# *California Influenza and Other Respiratory Disease Surveillance for Week 15 (April 12, 2015 to April 18, 2015)*

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 geographic influenza activity in California was "sporadic*" during Week 15.**

**Influenza Report Highlights**

- Outpatient influenza-like illness (ILI)
  - 1.6% of patient visits during Week 15 were for ILI, which is lower compared to Week 14 (2.4%); the percentage of outpatient visits for ILI does not exceed the epidemic threshold for this time of year
- Hospitalization data
  - 5.3% of Kaiser patients hospitalized during Week 15 were admitted with a pneumonia and/or influenza (P&I) diagnosis, which is similar to Week 14 (5.2%); the percentage of P&I admissions is below the epidemic threshold for this time of year
- Influenza virus detections by Respiratory Laboratory Network and Sentinel Laboratories
  - 59 (5.2%) of 1124 specimens tested positive for influenza during Week 15, which is lower compared to Week 14 (6.1%)
  - Influenza A (H3) laboratory detections continue to decrease while influenza B viruses continue to circulate at low levels
    - Nationally, 22.1% of influenza A (H3) viruses strain characterized match the 2014–2015 influenza vaccine component as of Week 15
- Influenza-associated deaths among patients 0–64 years of age
  - No new laboratory-confirmed influenza deaths were reported during Week 15
- Influenza-associated outbreaks
  - 1 laboratory-confirmed influenza outbreak was reported during Week 15

*For the Centers for Disease Control and Prevention (CDC) definitions of influenza geographic distribution, please go to http://www.cdc.gov/flu/weekly/overview.htm.

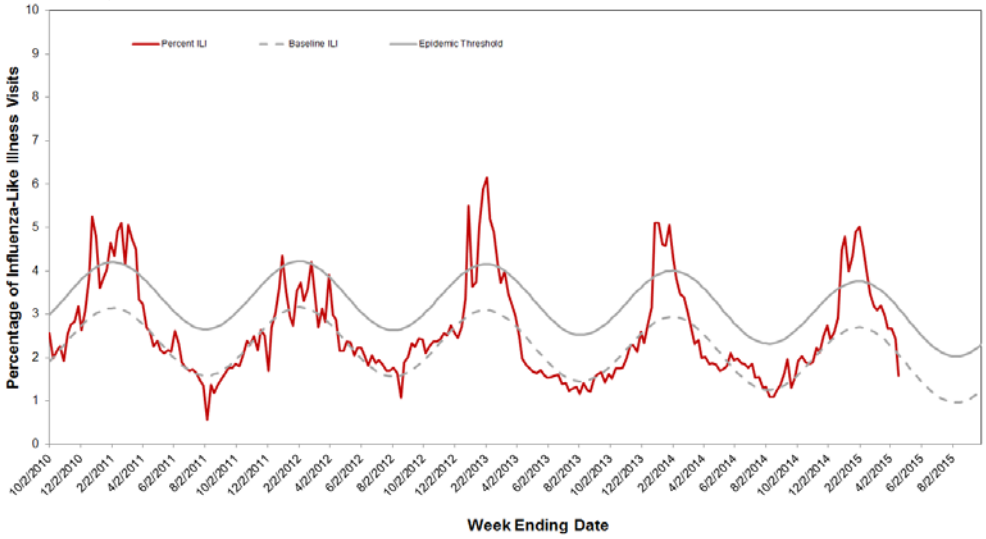
## A. Outpatient and Inpatient Data

### 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 (≥100°F or 37.8°C) AND cough and/or sore throat (in the absence of a known cause other than influenza).

A total of 94 enrolled sentinel providers have reported data for Week 15. Based on available data, the percentage of visits for ILI in Week 15 (1.6%) does not exceed the epidemic threshold for this time of year (Figure 1).

