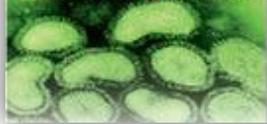


Weekly Update



California Department of Public Health Influenza Surveillance Program

California Influenza and Other Respiratory Disease Surveillance for Week 9 (February 24–March 2, 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.

Overall influenza activity in California remained “regional*” during Week 9.

During Week 9, laboratory detections of influenza and influenza-associated outbreaks were reported in several regions. Overall activity continued to decreased statewide. Current trends in influenza activity are comparable to the range of patterns seen at this time in California during the 2007–2008 influenza season, which was considered to be a moderately severe season. Most influenza-positive specimens identified in California during the 2012–2013 influenza season are influenza A; of the influenza A viruses subtyped, most are influenza A (H3) viruses. Of the specimens strain-typed this season nationwide, over 90% match the 2012–2013 influenza vaccine.

Influenza Report Highlights

- Of 2613 specimens tested during Week 9,
 - 652 (25.0%) were positive for influenza virus; of these
 - 262 (40.2%) were influenza B and
 - 390 (59.8%) were influenza A
 - 101 (25.9%) were subtyped as seasonal A (H3)
 - 16 (4.1%) were subtyped as 2009 A (H1)
 - 273 (70.0%) were not subtyped
- The California Department of Public Health Viral and Rickettsial Disease Laboratory (CDPH-VRDL) has tested 52 influenza isolates for antiviral resistance to date; none have been resistant to neuraminidase inhibitors.
- Three specimens from California residents have been strain-typed this season; all match the components of the 2012–2013 influenza vaccine.
- Nine influenza-associated deaths in adults less than 65 years of age were reported during Week 9.
- 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>.

