

Weekly Update



California Department of Public Health Influenza Surveillance Program

California Influenza and Other Respiratory Disease Surveillance for Week 14 (March 31–April 6, 2013)

Note: This report includes information from many different data sources, including syndromic surveillance, laboratory surveillance, and mandatory reporting of influenza deaths for cases ages 0-64 years. The information contained in this report should be viewed as a “snapshot” of influenza activity for each surveillance week, and should not be considered as population-based data or representative of all California public health jurisdictions. Additionally, it is important to keep in mind that the data included in this report represent a sampling of various influenza indicators and are not meant to capture all influenza cases in the state. The trends of these influenza indicators, however, are useful for monitoring influenza activity. Data in previous weeks may be revised as additional information becomes available.

Novel Influenza A (H7N9) in China

On April 1, 2013, the World Health Organization (WHO) reported three human infections with a novel influenza A (H7N9) virus in China. These are the first known human infections with this influenza strain, which has been known to circulate among birds in China and causes mild disease in birds. As of April 11, 2013, 38 human cases have been reported in China. Among these, there have been 10 deaths and 19 severe cases. New cases continue to be reported and case counts will increase. To date there has been no confirmed human-to-human transmission of this virus. Neither have there been any confirmed cases outside of China. CDPH has issued guidance to local health departments implementing CDC recommendations on testing for influenza A (H7N9) in any person with influenza-like illness who has visited a country with human cases in the past 10 days. Three suspect cases have been reported in the United States among recent travelers to China from states outside California. None of these patients have had influenza A (H7N9). With the large volume of international travel between California and China, suspect cases will likely be identified.

Overall influenza activity in California was downgraded to “sporadic*” during Week 14.

During Week 14, influenza activity continued to decrease statewide. While activity has decreased overall, as of Week 11, the predominant circulating type shifted from influenza A to influenza B.

Influenza Report Highlights

- Of 970 specimens tested by Respiratory Laboratory Network (RLN) and sentinel laboratories during Week 14,
 - 72 (7.4%) were positive for influenza virus; of these
 - 51 (70.8%) were influenza B and
 - 21 (29.2%) were influenza A
 - 7 (33.3%) were subtyped as seasonal A (H3)
 - 4 (19.0%) were subtyped as 2009 A (H1)
 - 10 (47.6%) were not subtyped
- The California Department of Public Health Viral and Rickettsial Disease Laboratory (CDPH-VRDL) has tested 91 influenza isolates for antiviral resistance to date; none have been resistant to neuraminidase inhibitors.
- Fifty-seven specimens from California residents have been strain-typed this season; of these, 55 (96.5%) match the components of the 2012–2013 influenza vaccine.

- Four influenza-associated deaths in individuals less than 65 years of age, including one pediatric death, were reported during Week 14.
- No cases of novel influenza have been detected in California to date.