**Figure 1. Percentage of Influenza-like Illness Visits Among Patients Seen by California Sentinel Providers, 2010–2015**



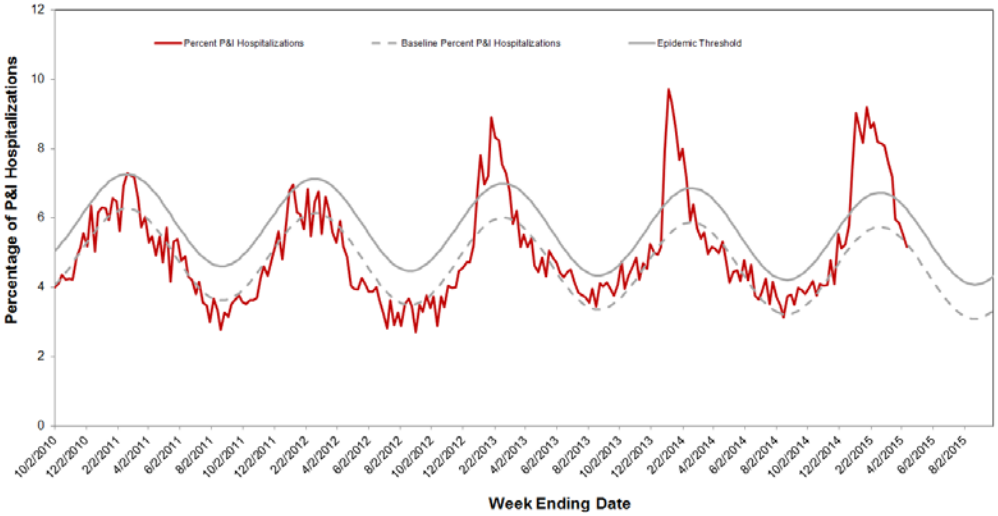

The seasonal baseline was calculated using a regression model applied to data from the previous eight years. The epidemic threshold is two standard deviations above the seasonal baseline and is the point at which the observed percentage of ILI is significantly higher than would be expected at that time 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 and southern California during Week 15 was 5.3% and does not exceed the epidemic threshold (6.1%) for this time of the year (Figure 2).

**Figure 2. Percentage of P&I Hospitalizations in Kaiser Permanente Northern and Southern California Hospitals, 2010–2015**



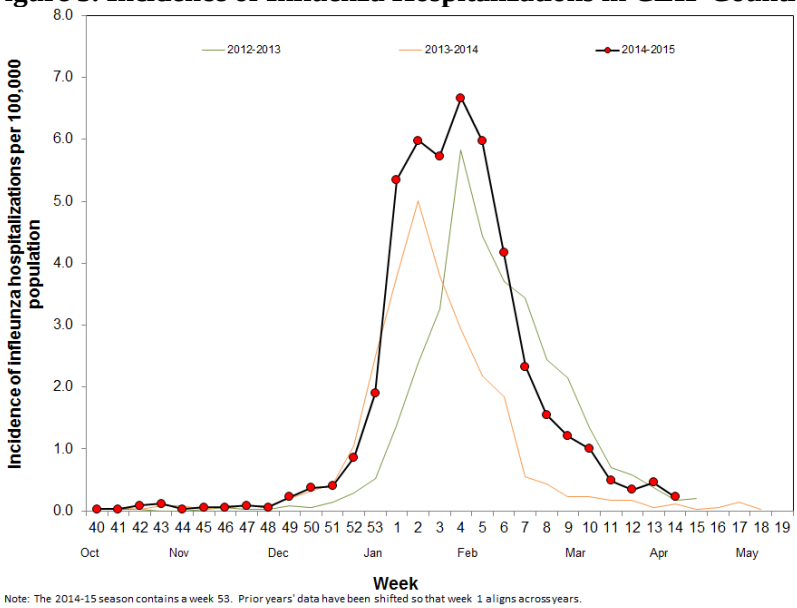

The seasonal baseline was calculated using a regression model applied to data from the previous six years. The epidemic threshold is two standard deviations above the seasonal baseline and is the point at which the observed percentage of pneumonia and influenza hospitalizations in Kaiser Permanente hospitals 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.

