Weekly Update
California Department of Public Health
Influenza Surveillance Program

# *California Influenza and Other Respiratory Disease Surveillance for Week 53 (December 28, 2014 to January 3, 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 influenza activity in California was "regional*" during Week 53.**

**Influenza Report Highlights**

- Influenza activity in California is increasing
- Outpatient influenza-like illness (ILI)
  - 4.6% of patient visits during Week 53 were for ILI, which is about the same as Week 52 (4.7%); the percentage of outpatient visits for ILI is above the epidemic threshold for this time of year
- Hospitalization data
  - 8.6% of Kaiser patients hospitalized during Week 53 were admitted with a pneumonia and/or influenza (P&I) diagnosis, which is higher than Week 52 (6.9%); the percentage of P&I admissions is above the epidemic threshold for this time of year
- Influenza virus detections by Respiratory Laboratory Network and Sentinel Laboratories
  - 636 (18.6%) of 3415 specimens tested were positive for influenza during Week 53, which is higher compared to Week 52 (18.1%)
  - Overall, influenza A (H3) and influenza B viruses have been detected more than influenza 2009 A (H1) viruses
    - Nationally, 31.7% of influenza A (H3) viruses characterized match the 2014–2015 influenza vaccine component
- Influenza-associated deaths among patients 0–64 years of age
  - No laboratory-confirmed influenza deaths were reported during Week 53
- Influenza-associated outbreaks
  - Two laboratory-confirmed influenza outbreaks were reported during Week 53

*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.

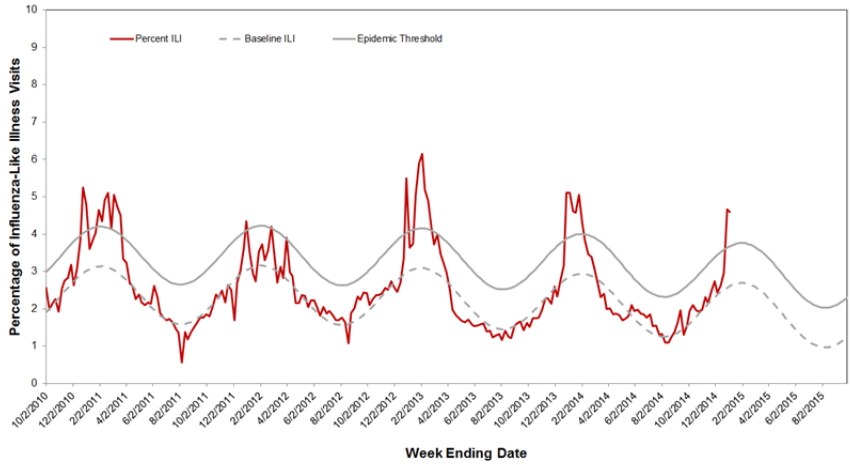
## A. Outpatient and Inpatient Data

### 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 102 enrolled sentinel providers have reported data for Week 53. Based on available data, the percentage of visits for ILI in Week 53 (4.6%) exceeds the epidemic threshold (3.7%) for this time of year (Figure 1).