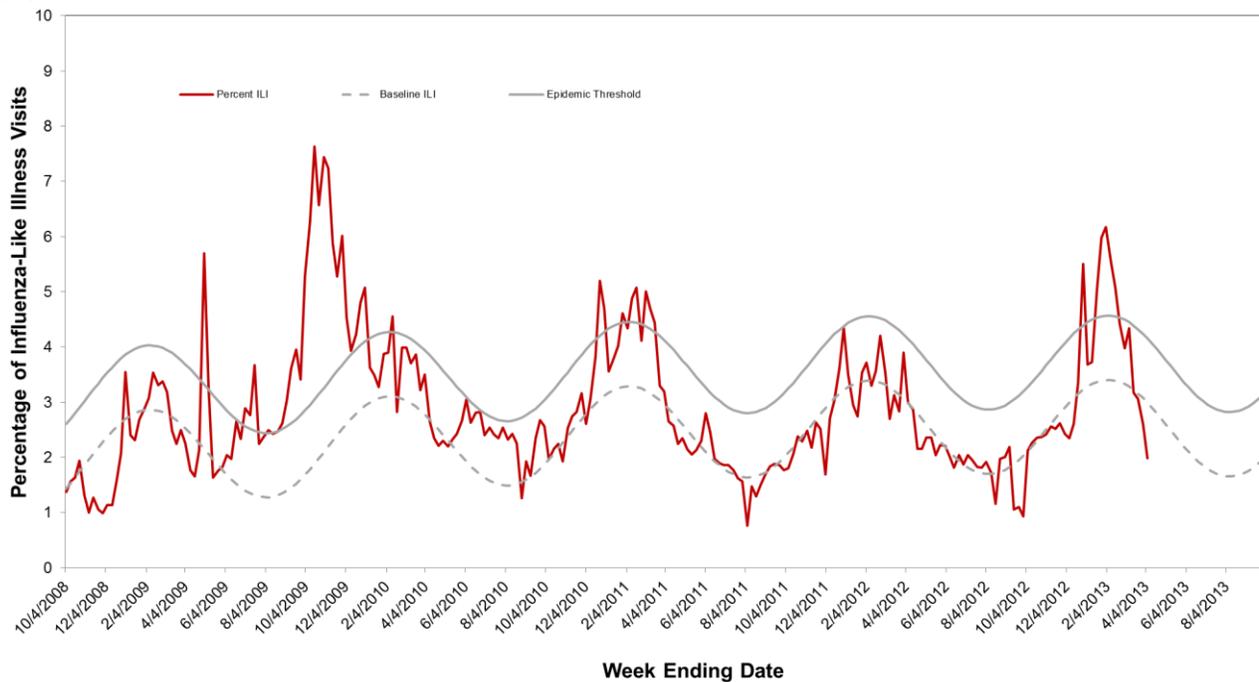
*For the Centers for Disease Control and Prevention (CDC) definitions of influenza geographic distribution, please go to <http://www.cdc.gov/flu/weekly/overview.htm>.

A. Syndromic Surveillance Update

1. CDC Influenza Sentinel Providers

A total of 78 enrolled sentinel providers have reported data for Week 14, compared to an average of 117 providers reporting for each of the previous weeks. Based on available data, the percentage of visits for ILI in Week 14 (2.0%) was below the baseline (3.0%).

Figure 1. Percentage of Influenza-like Illness Visits Among Patients Seen by California Sentinel Providers, 2008–2013

