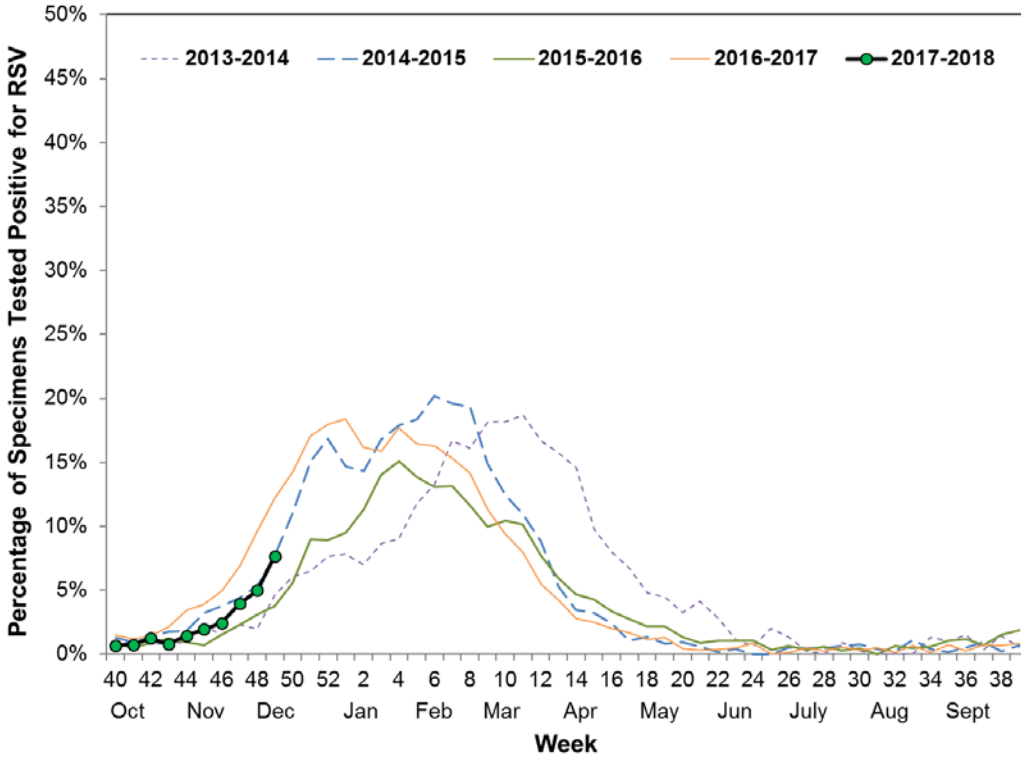
Currently, as mandated under Section 2500 of the California Code of Regulations, deaths among children aged 0–4 years with laboratory-confirmed respiratory syncytial virus (RSV) are reportable to CDPH. The weekly influenza report includes confirmed deaths formally reported to CDPH through December 9, 2017 (Week 49).

One laboratory-confirmed RSV fatality was reported to CDPH during Week 49. To date, CDPH has received one report of a laboratory-confirmed RSV-associated death among children <5 years of age during the 2017–2018 influenza season.