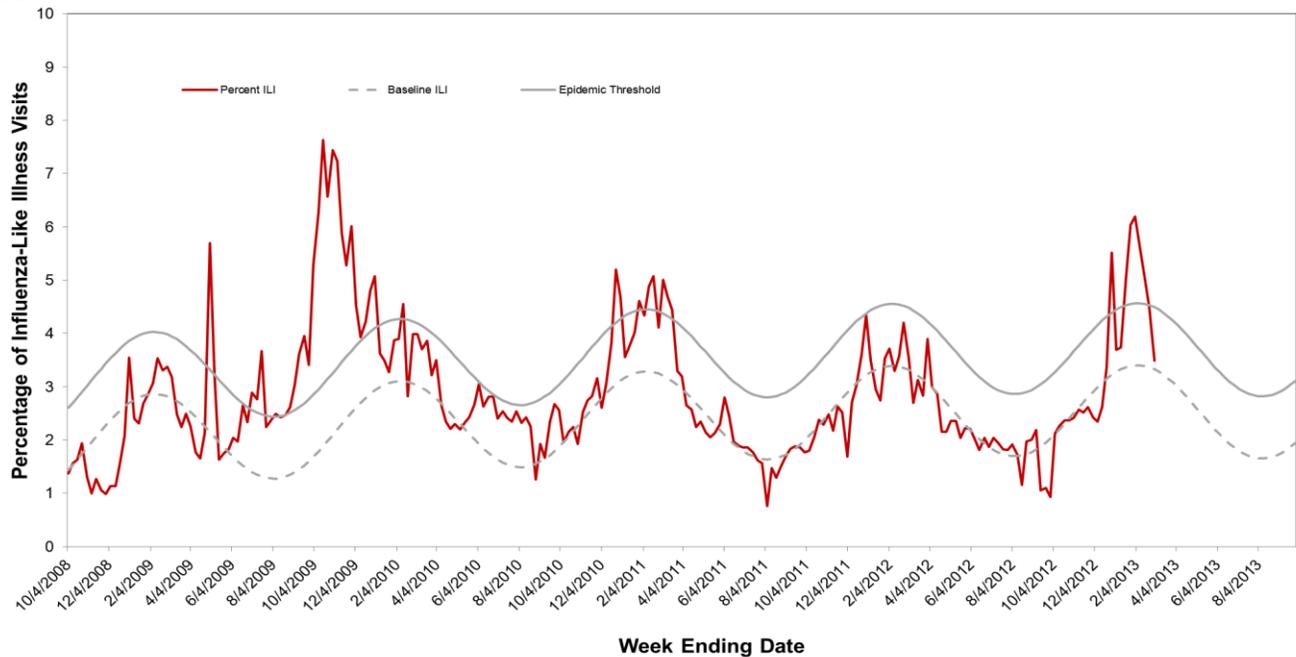
A. Syndromic Surveillance Update

1. CDC Influenza Sentinel Providers

A total of 69 enrolled sentinel providers have reported data for Week 9, compared to an average of 118 providers reporting for each of the previous weeks. Based on available data, the percentage of visits for ILI in

Week 9 (3.5%) was below the epidemic threshold (4.5%).

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

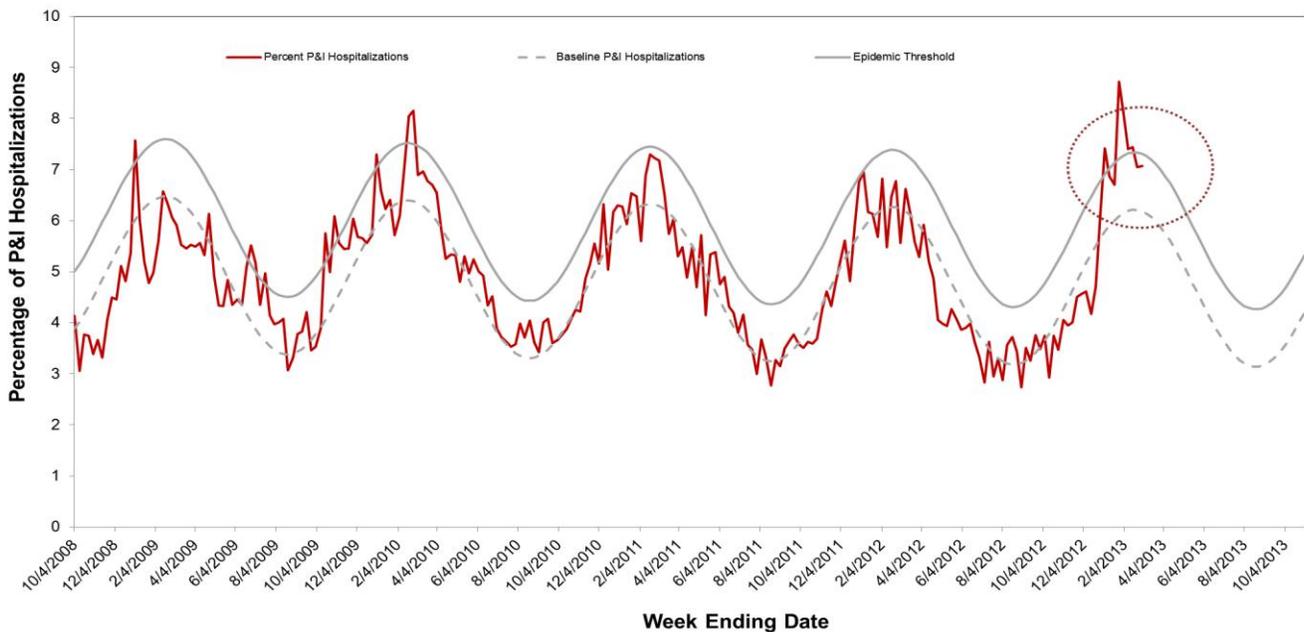


The seasonal baseline was calculated using a regression model applied to data from the previous seven years. The epidemic threshold is two standard deviations above the seasonal baseline and is the point at which the observed percentage of ILI is significantly higher than would be expected at that time 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 remained the same during Week 9 (7.1%), compared to Week 8 (7.1%) (Figure 2). The percentage remained below the epidemic threshold (7.3%) during Week 8.