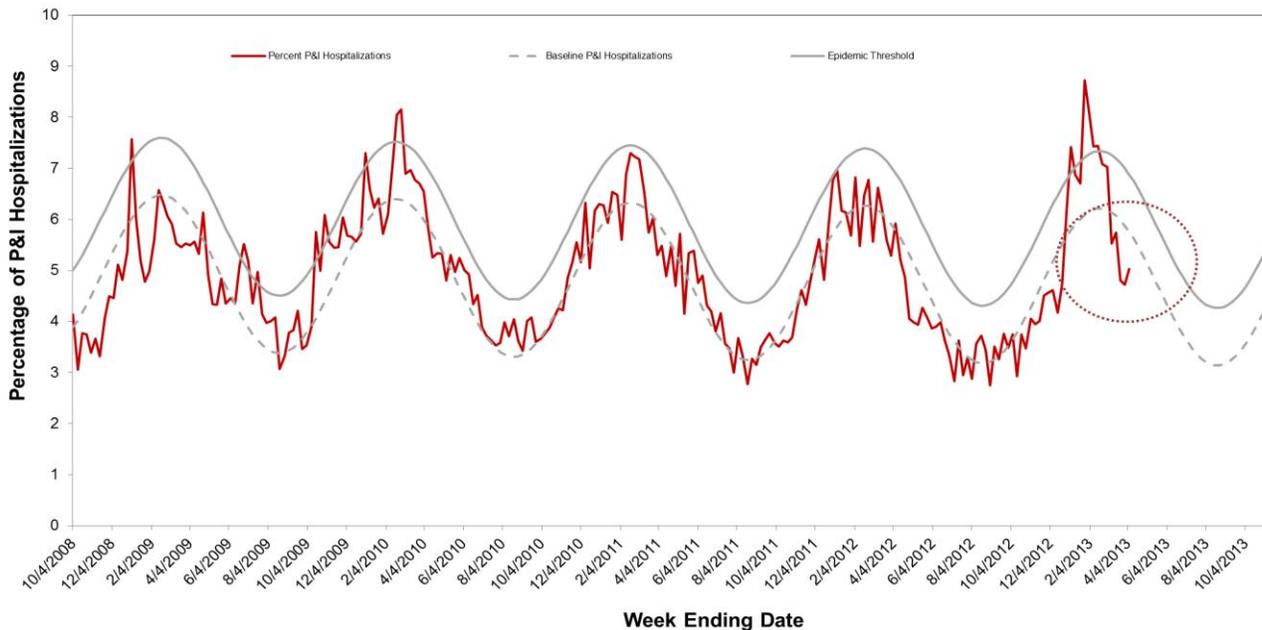


The seasonal baseline was calculated using a regression model applied to data from the previous seven years. The epidemic threshold is two standard deviations above the seasonal baseline and is the point at which the observed percentage of ILI is significantly higher than would be expected at that time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

2. Kaiser Permanente Hospitalization Data

The percentage of hospitalizations for pneumonia and influenza (P&I) in Kaiser Permanente facilities in northern California increased slightly during Week 14 (5.0%), compared to Week 13 (4.7%), but remained below the baseline (5.8%) (Figure 2).

Figure 2. Percentage of P&I Hospitalizations in Kaiser Permanente Northern California Hospitals, 2008–2013



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.

B. Hospitalization Surveillance Update

1. Influenza-Associated Hospitalizations, California Emerging Infections Program

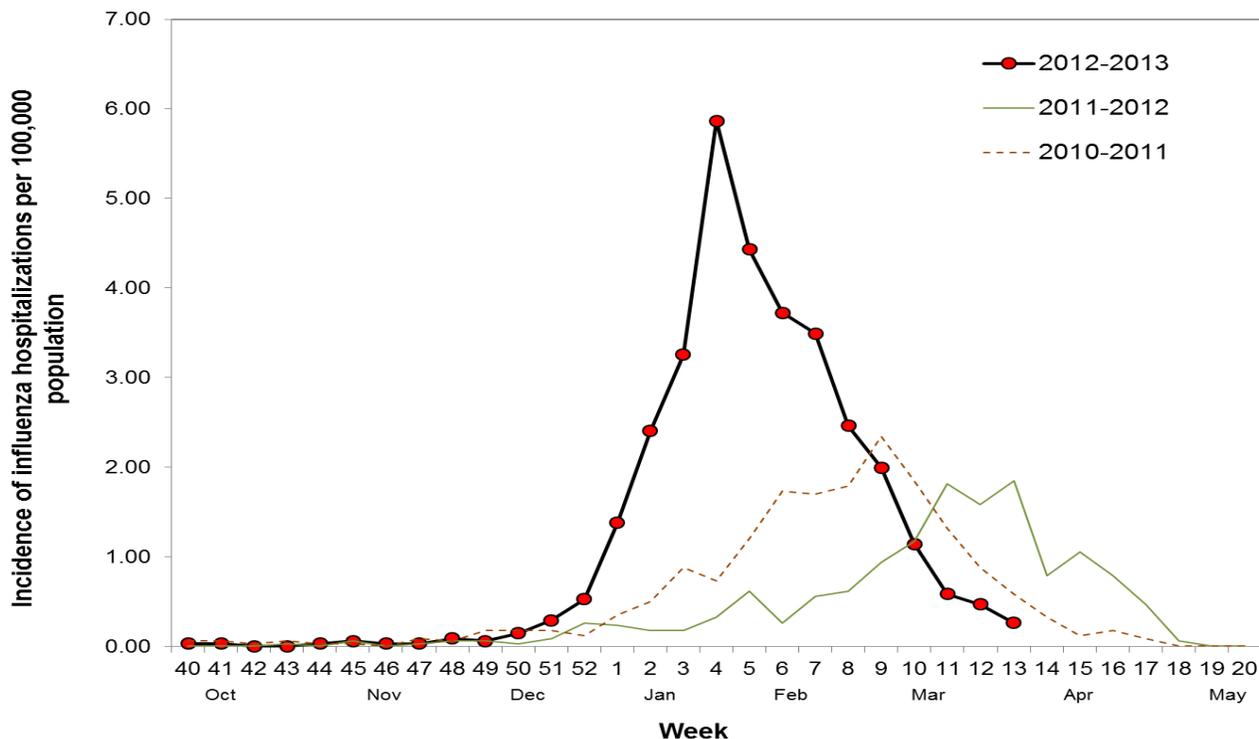
The California Emerging Infections Program (CEIP), Influenza Surveillance Network (FluSurv-NET) conducts population-based surveillance for laboratory-confirmed influenza-associated hospitalizations in all ages in Alameda, Contra Costa and San Francisco counties.

