



California Department of Public Health Influenza Surveillance Program

California Influenza and Other Respiratory Disease Surveillance for Week 12

(March 20, 2016 to March 26, 2016)

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.

Overall influenza activity in California was “widespread*” during Week 12.

Influenza Report Highlights

- Outpatient influenza-like illness and laboratory data indicate that influenza activity in California is still elevated; however, activity is decreasing.
- Outpatient influenza-like illness (ILI)
 - 3.0% of patient visits during Week 12 were for ILI, which is lower than Week 11 (3.2%); the percentage of visits for ILI is above expected levels for this time of year
- Hospitalization data
 - 5.2% of Kaiser patients hospitalized during Week 12 were admitted with a pneumonia and/or influenza (P&I) diagnosis, which is higher than Week 11 (4.8%); the percentage of P&I admissions is within expected levels for this time of year
- Influenza virus detections by Respiratory Laboratory Network and Sentinel Laboratories
 - 600 (16.8%) of 3,577 specimens tested were positive for influenza during Week 12, which is lower compared to Week 11 (21.4%)
- Influenza-associated deaths among patients 0–64 years of age
 - There were 9 laboratory-confirmed influenza deaths reported during Week 12
- Influenza-associated outbreaks
 - There were 4 laboratory-confirmed influenza outbreaks reported during Week 12

***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.

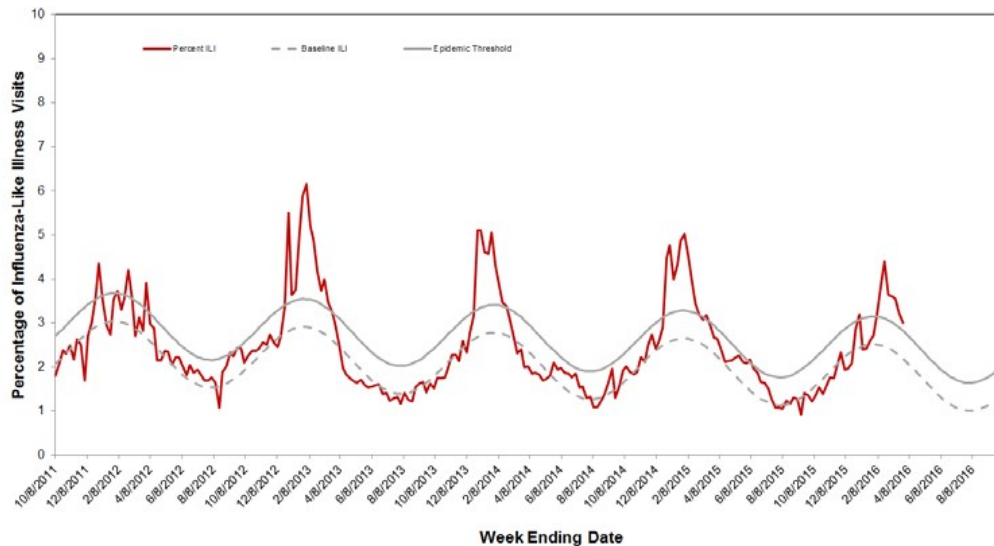
A. Outpatient and Inpatient Data

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 85 enrolled sentinel providers have reported data for Week 12. Based on available data, the percentage of visits for ILI in Week 12 (3.0%) was above expected baseline levels for this time of year (Figure 1).

Figure 1. Percentage of Influenza-like Illness Visits Among Patients Seen by California Sentinel Providers, 2011-2016