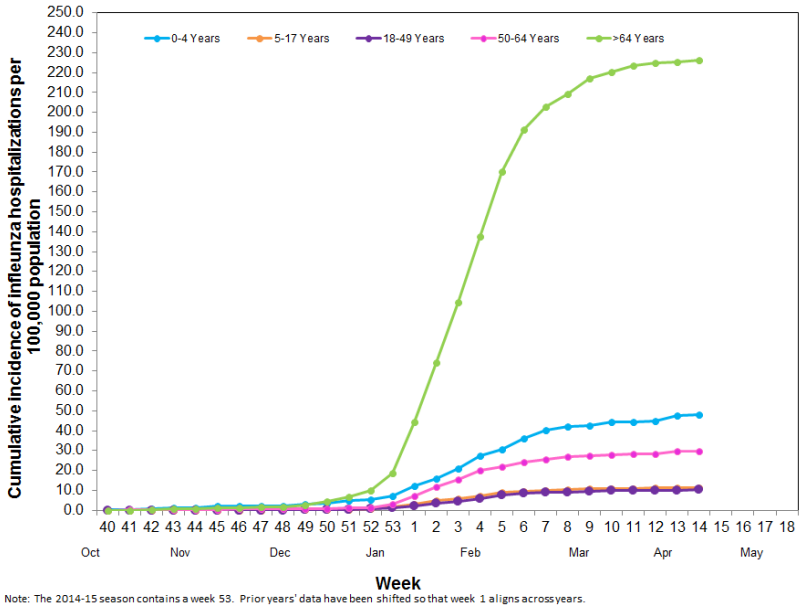
The incidence of influenza-associated hospitalizations per 100,000 population in Week 14 (0.2) is slightly less compared to Week 13 (0.5) (Figure 3). Data for Week 15 is not presented because results are still being collected and are likely to change. To date this season, the highest rate of hospitalization is among older adults age 64 and over, followed by children age 0-4 years (Figure 4). Adults age 64 and over have accounted for more than 65% of reported hospitalized cases.

**Figure 3. Incidence of Influenza Hospitalizations in CEIP Counties, 2012–2015**




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

**Figure 4. Cumulative Incidence of Influenza Hospitalizations in CEIP Counties by Age Group, 2014-2015**

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**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 15 was 5.2%, which is lower compared to Week 14 (6.1%) (Figure 5). Additional details can be found in Figure 6 and Table 1 below.

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 5. Percentage of Influenza Detections in Respiratory Laboratory Network and Sentinel Laboratories, 2010–2015**