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

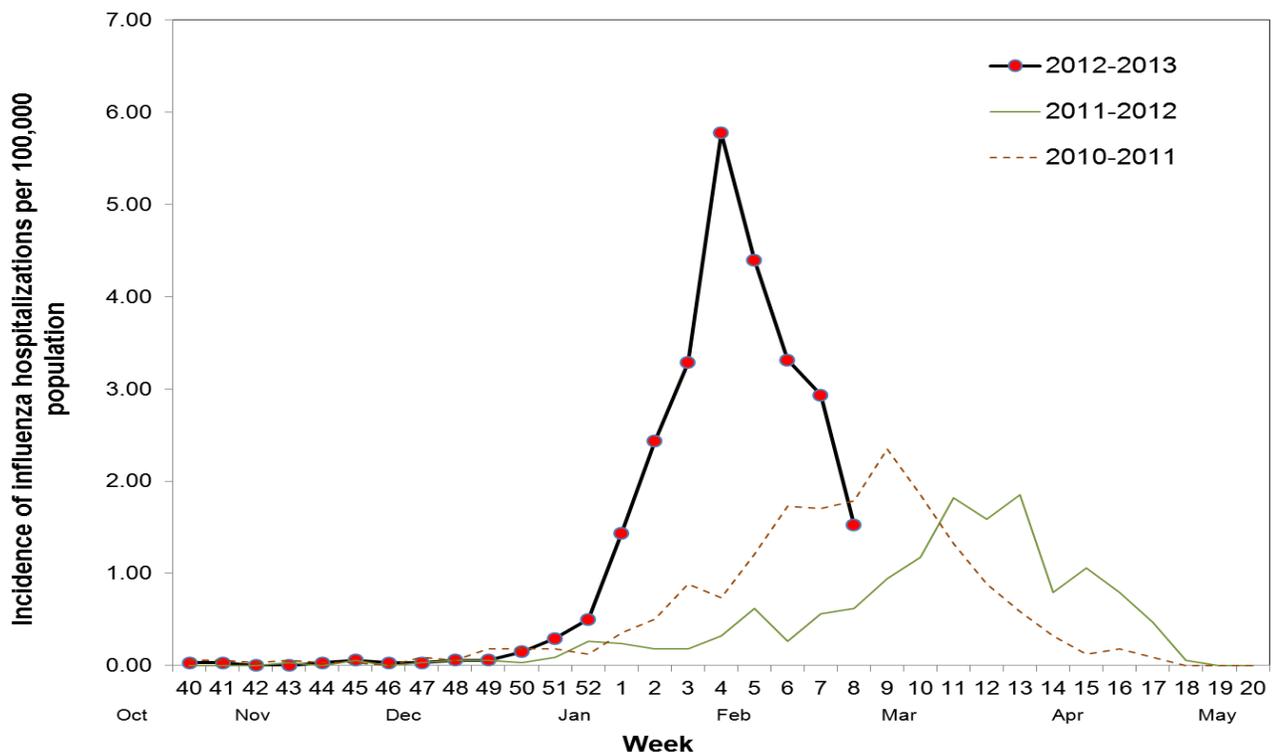
The California Emerging Infections Program (CEIP), Influenza Surveillance Network (FluSurv-NET) conducts population-based surveillance for laboratory-confirmed influenza-associated hospitalizations in all ages in Alameda, Contra Costa and San Francisco counties.

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 8 (1.5, compared to 2.9 in Week 7; Figure 3). Data for Week 9 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 9 (25.0%, compared to 26.6% in Week 8) (Figure 4). In Week 9, of 2,613 specimens tested by the RLN and sentinel laboratories, 262 (10.0%) were positive for influenza B and 390 (14.9%) were positive for influenza A. Of the

390 influenza A positive specimens, 117 (30.0%) were further subtyped; 101 (86.3%) were seasonal A (H3) and 16 (13.7%) were 2009 A (H1).