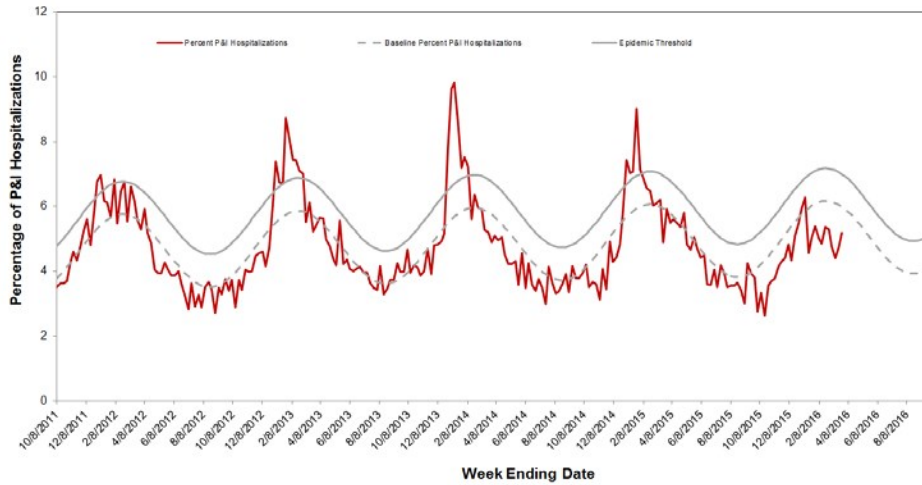
The seasonal baseline was calculated using a regression model applied to data from the previous five years. The epidemic threshold is two standard deviations above the seasonal baseline and is the point at which the observed percentage of ILI is significantly higher than would be expected at that time of the 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 12 was 5.2% compared to Week 11 (4.8%) and is within expected baseline levels for this time of the year (Figure 2).

Figure 2. Percentage of P&I Hospitalizations in Kaiser Permanente Northern California Hospitals, 2011–2016



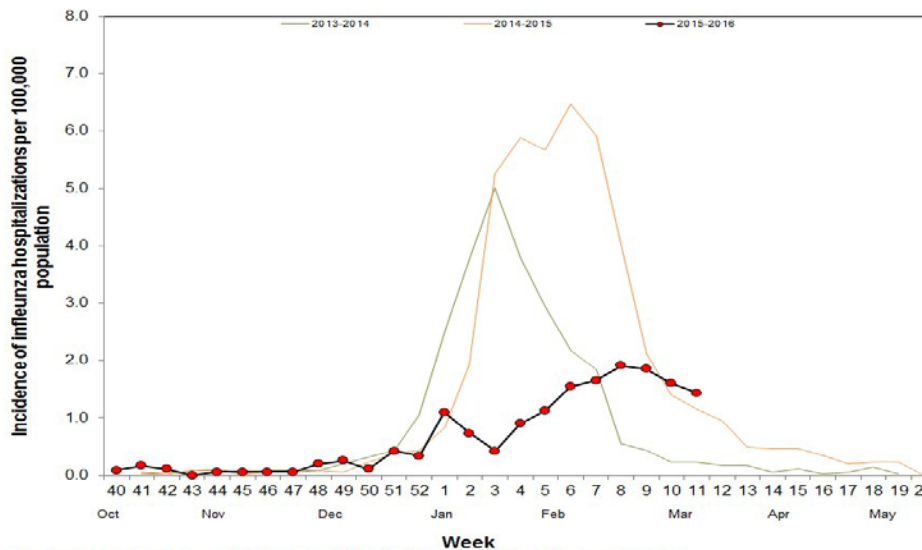
The seasonal baseline was calculated using a regression model applied to data from the previous five years. The epidemic threshold is two standard deviations above the seasonal baseline and is the point at which the observed percentage of pneumonia and influenza hospitalizations in Kaiser Permanente hospitals in northern California is significantly higher than would be expected at that time of the 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 in Week 11 (1.43) is lower compared to Week 10 (1.60) (Figure 3). Data for Week 12 are not presented because results are still being collected and are likely to change.