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



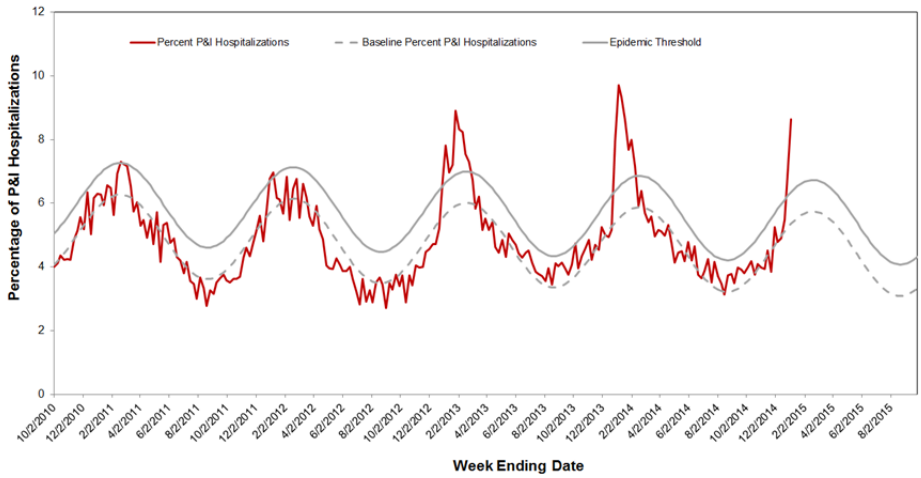

The seasonal baseline was calculated using a regression model applied to data from the previous eight years. The epidemic threshold is two standard deviations above the seasonal baseline and is the point at which the observed percentage of ILI is significantly higher than would be expected at that time 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 53 was 8.6% which increased from Week 52 (6.9%) and exceeds the epidemic threshold (6.3%) 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 increased in Week 52 (0.29) compared to Week 51 (0.17) (Figure 3). Data for Week 53 are 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).

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

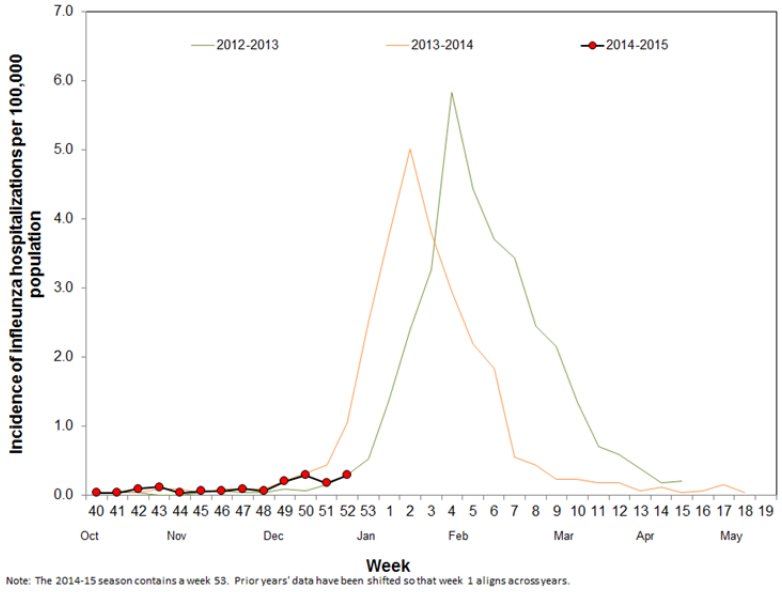
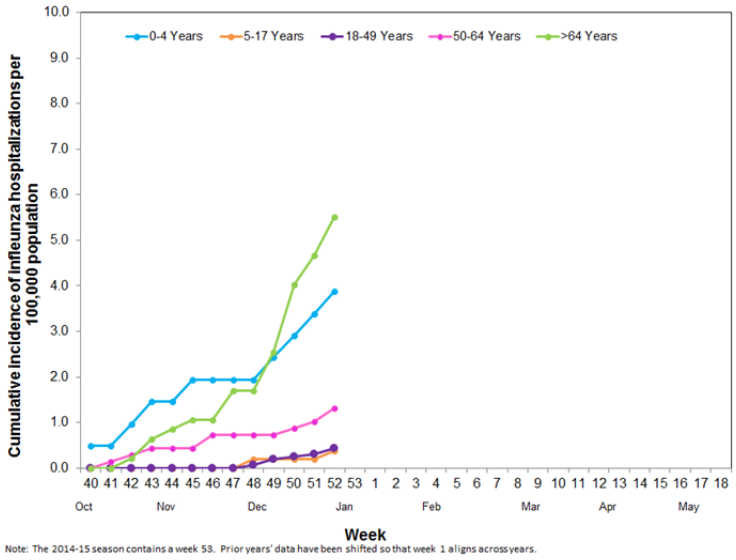