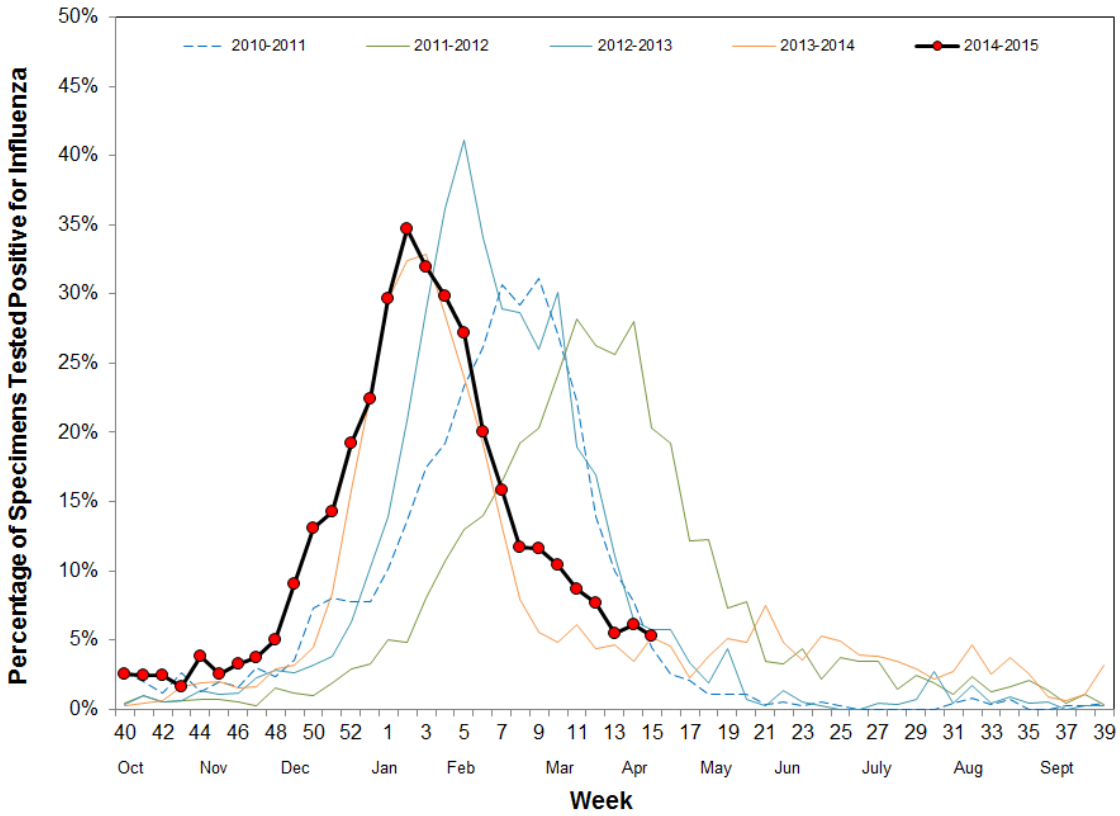


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**Figure 6. Number of Influenza Detections by Type and Subtype Detected in Respiratory Laboratory Network and Sentinel Laboratories, 2014–2015**