CEIP is funded by the Centers for Disease Control and Prevention (CDC). FluSurv-NET is a national network which covers over 80 counties in the 10 Emerging Infections Program (EIP) states (CA, CO, CT, GA, MD, MN, NM, NY, OR, and TN) and five additional states (IA, MI, OH, RI, and UT). The network represents approximately 9% of US population (~28 million people). Weekly updates of influenza hospitalizations in FluSurv-NET sites can be found on the CDC’s website, FluView: <http://www.cdc.gov/flu/weekly>.

Hospital and reference laboratory reports of positive influenza tests are received on a weekly or biweekly basis, hospitalization status and residence is determined, then initial cases are logged into the surveillance data. Medical record abstractions are conducted to collect the following information for each case patient: demographics, laboratory data, underlying conditions, vaccination status, antiviral administration, discharge diagnoses, and outcome.

The incidence of influenza-associated hospitalizations per 100,000 population decreased in Week 13 (0.3, compared to 0.5 in Week 12; Figure 3). Data for Week 14 are not shown because results are still being collected.

Figure 3. Incidence of Influenza Hospitalizations in CEIP Counties, 2010–2013



C. Laboratory Update

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

The percentage of influenza detections in the RLN and sentinel laboratories decreased in Week 14 (7.4%, compared to 10.3% in Week 13) (Figure 4). In Week 14, of 970 specimens tested by the RLN and sentinel laboratories, 51 (5.3%) were positive for influenza B and 21 (2.2%) were positive for influenza A. Of the 21 influenza A positive specimens, 11 (52.4%) were further subtyped; 7 (63.6%) were subtyped as seasonal A (H3) and 4 (36.4%) were subtyped as 2009 A (H1).

To date for the 2012–2013 season, of 53,829 specimens tested, 11,662 (21.7%) were positive for influenza; of these, 2,824 (24.2%) were influenza B and 8,838 (75.8%) were influenza A. Of the 8,838 specimens that tested positive for influenza A, 3,408 (38.6%) were further subtyped; 2,920 (85.7%) were subtyped as seasonal A (H3) and 488 (14.3%) were subtyped as 2009 A (H1). Influenza detections have been reported in multiple regions statewide (Figure 5).