To date for the 2012–2013 season, of 46,101 specimens tested, 10,393 (22.5%) were positive for influenza; of these, 2,095 (20.2%) were influenza B and 8,298 (79.8%) were influenza A. Of the 8,298 specimens that tested positive for influenza A, 3,256 (39.2%) were further subtyped; 2,788 (85.6%) were subtyped as seasonal A (H3) and 468 (14.4%) 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

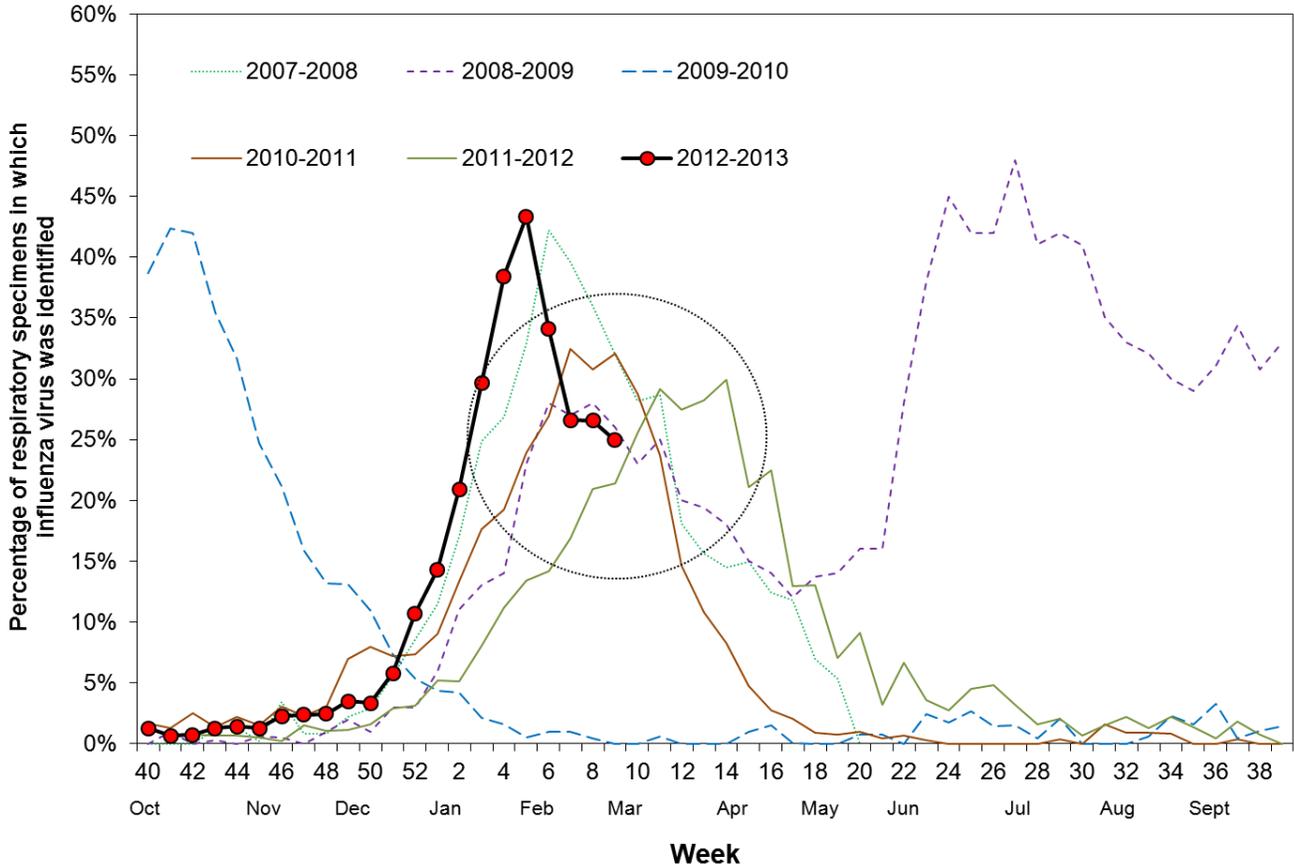
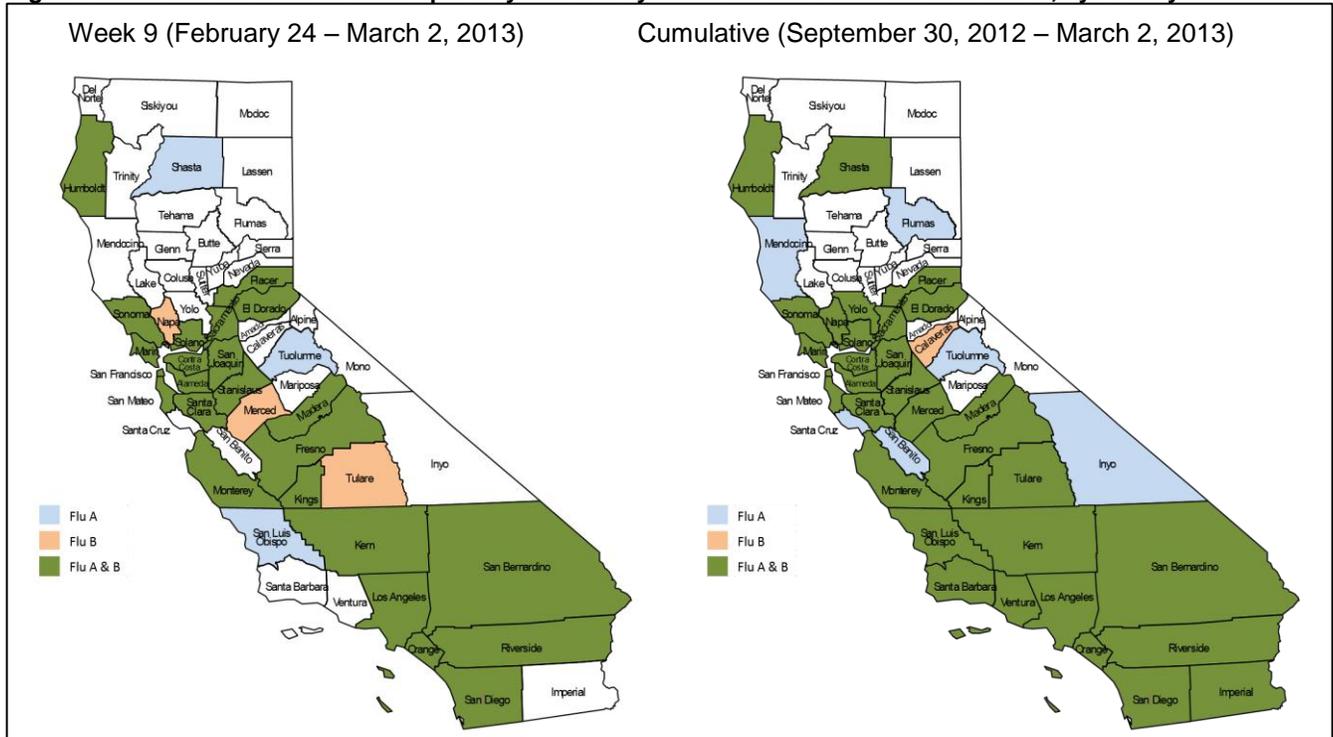