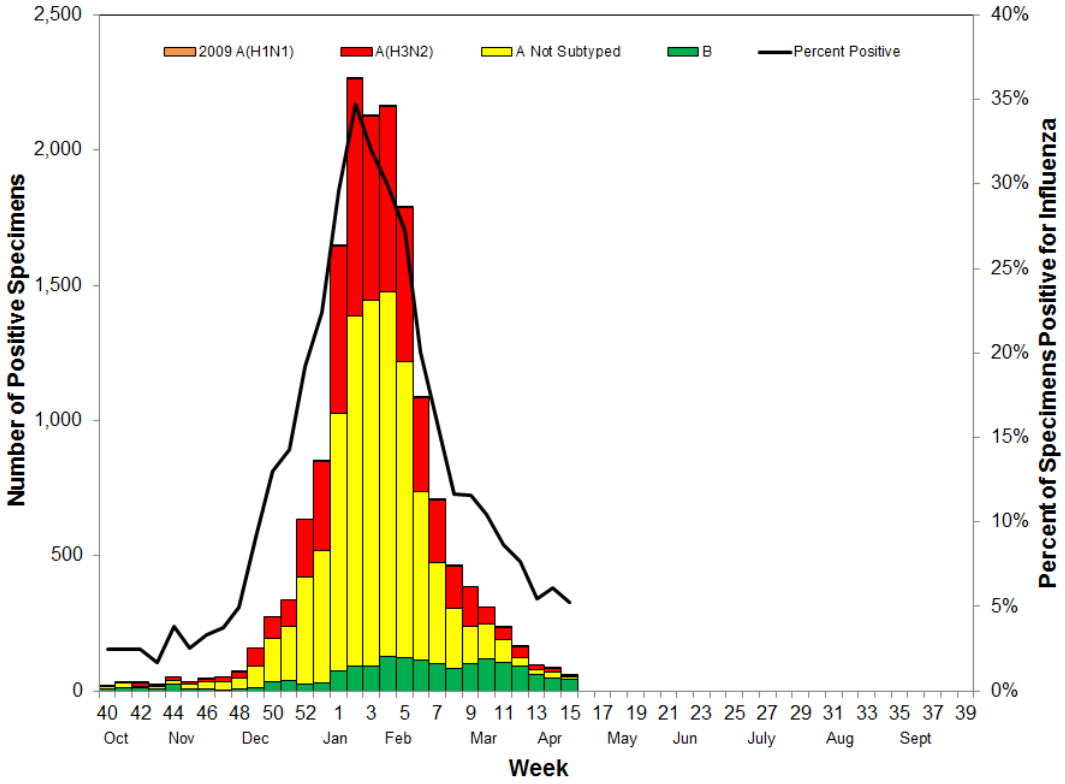



**Table 1. Respiratory Specimens Testing Positive for Influenza by Influenza Type and Subtype — Respiratory Laboratory Network and Sentinel Laboratories, Current Week and Season to Date**

| | Week 15 | | Season to Date | |
|---|---|---|---|---|
| | **Number** | **Percent** | **Number** | **Percent** |
| **Number of Specimens Tested** | 1124 | | 86,875 | |
| **Number of Specimens Positive for Influenza** | 59 | 5.2* | 16,202 | 18.6* |
| **Influenza Type/Subtype of Positive Specimens** | | | | |
| A | 15 | 25.4† | 14,585 | 90.0† |
| 2009 A (H1) | 1 | 6.7‡ | 27 | 0.2‡ |
| A (H3) | 5 | 33.3‡ | 5376 | 36.9‡ |
| A, not subtyped | 9 | 60.0‡ | 9182 | 63.0‡ |
| B | 44 | 74.6† | 1617 | 10.0† |

* 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, 2014–2015**

| | Neuraminidase Inhibitors Resistance |
|---|---|
| **Influenza A (H3)** | 0/96 |
| **Influenza 2009A (H1)** | 0/3 |
| **Influenza B** | 0/35 |

3. Influenza Virus Strain Characterization

To date in California, not all influenza A (H3) antigenically characterized viruses have matched the influenza A (H3) component included in the trivalent and quadrivalent influenza vaccines (Table 3). The drifted influenza A (H3) virus, A/Switzerland/9715293/2013-Like (H3N2), is circulating in California.

**Table 3. Influenza virus antigenic characterization data — California and the United States, 2014–2015**

| | | Match Vaccine Strain | |
|---|---|---|---|
| **Influenza Subtype/Lineage** | **Vaccine Strain** | **California** | **United States** |
| **Influenza A (H3)** | A/Texas/50/2012-like (H3N2) | 7/17 | 243/1102 |
| **Influenza B Victoria*** | B/Brisbane/60/2008-like | 6/6 | 122/127 |
| **Influenza B Yamagata†** | B/Massachusetts/02/2012-like | 9/9 | 321/332 |

* The influenza B Victoria lineage virus is included in only the 2014–2015 quadrivalent influenza vaccine
† The influenza B Yamagata lineage virus is included in both the 2014–2015 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.

In Week 15, no new laboratory-confirmed influenza deaths were reported to CDPH. To date, 53 laboratory-confirmed influenza deaths have been reported for the 2014–2015 influenza season. Of the fatal cases to date this season, 3 (6%) occurred among children less than 18 years of age, 23 cases (43%) occurred among adults 18-49 years of age, and 27 cases (51%) occurred among adults 50-64 years of age.

## D. Influenza-Associated Outbreaks

CDPH received reports of 1 laboratory-confirmed influenza outbreak during Week 15. The outbreak occurred in the Bay Area region of California. The newly reported outbreak had a first date of onset during Week 14. To date for the 2014-2015 season, there have been 237 laboratory-confirmed influenza outbreaks reported to CDPH. Additional details can be found in Table 4.