Figure 3. Incidence of Influenza Hospitalizations in CEIP Counties, 2013–2016



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

B. Laboratory Update - Influenza

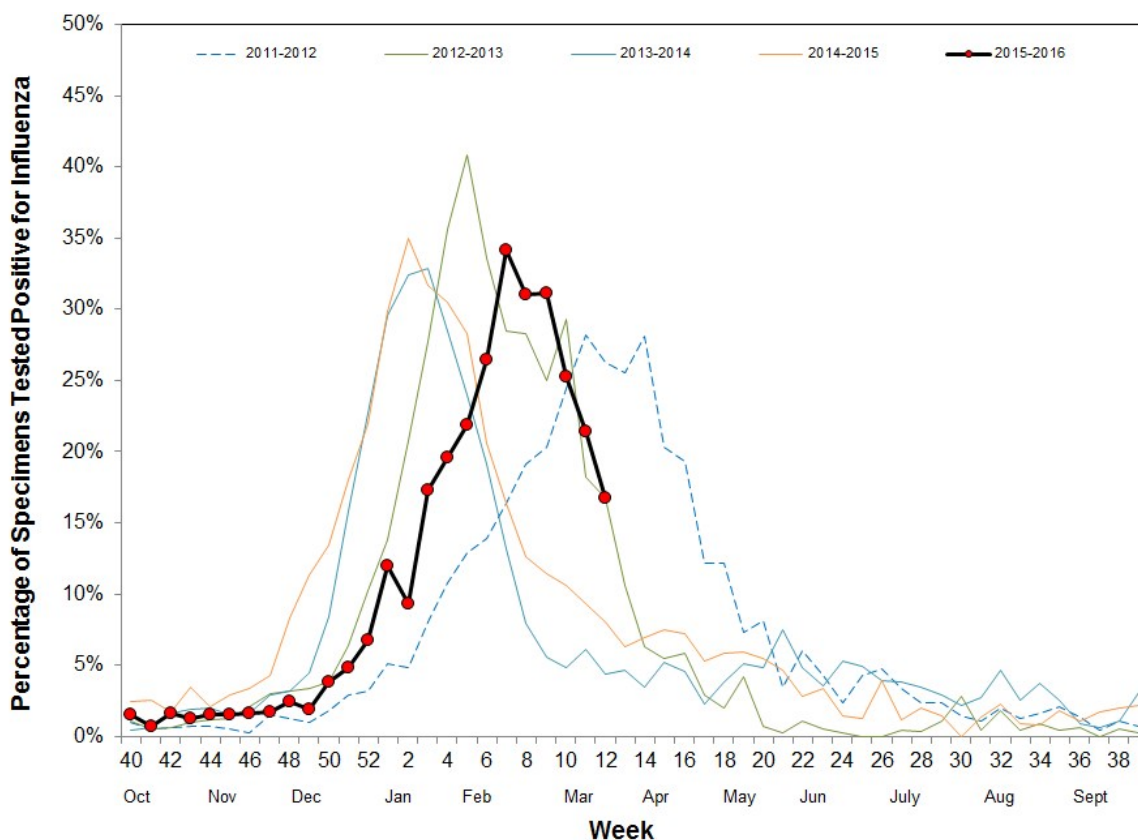
1. Respiratory Laboratory Network (RLN) and Sentinel Laboratory Surveillance Results

Laboratory surveillance for influenza and other respiratory viruses involves the use of data from hospital, academic, private and public health laboratories located throughout California. These laboratories report the number of laboratory-confirmed influenza and other respiratory virus detections and isolations on a weekly basis.

The percentage of influenza detections in the RLN and sentinel laboratories in Week 12 (16.8%) decreased compared to Week 11 (21.4%) (Figure 4). Additional details can be found in Figures 4 and 5 and Table 1.

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

Figure 4. Percentage of Influenza Detections in Respiratory Laboratory Network and Sentinel Laboratories, 2011–2016



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

Figure 5. Number of Influenza Detections by Type and Subtype Detected in Respiratory Laboratory Network and Sentinel Laboratories, 2015–2016