Figure 5. Influenza Detections in Respiratory Laboratory Network and Sentinel Laboratories, by County*



*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 decreased in Week 9 (14.2%, compared to 16.2% in Week 8) (Figure 6). Parainfluenza virus, human metapneumovirus, rhinovirus and adenovirus continue to be reported in both northern and southern California, but in decreasing proportion (Figure 7).

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

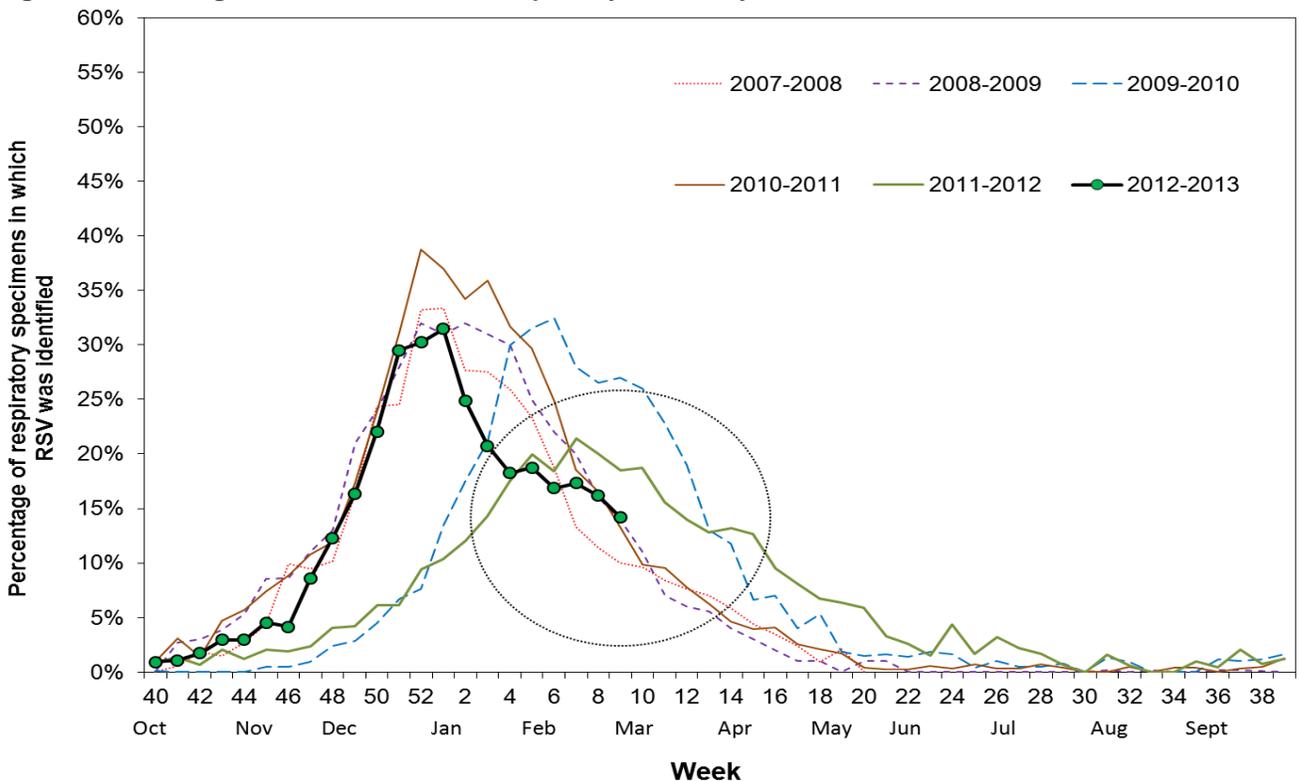
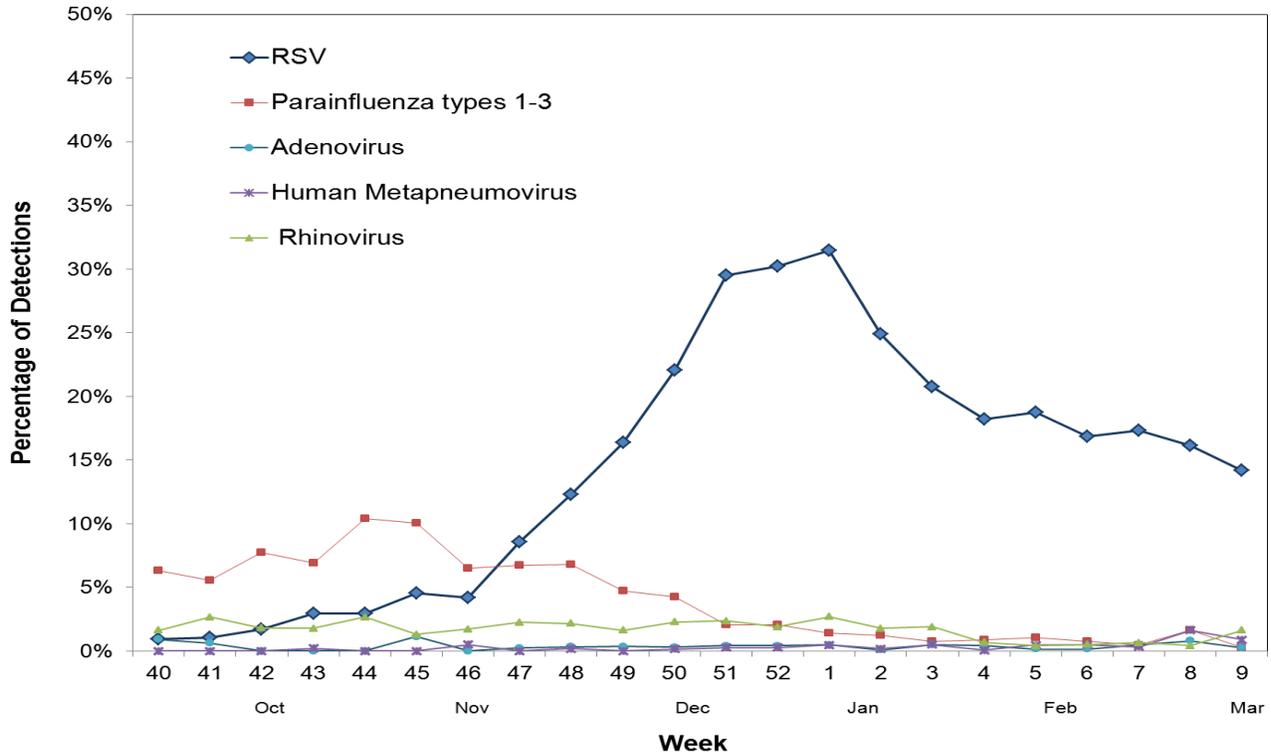