**Table 4. Characteristics of Influenza-Associated Outbreaks**

| | Week 15 (n=1) | | Season to Date (n=237) | |
|---|---|---|---|---|
| | **Number** | **Percent** | **Number** | **Percent** |
| **Influenza Type/Subtype** | | | | |
| **A** | 0 | 0.0* | 196 | 82.7* |
| **2009 A (H1)** | 0 | 0.0† | 0 | 0.0† |
| **A (H3)** | 0 | 0.0† | 59 | 30.1† |
| **A, not subtyped** | 0 | 0.0† | 137 | 69.9† |
| **B** | 1 | 100.0* | 10 | 4.2* |
| **A and B co-infection** | 0 | 0.0* | 7 | 3.0* |
| **Type unknown** | 0 | 0.0* | 24 | 10.1* |
| **Location of Outbreak** | | | | |
| **Acute care healthcare facility** | 0 | 0.0 | 2 | 0.8 |
| **Correctional facility** | 0 | 0.0 | 5 | 2.1 |
| **Military facility** | 0 | 0.0 | 0 | 0.0 |
| **Residential healthcare facility** | 1 | 100.0 | 143 | 60.3 |
| **Independent living facility** | 0 | 0.0 | 71 | 30.0 |
| **School** | 0 | 0.0 | 16 | 6.8 |

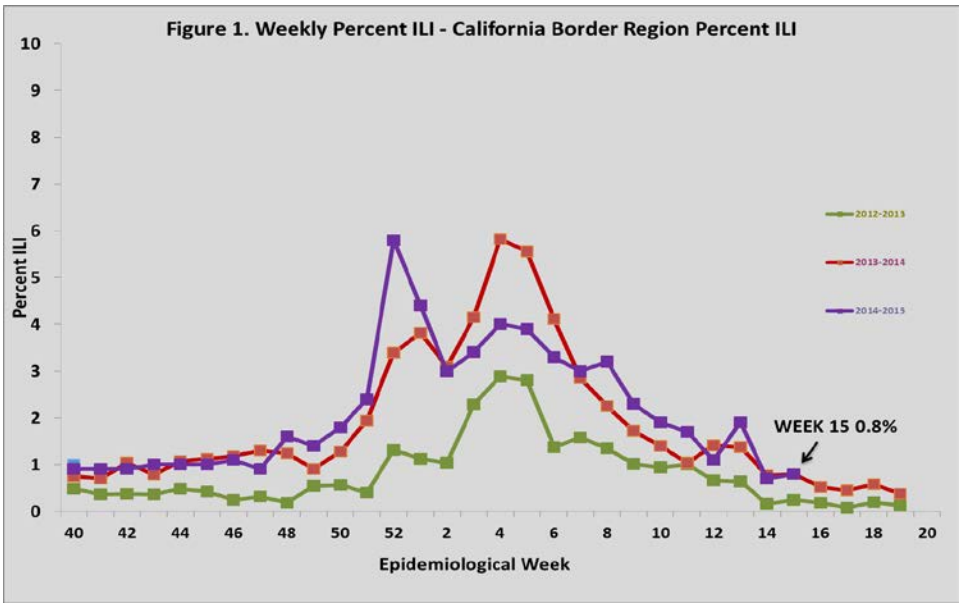
* Percent of specimens positive for influenza
† Percent of influenza A positives

**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, as well as some parts of Riverside County.

1. Syndromic Surveillance Update

A total of 9 border region sentinel providers reported data during Week 15 compared to 10 during Week 14 of 2015. The total number of patients screened by all sentinel sites for ILI during Week 15 was 5,121. Outpatient ILI activity increased by 0.1% from Week 14 (0.7% ILI) to Week 15 (0.8% ILI). ILI activity for the California border region during Week 15 was higher when compared to activity for the same week during the 2012–2013 influenza season, but similar to ILI activity during the 2013-2014 influenza season (Figure 1). All influenza syndromic data summarized for the border region represents a subset of CDC influenza sentinel providers in California