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, 2007–2013

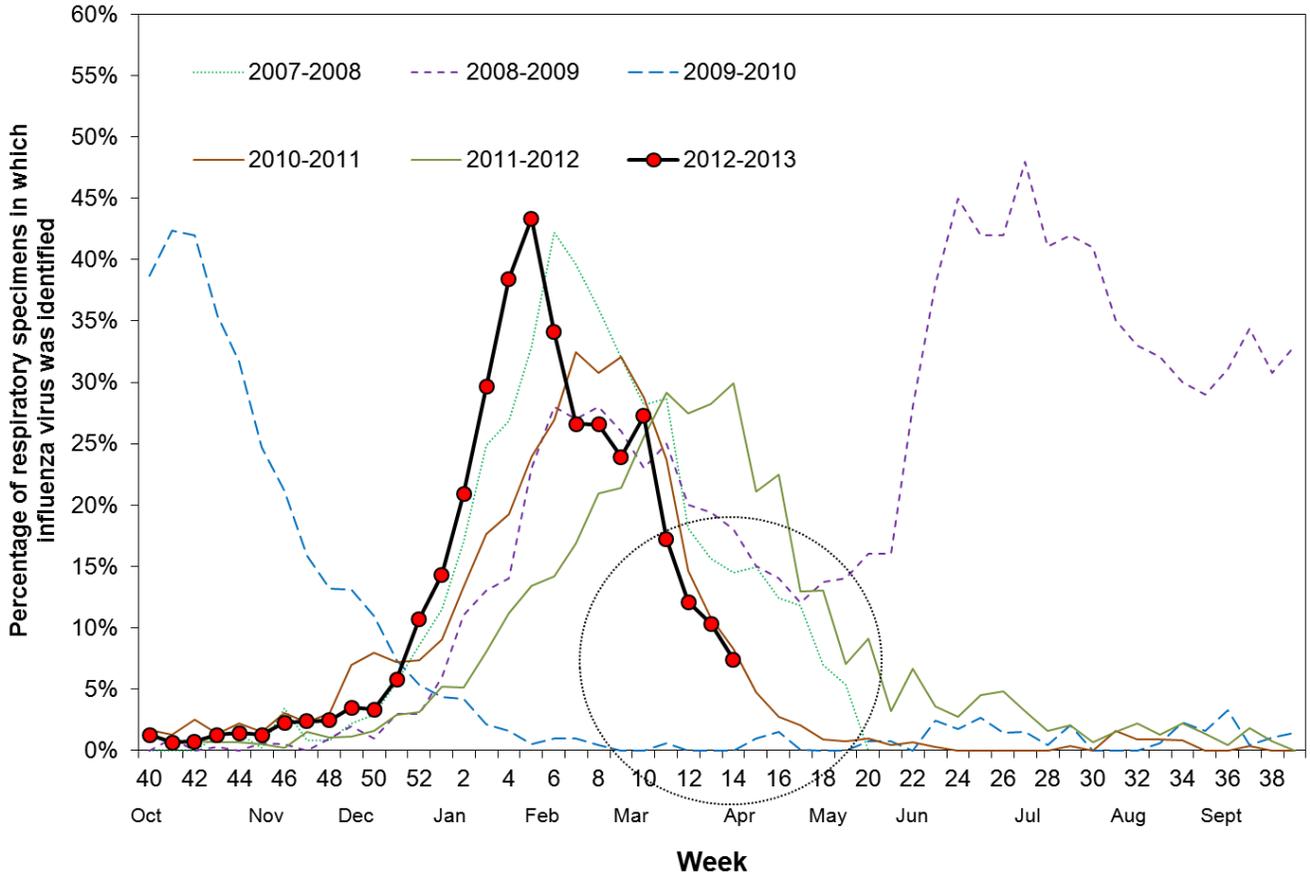
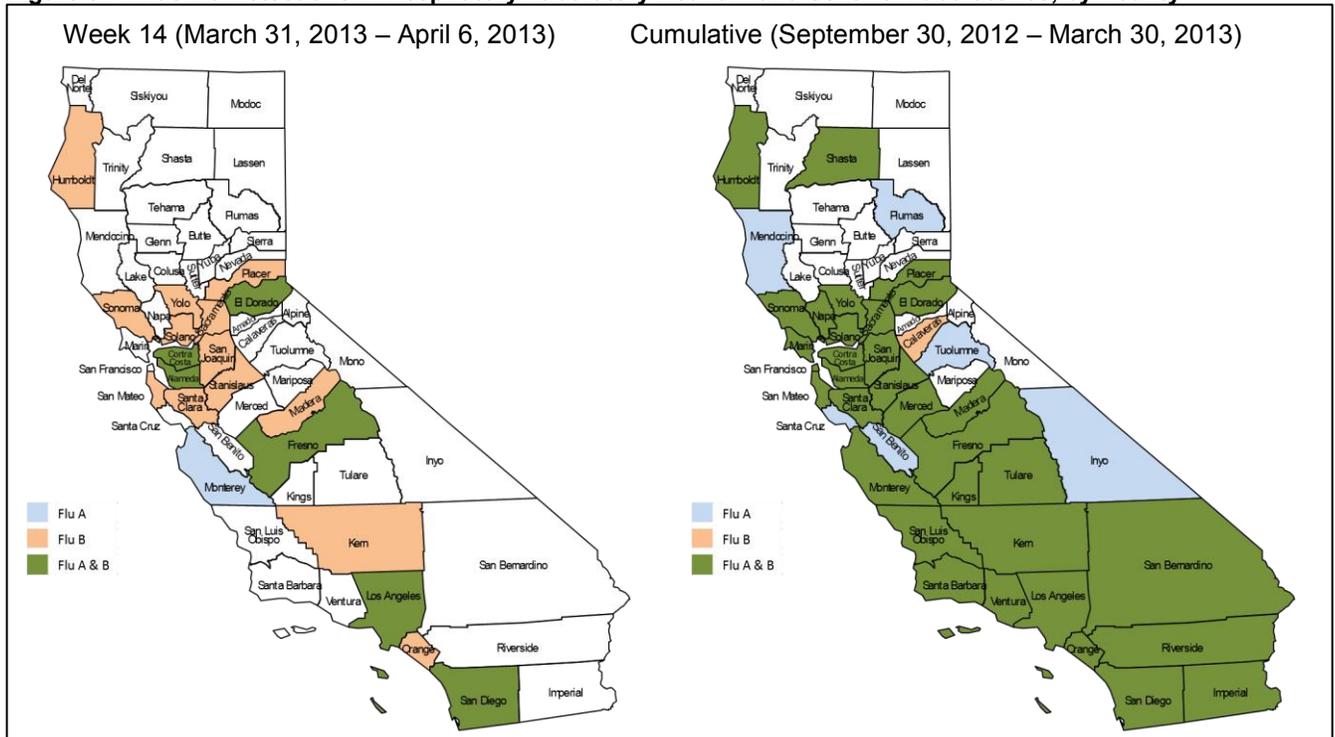