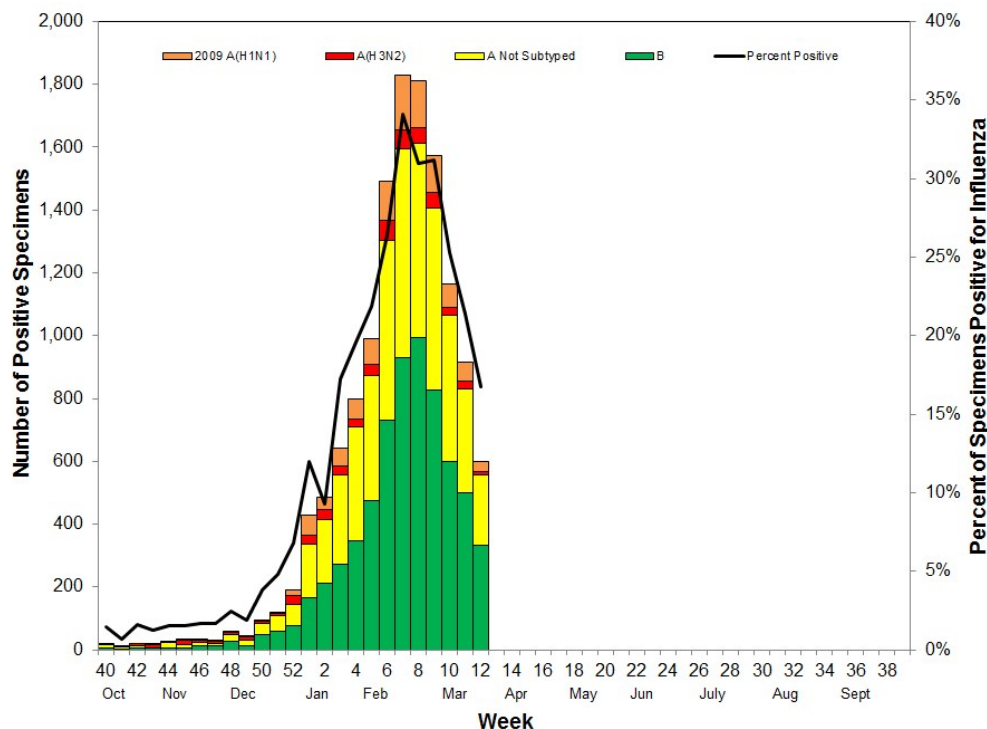


Table 1. Respiratory Specimens Testing Positive for Influenza by Influenza Type and Subtype — Respiratory Laboratory Network and Sentinel Laboratories, Current Week and Season to Date

	Week 12 (Number)	Week 12 (Percent)	Season to Date (Number)	Season to Date (Percent)
Number of Specimens Tested	3,577		80,867	
Number of Specimens Positive for Influenza	600	16.8*	13,428	16.6*
Influenza Type/Subtype of Positive Specimens				
A	267	44.5†	6,765	50.4†
2009 A (H1)	31	11.6‡	1,086	16.1‡
A (H3)	12	4.5‡	548	8.1‡
A, not subtyped	224	83.9‡	5,131	75.8‡
B	333	55.5†	6,663	49.6†

* Percent of total specimens tested for influenza

† Percent of specimens positive for influenza

‡ Percent of influenza A positives

2. Antiviral Resistance Testing

Of the influenza specimens tested by the CDPH-VRDL to date this season, no specimens have been found to be resistant to Oseltamivir (Table 2).

Table 2. Number of specimens tested for antiviral resistance, 2015–2016

	Neuraminidase Inhibitors Resistance
Influenza 2009A (H1)	0/38
Influenza A (H3)	0/29
Influenza B	0/67

3. Influenza Virus Strain Characterization

To date in California, all antigenically characterized influenza 2009 A (H1) and A (H3) viruses have matched the influenza 2009 A (H1) and A (H3) components included in the trivalent and quadrivalent influenza vaccines (Table 3). In addition, all antigenically characterized influenza B Victoria lineage viruses in California have matched the influenza B Victoria lineage virus included in the quadrivalent influenza vaccine, and all antigenically characterized influenza B Yamagata lineage viruses in California have matched the influenza B Yamagata lineage virus included in the trivalent and quadrivalent influenza vaccines.

Table 3. Influenza virus antigenic characterization data — California and the United States, 2015– 2016

Influenza Subtype/Lineage	Vaccine Strain	Match Vaccine Strain (California)	Match Vaccine Strain (United States)
Influenza A (H1)	A/California/7/2009-like (H1N1)	37/37	507/507
Influenza A (H3)	A/Switzerland/9715293/2013-like (H3N2)	6/6	131/139*
Influenza B Victoria†	B/Brisbane/60/2008-like	12/12	155/159
Influenza B Yamagata‡	B/Phuket/3073/2013-like	24/24	239/239

* The Centers for Disease Control and Prevention also performs genetic sequencing of influenza A (H3) viruses. A total of 324 influenza A (H3) viruses were genetically sequenced, and all viruses belonged to genetic groups for which a majority of viruses antigenically characterized were similar to the cell-propagated A/Switzerland/9715293/2013.

† The influenza B Victoria lineage virus is included in only the 2015–2016 quadrivalent influenza vaccine

‡ The influenza B Yamagata lineage virus is included in both the 2015–2016 trivalent and quadrivalent influenza vaccines

C. Laboratory-Confirmed Severe Influenza 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 as of March 26, 2016 (Week 12).