**Figure 4. Cumulative Incidence of Influenza Hospitalizations in CEIP Counties by Age Group, 2014-2015**



## B. Laboratory Update - Influenza

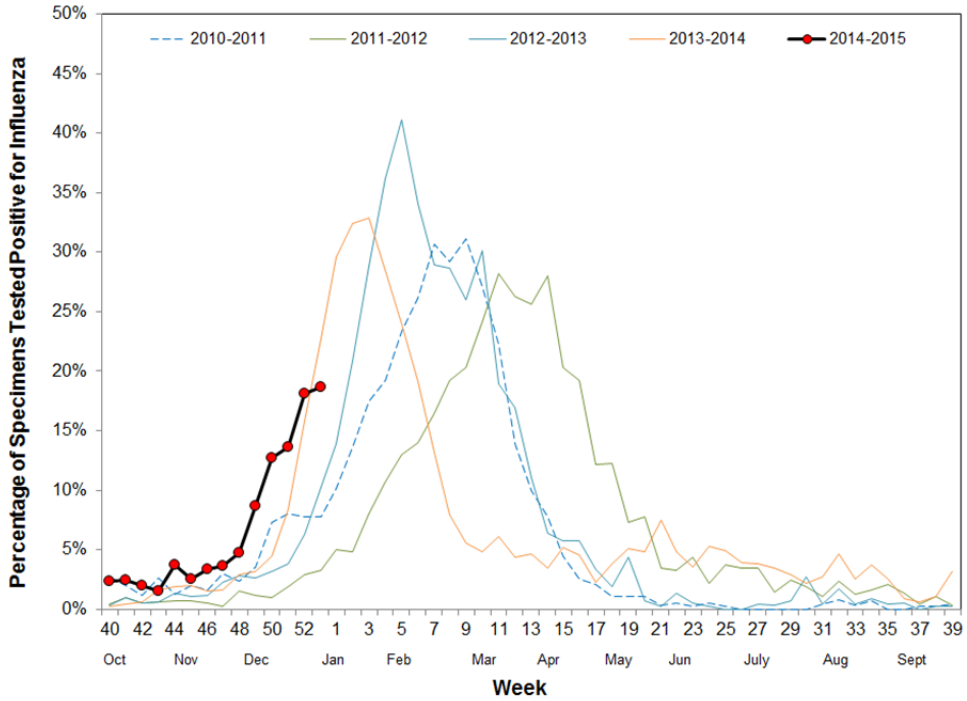
1. Respiratory Laboratory Network (RLN) and Sentinel Laboratory Surveillance Results

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 53 was 18.6%, which was higher compared to Week 52 (18.1%) (Figure 5). Additional details can be found in Figure 6 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 5. Percentage of Influenza Detections in Respiratory Laboratory Network and Sentinel Laboratories, 2010–2015**




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

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

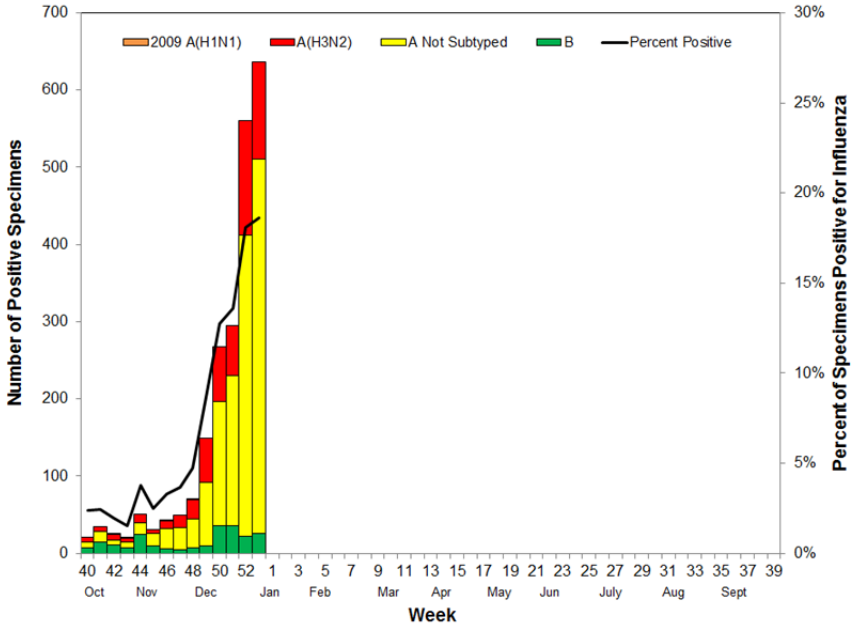



**Table 1. Respiratory Specimens Testing Positive for Influenza by Influenza Type and Subtype — Respiratory Laboratory Network and Sentinel Laboratories, Current Week and Season to Date**