Figure 5. Influenza Detections in Respiratory Laboratory Network and Sentinel Laboratories, by County*



*Laboratory detections reported by county of patient's residence or laboratory location. Influenza activity in regions without participating laboratories may be underrepresented in this figure.

Respiratory syncytial virus (RSV) detections increased slightly in Week 14 (7.4%, compared to 7.0% in Week 13) (Figure 6). Low levels of parainfluenza virus, human metapneumovirus, rhinovirus and adenovirus activity continue to be reported (Figure 7).

Figure 6. Percentage of RSV Detections in Respiratory Laboratory Network and Sentinel Laboratories, 2007–2013

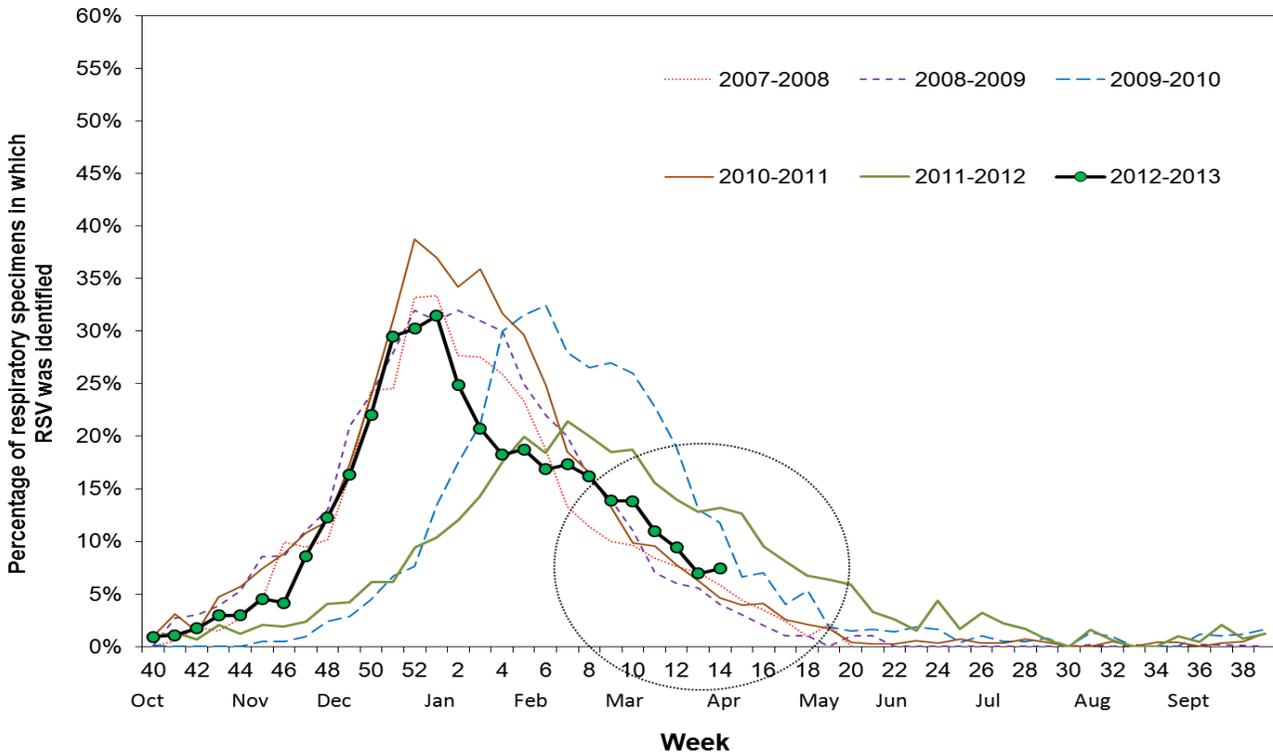
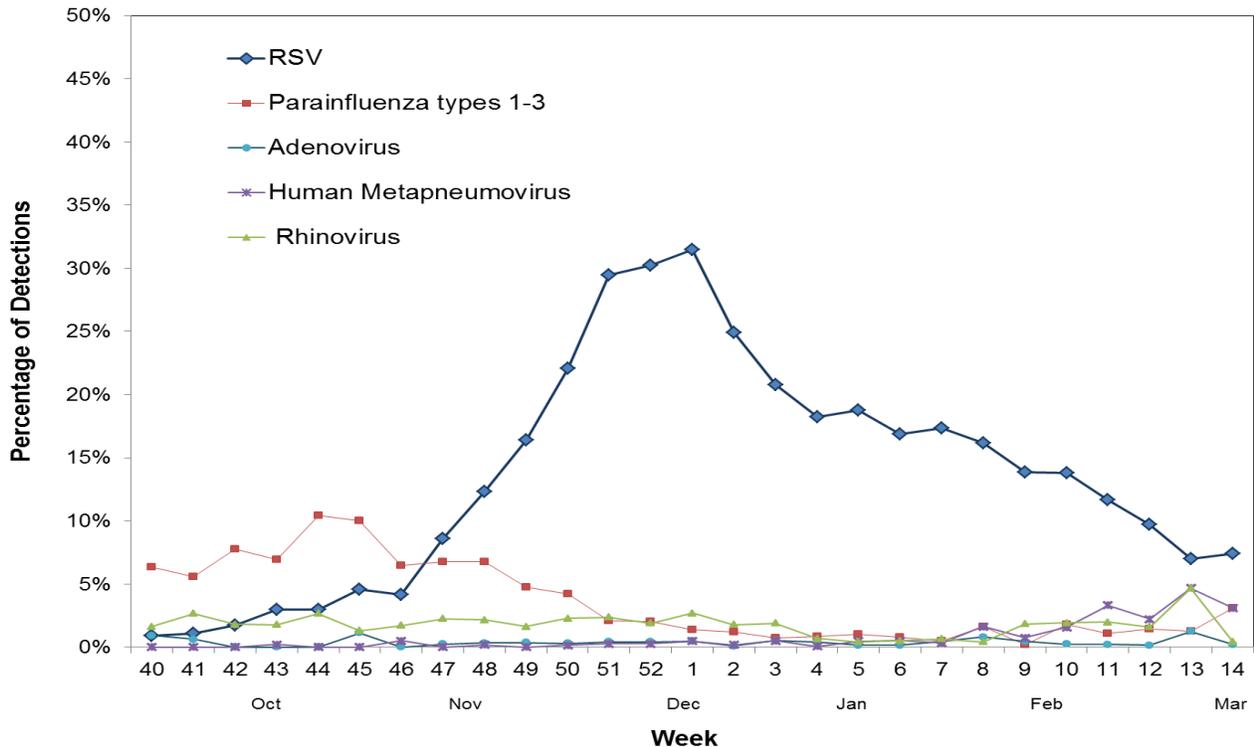