During Week 12, there were 9 laboratory-confirmed influenza-associated fatalities reported. To date this season, there have been 80 reports of laboratory-confirmed influenza-associated deaths among patients <65 years of age during the 2015–2016 influenza season.

D. Influenza-Associated Outbreaks

During Week 12, four laboratory-confirmed outbreaks were reported. To date, 32 laboratory-confirmed influenza outbreaks have been reported to CDPH for the 2015–2016 season.

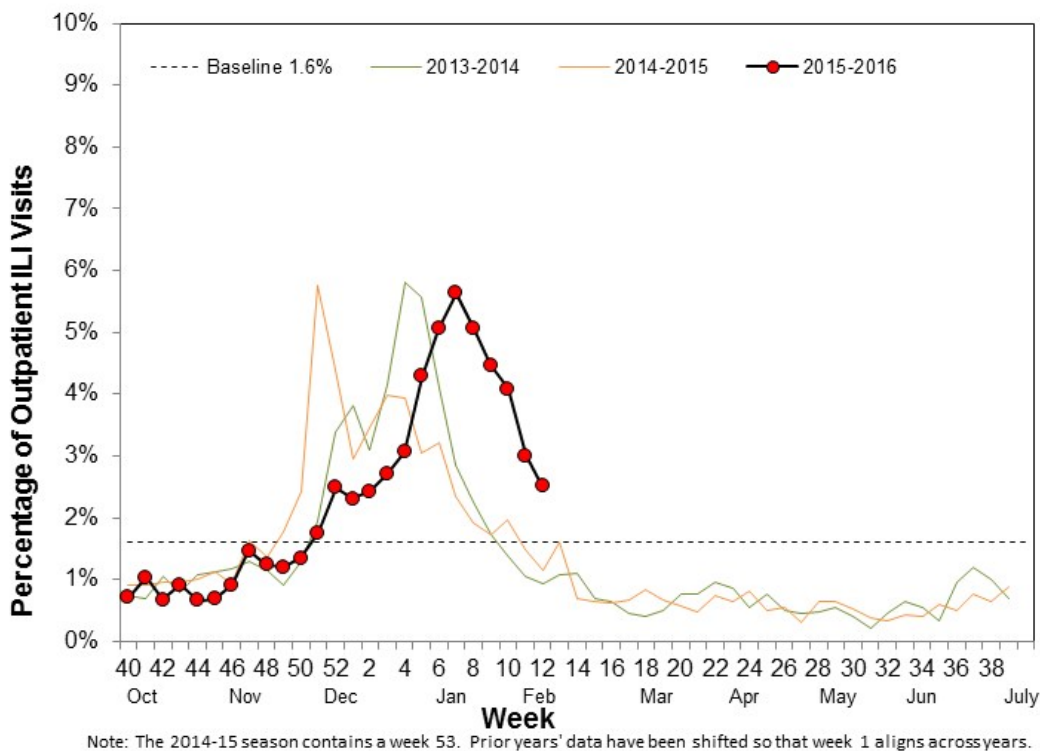
E. California Border Region Influenza Surveillance Network Data

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

1. Syndromic Surveillance Update

A total of seven border region sentinel providers reported data during Week 12, two less than Week 11 of 2016. The total number of patients screened by all sentinel sites for ILI during Week 12 was 5,176. Outpatient ILI activity was lower in Week 12 (2.5% ILI) compared to Week 11 (3.0% ILI). ILI activity for the California border region during Week 12 was higher when compared to activity for the same week during the 2014–2015 and 2013–2014 flu seasons (Figure 6). All influenza syndromic data summarized for the border region represents a subset of CDC influenza sentinel providers in California.