2. Other Respiratory Virus Laboratory Update

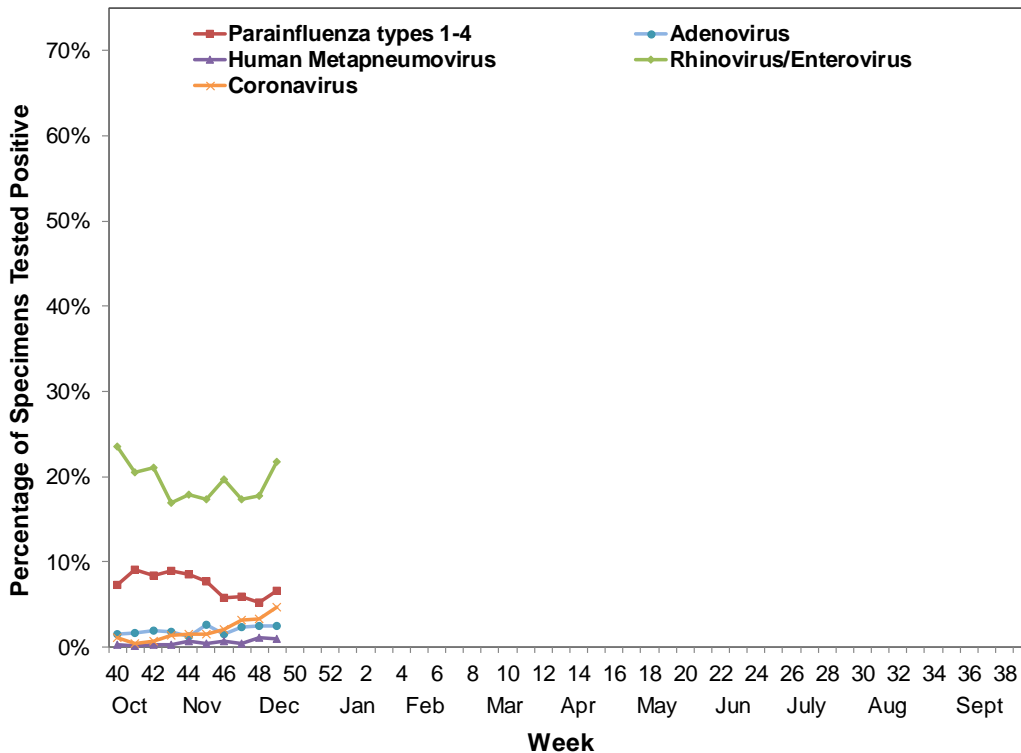
During Week 49, 1,293 specimens were tested for RSV and 99 (7.7%) were positive, which was higher than Week 48 (5.0%) (Figure 10). During Week 49, parainfluenzavirus, rhinovirus/enterovirus, and coronavirus activity increased; and human metapneumovirus and adenovirus activity remained stable (Figure 11).

Figure 10. Percentage of RSV Detections at Clinical Sentinel Laboratories, 2013–2018



Note: The 2014–15 season contains a week 53. Prior years' data have been shifted so that week 1 aligns across years.

Figure 11. Percentage of Other Respiratory Pathogen Detections at Clinical Sentinel Laboratories, 2017–2018



Activity Levels:

No Activity: No laboratory-confirmed cases of influenza and no reported increase in the number of cases of ILI.

Sporadic: Small numbers of laboratory-confirmed influenza cases or a single laboratory-confirmed influenza outbreak has been reported, but there is no increase in cases of ILI.

Local: Outbreaks of influenza or increases in ILI cases and recent laboratory-confirmed influenza in a single region of the state.

Regional: Outbreaks of influenza or increases in ILI and recent laboratory confirmed influenza in at least two but less than half the regions of the state with recent laboratory evidence of influenza in those regions.

Widespread: Outbreaks of influenza or increases in ILI cases and recent laboratory-confirmed influenza in at least half the regions of the state with recent laboratory evidence of influenza in the state.

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, Solano, San Francisco, San Mateo, Santa Clara, Santa Cruz, and Sonoma counties

Central Valley: Calaveras, Fresno, Inyo, Kings, Mono, Madera, Mariposa, Merced, 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

For questions regarding influenza surveillance and reporting in California, please email InfluenzaSurveillance@cdph.ca.gov. This account is monitored daily by several epidemiologists.

To obtain additional information regarding influenza, please visit the [CDPH influenza website](https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Immunization/Influenza.aspx) (<https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Immunization/Influenza.aspx>).

A copy of the case report form for reporting any laboratory-confirmed influenza case that was either admitted to the ICU or died can be downloaded from the [CDPH influenza website](https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Immunization/Influenza.aspx) (<https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Immunization/Influenza.aspx>).

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