Figure 7. Other Respiratory Pathogen Detections in Respiratory Laboratory Network and Sentinel Laboratories, Weeks 40-14 (September 30, 2012–April 6, 2013)



2. Antiviral Resistance Testing (AVR)

The combined AVR data is summarized below and should be considered for epidemiological purposes only.

CDPH-VRDL has tested 83 influenza A (H3) and 8 influenza 2009 A (H1) specimens to date during the 2012–2013 influenza season (Table 1), all of which have been sensitive to neuraminidase inhibitors.

Table 1. Number of specimens tested for antiviral resistance

| | Neuraminidase Inhibitors Resistance |
|------------------------------|--|
| Influenza 2009 A (H1) | 0/8 |
| Influenza A (H3) | 0/83 |

3. Influenza Virus Strain Characterization

Fifty-seven California specimens have been strain-typed to date during the 2012–2013 influenza season; 55 (96.5%) of these specimens matched with components of the 2012–2013 vaccine for the Northern Hemisphere (Table 2). Two influenza B isolates belonged to the Victoria lineage.

Table 2. Influenza Virus Antigenic Characterization for the 2012–2013 Season

| | Total (N=57) |
|--------------------------------------|---------------------|
| Influenza A | 44 |
| A/Victoria/361/2011-like (H3N2)* | 27 |
| A/California/07/2009-like (H1N1)* | 17 |
| Influenza B | 13 |
| B/Wisconsin/01/2010-like (Yamagata)* | 11 |
| B/Brisbane/60/2008-like (Victoria) | 2 |

*Matches components of the 2012-13 Northern Hemisphere influenza vaccine

D. Laboratory-confirmed Fatal 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.

During Week 14, CDPH received four reports of influenza-associated deaths in individuals less than 65 years of age; one fatality occurred in a child in the 0-4 age group from the Sacramento metropolitan area. The adult deaths were reported from the Greater Los Angeles Area and the San Diego metropolitan area. The deaths occurred from February 13 to March 24, 2013.

A total of 66 influenza-associated deaths among individuals less than 65 years of age, including four pediatric deaths, have been reported to CDPH to date during the 2012–2013 influenza season. The deaths were reported from the Central Coast area (3), the Central Valley (9), the Sacramento metropolitan area (9), the Greater Los Angeles Area (19), the San Diego metropolitan area (13), Inland Empire (5), the Shasta Cascade (1), and the San Francisco Bay Area (7).

E. Influenza-associated Outbreaks

CDPH received one report of a laboratory-confirmed influenza outbreak during Week 14. The outbreak occurred in a congregate living facility in January 2013 and was associated with both influenza A (H3) and influenza B.

CDPH has received a total of 135 reports of laboratory-confirmed influenza outbreaks to date during the 2012–

2013 influenza season. Of the 135 outbreaks reported, 109 (80.7%) have been associated with influenza A, 18 (13.3%) have been associated with influenza B, and 8 (5.9%) have been associated with both influenza A and influenza B. Influenza A (H3) has been the predominant subtype identified in influenza A-associated outbreaks.

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](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](http://www.cdph.ca.gov/HealthInfo/discond/Pages/Influenza(Flu).aspx).