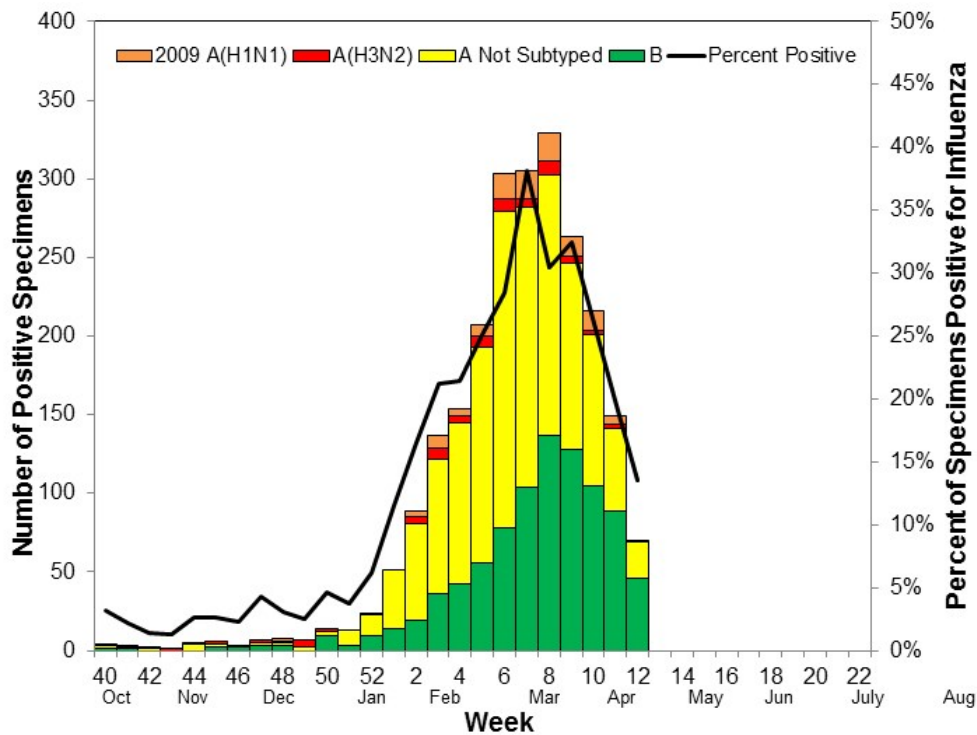
Figure 6. Percentage of Influenza-like Illness Visits Among Patients Seen by California Border Region Sentinel Providers, 2013-2016



2. Virologic Surveillance Update

Cumulatively this season, a total of 11,805 respiratory specimens have been tested from border region clinics; of these, 2,370 (20.1%) tested positive for influenza. Of the 2,370 specimens that tested positive, 1,483 (62.6%) were influenza A and 887 (37.4%) were influenza B. Of the 1,483 specimens that tested positive for influenza A, 73 (4.9%) were subtyped as A (H3), 109 (7.3%) were subtyped as 2009 A (H1), and 1,301 (87.7%) had no further subtyping performed. For Week 12, a total of 518 respiratory specimens were submitted for testing; 70 (13.5%) were positive for influenza virus. Of the 70 specimens that tested positive, 24 (34.3%) were influenza A, and 46 (65.7%) were influenza B. Of the 24 specimens that tested positive for influenza A, one (4.2%) was subtyped as 2009 A (H1), and 23 (95.8%) had no further subtyping performed. Laboratory data summarized in Figure 7 includes data from influenza sentinel sites as well as laboratory data from other border region laboratories.

Figure 7. Number of Influenza Detections by Type and Subtype Detected in California Border Region Respiratory Laboratory Network and Sentinel Laboratories, 2015-2016



F. Laboratory Update – Other Respiratory Viruses

During Week 12, 2,525 specimens were tested for RSV and 211 (8.4%) were positive, which is lower than Week 11 (10.3%) (Figure 8). Information on other respiratory viruses can be found in Figure 9.

Figure 8. Percentage of RSV Detections in Respiratory Laboratory Network and Sentinel Laboratories, 2011–2016