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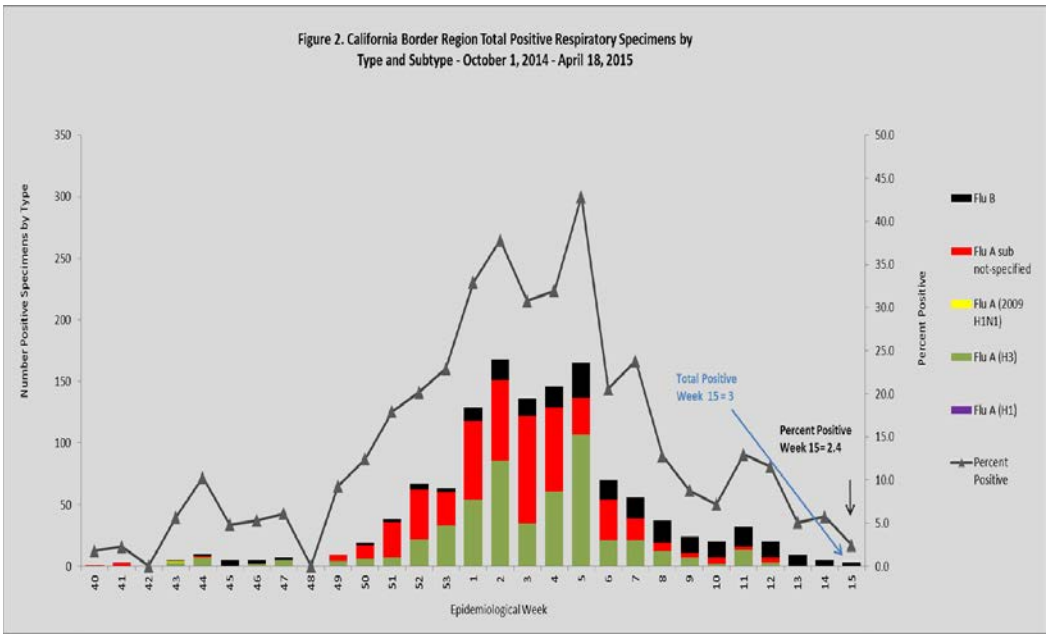
2. <u>Virologic Surveillance Update</u>

Cumulatively this season, a total of 6,259 respiratory specimens have been tested from border region clinics; of these, 1,252 (20.0%) tested positive for influenza. Of the 1,252 specimens that have tested positive, 1,017 (81.2%) were influenza A and 232 (18.5%) were influenza B. Of the 1,252 specimens that tested positive for influenza A, 511 (50.2%) were A (H3), 1 (0.1%) was 2009 A (H1), and 505 (49.7%) had no further subtyping performed. For Week 15, a total of 123 respiratory specimens were submitted for testing; 3 (2.4%) were positive for influenza virus. Of the positive specimens, all were positive for influenza B. Laboratory data summarized in Figure 2 includes data from influenza sentinel sites as well as laboratory data from other border region laboratories.



## F. Laboratory Update – Other Respiratory Viruses

During Week 15, there were 903 specimens tested for RSV and 37 (4.1%) were positive, which is similar to Week 14 (4.0%) (Figure 7). Information on other respiratory viruses can be found in Figure 8.