Figure 7. Other Respiratory Pathogen Detections in Respiratory Laboratory Network and Sentinel Laboratories, Weeks 40-9 (October 6, 2012–March 2, 2013)



2. Antiviral Resistance Testing (AVR)

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

CDPH-VRDL has tested 44 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)	0/44

3. Influenza Virus Strain Characterization

Three California specimens have been strain-typed to date during the 2012–2013 influenza season; all matched with components of the 2012–2013 vaccine for the Northern Hemisphere (Table 2).

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

	Total (N=3)
Influenza A	2
A/Victoria/361/2011-like (H3N2)*	1
A/California/07/2009-like (H1N1)*	1
Influenza B	1
B/Wisconsin/01/2010-like *	1

*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 9, CDPH received nine reports of influenza-associated deaths in adults less than 65 years of age. The deaths were reported from the Greater Los Angeles Area, and the Sacramento metropolitan area, with deaths occurring from January 8, 2013 to February 25, 2013.

A total of 43 influenza-associated deaths among individuals less than 65 years of age, including two 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 (6), the Sacramento metropolitan area (8), the Greater Los Angeles Area (11), the San Diego metropolitan area (8), Inland Empire (1), and the San Francisco Bay Area (6).

E. Influenza-associated Outbreaks

CDPH received 12 reports of laboratory-confirmed influenza outbreaks during Week 9. Of the 12 outbreaks, 9 occurred in congregate living facilities, and 3 occurred in prisons or jails. Nine of the outbreaks were associated with influenza A, two were associated with influenza B, and one was associated with both influenza A and influenza B. Subtyping performed on specimens from four of the influenza A-associated outbreaks identified influenza A (H3).

CDPH has received a total of 112 reports of laboratory-confirmed influenza outbreaks to date during the 2012–2013 influenza season. Of the 112 outbreaks reported, 93 (83.0%) have been associated with influenza A, 11 (9.8%) have been associated with influenza B, and 8 (7.1%) 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).