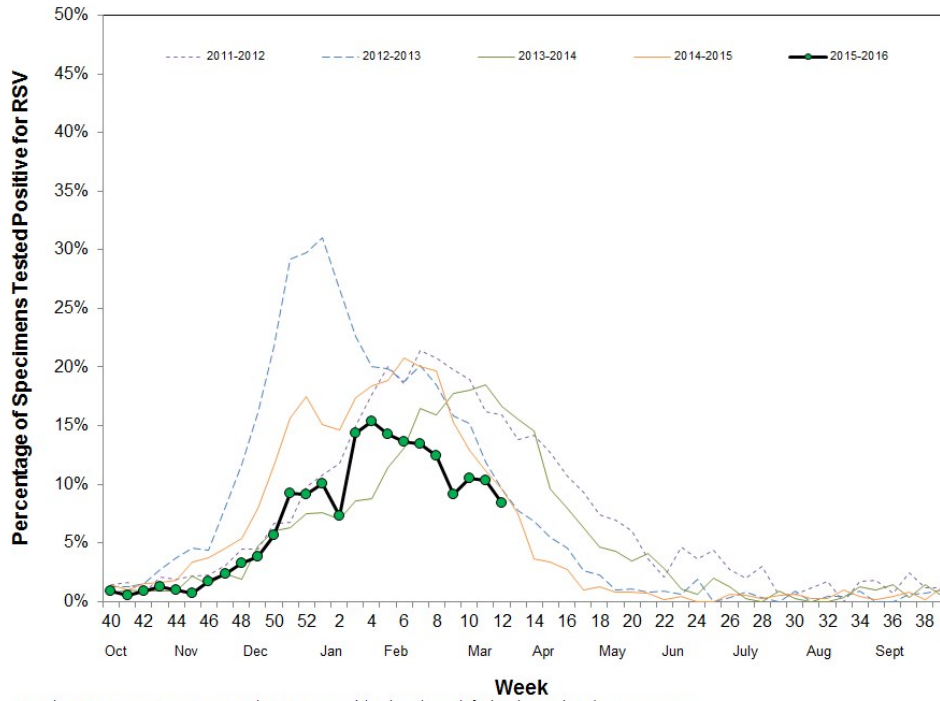
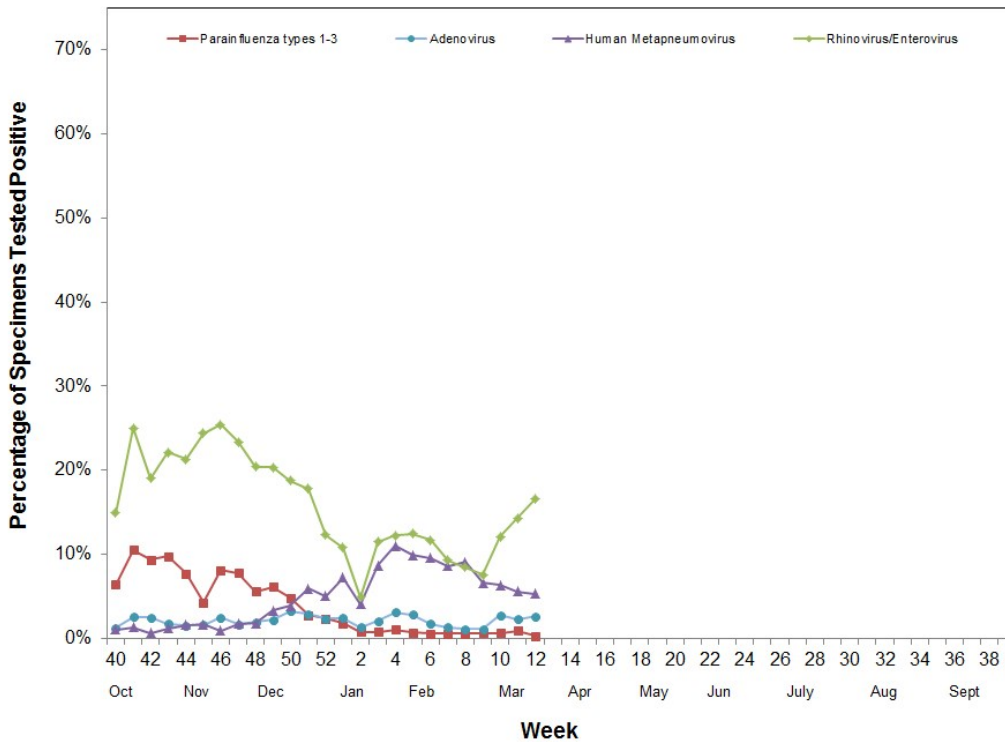


Figure 9. Percentage of Other Respiratory Pathogen Detections in Respiratory Laboratory Network and Sentinel Laboratories, 2015–2016



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

For more information regarding the different influenza surveillance data sources, please visit the [CDPH Influenza Surveillance Program](#).

To obtain additional information regarding influenza, please visit the [CDPH Influenza Website](#).

Download a copy of the [case report form](#) for reporting any laboratory-confirmed influenza case that was either admitted to the ICU or died.