**Figure 7. Percentage of RSV Detections in Respiratory Laboratory Network and Sentinel Laboratories, 2010–2015**

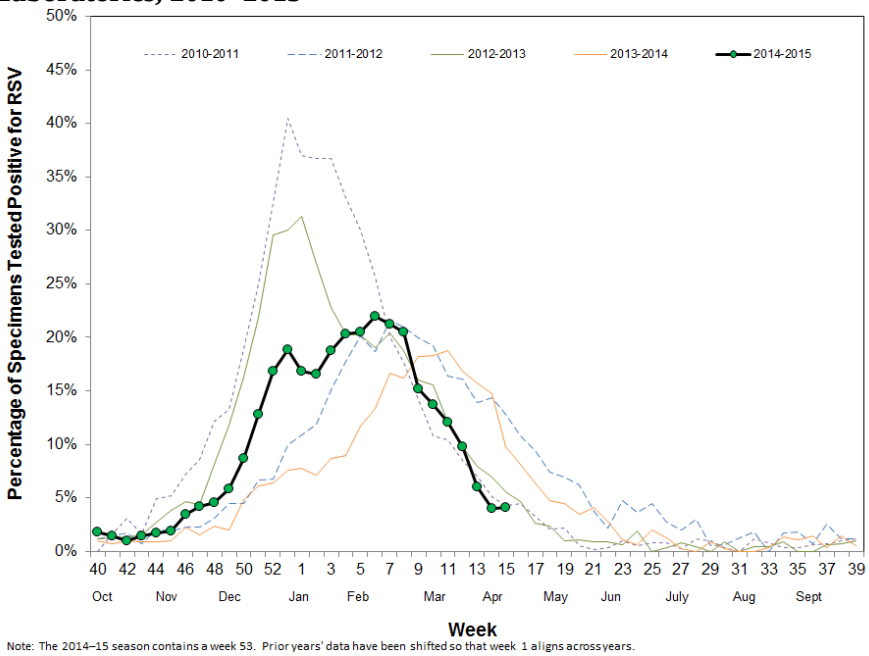



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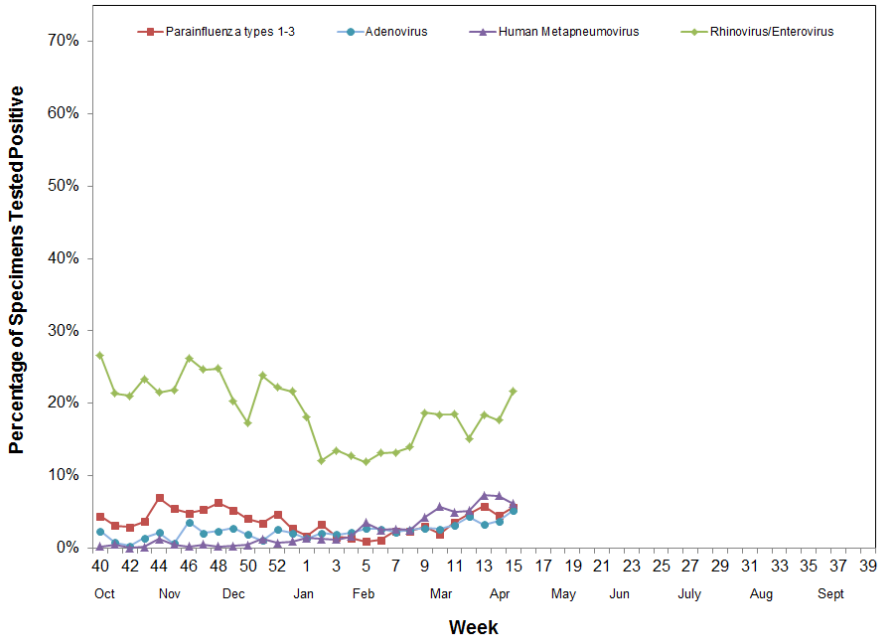
**Figure 8. Percentage of Other Respiratory Pathogen Detections in Respiratory Laboratory Network and Sentinel Laboratories, 2014–2015**



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 at http://www.cdph.ca.gov/programs/dcdc/Pages/CaliforniaInfluenzaSurveillanceProject.aspx.

To obtain additional information regarding influenza, please visit the CDPH influenza website at http://www.cdph.ca.gov/HealthInfo/discond/Pages/Influenza(Flu).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 http://www.cdph.ca.gov/HealthInfo/discond/Pages/Influenza(Flu).aspx.