| | Week 53 | | Season to Date | |
|---|---|---|---|---|
| | **Number** | **Percent** | **Number** | **Percent** |
| **Number of Specimens Tested** | 3415 | | 24227 | |
| **Number of Specimens Positive for Influenza** | 636 | 18.6* | 2258 | 9.3* |
| **Influenza Type/Subtype of Positive Specimens** | | | | |
| A | 610 | 95.9† | 2037 | 90.2† |
| 2009 A (H1) | 0 | 0.0‡ | 4 | 0.2‡ |
| A (H3) | 126 | 20.7‡ | 561 | 27.5‡ |
| A, not subtyped | 484 | 79.3‡ | 1472 | 72.3‡ |
| B | 26 | 4.1† | 221 | 9.8† |

* Percent of total specimens tested for influenza

† Percent of specimens positive for influenza

‡ Percent of influenza A positives

2. Antiviral Resistance Testing

The California Department of Public Health Viral and Rickettsial Disease Laboratory (CDPH-VRDL) has tested thirty-three A (H3) influenza specimens and six influenza B specimens for antiviral resistance (AVR) to date on samples collected since October 2014. No specimens were found to be resistant to oseltamivir.

## 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 January 3, 2014 (Week 53).

As of Week 53, CDPH has received one report of laboratory-confirmed influenza-associated deaths among patients <65 years of age during the 2014–2015 influenza season.

**D. Influenza-Associated Outbreaks**

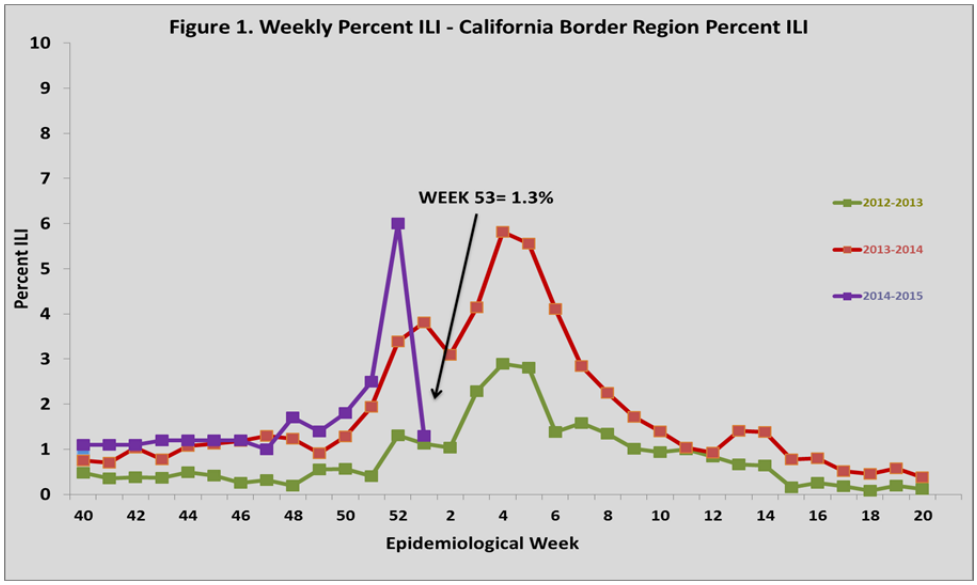
CDPH received two laboratory-confirmed influenza outbreaks during Week 53. Both outbreaks occurred in congregate care facilities located in lower Southern California and Northern California.

**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

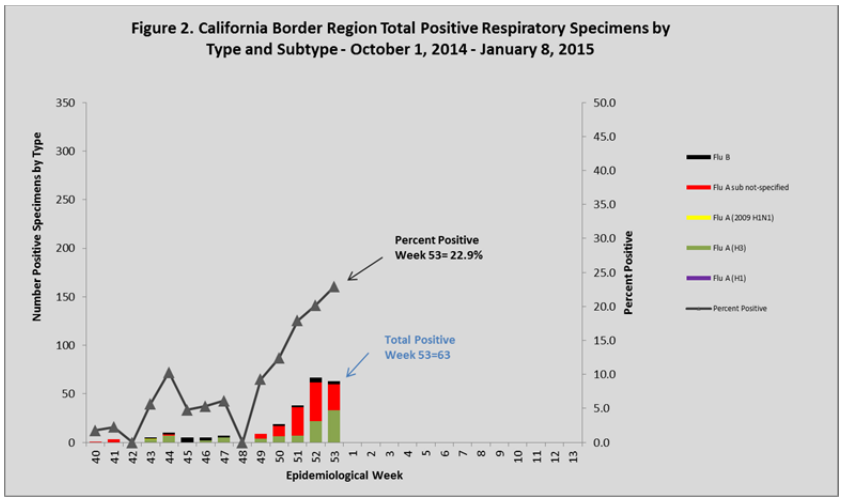
A total of 10 border region sentinel providers reported data during Week 53, compared to 11 during Week 52 of 2014. The total number of patients screened by all sentinel sites for ILI during Week 53 was 1,654. Outpatient ILI activity decreased by 4.7% from Week 52 (6.0% ILI) to Week 53 (1.3% ILI). ILI activity for the California border region was lower for Week 53 when compared to activity for the same week during the 2012–2013 and 2013–2014 influenza seasons (Figure 1). All influenza syndromic data summarized for the border region represents a subset of CDC influenza sentinel providers in California.




2. Virologic Surveillance Update

Cumulatively this season, a total of 1,915 respiratory specimens have been tested from border region clinics; of these, 232 (12.1%) tested positive for influenza. Of the 232 specimens that have tested positive, 207 (89.2%) were influenza A and 25 (10.8%) were influenza B. Of the 207 specimens that tested positive for influenza A, 89 (43%) were A (H3), 1 (0.5%) was 2009 A (H1), and 117 (56.5%) had no further subtyping performed. For Week 53, a total of 275 respiratory specimens were submitted for testing; 63 (22.9%) were positive for influenza virus. Of the positive specimens 60 (95.2%) were influenza A, and 3 (4.8%) were influenza B. Of the 60 specimens that tested positive for influenza A, 33

(52.4%) were A (H3) and 27 (42.9%) had no further subtyping performed. 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 53, there were 2163 specimens tested for RSV and 420 (19.4%) were positive, which is higher compared to Week 52 (17.1%) (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**

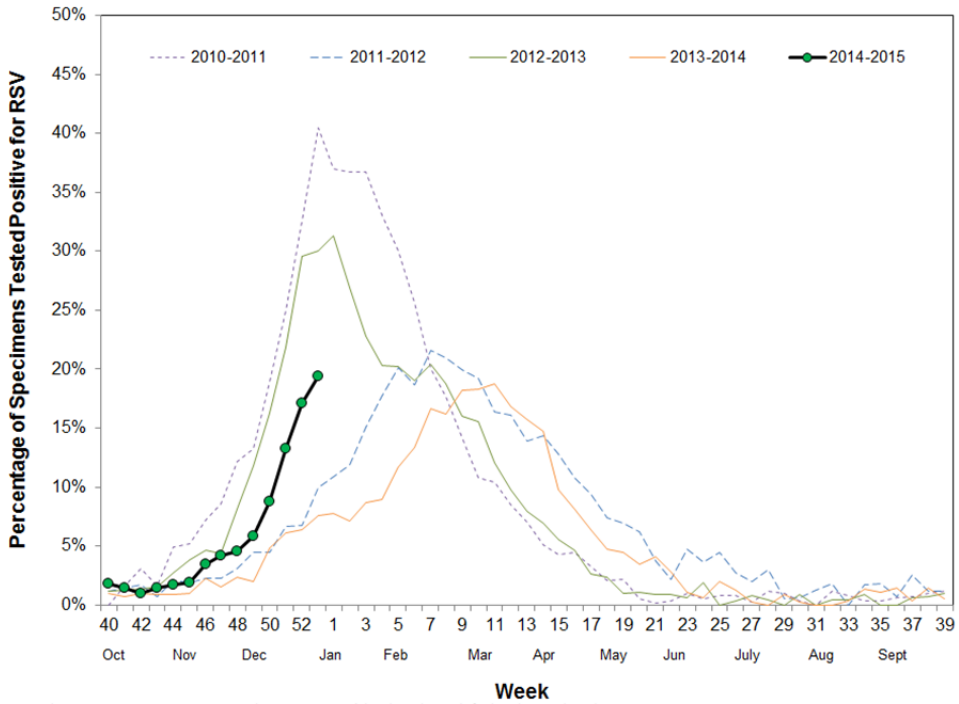



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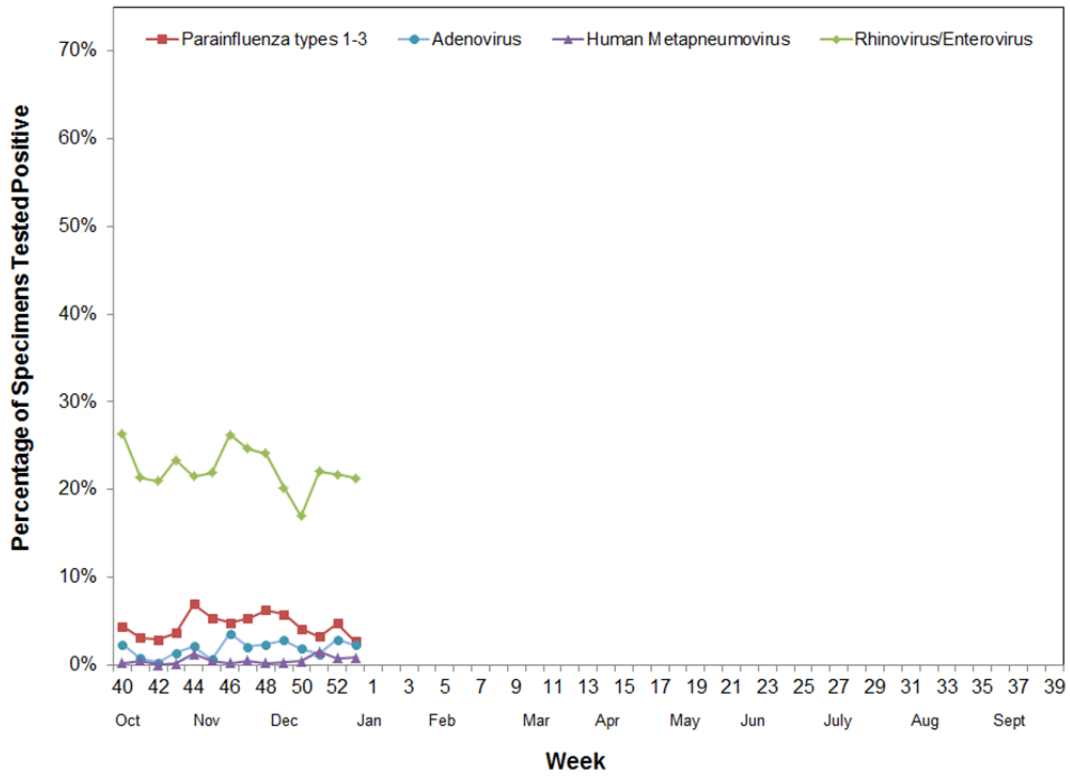
**Figure 8. Percentage of Other Respiratory Pathogen Detections in Respiratory Laboratory Network and Sentinel Laboratories, 2014–2015**




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.