

Weekly Update

California Department of Public Health Influenza Surveillance Program

California Influenza and Other Respiratory Disease Surveillance for Week 1 (December 29, 2013 to January 4, 2014)

Note: This report includes data from many different sources of influenza surveillance, 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.

Overall influenza activity in California during Week 1 was “widespread*.”

Influenza Report Highlights

- Outpatient influenza-like illness (ILI) during Week 1 (5.2%) exceeded expected levels for this time of year.
- Of 3,431 specimens tested during Week 1,
 - 980 (28.6%) were positive for influenza virus; of these
 - 34 (1.0%) were influenza B and
 - 946 (27.6%) were influenza A
 - 11 (1.2%) were subtyped as seasonal A (H3)
 - 249 (26.3%) were subtyped as 2009 A (H1)
 - 686 (72.5%) were not subtyped.
- Three laboratory-confirmed influenza deaths were reported during Week 1.
- Two laboratory-confirmed influenza outbreaks were reported during Week 1.
- No cases of novel influenza have been detected in California to date.

California Border Region Influenza Highlights

- Outpatient influenza-like-illness (ILI) for the California border region increased in Week 1 (5.9%), compared to Week 52 (3.9%).
- Of the 565 respiratory specimens tested in the California border region during Week 1,
 - 85 (15%) were positive for influenza; of these
 - 24 (28%) were influenza B
 - 61 (72%) were influenza A
 - 28 (46%) were subtyped as 2009 A (H1)
 - 33 (54%) had no further subtyping performed

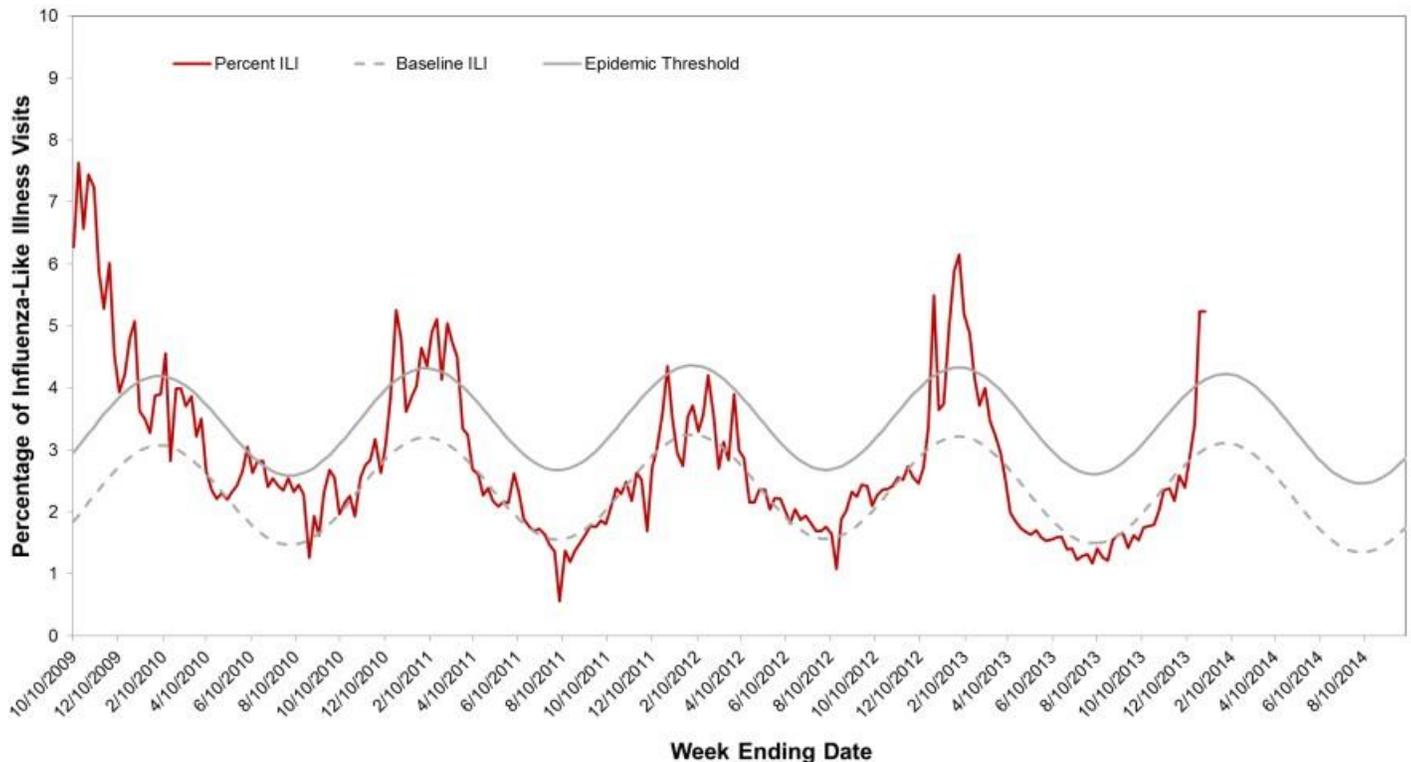
*For the Centers for Disease Control and Prevention (CDC) definitions of influenza geographic distribution, please go to the [CDC Influenza page](http://www.cdc.gov/flu/weekly/overview.htm) (<http://www.cdc.gov/flu/weekly/overview.htm>).

A. Syndromic Surveillance Update

1. CDC Influenza Sentinel Providers

A total of 76 enrolled sentinel providers have reported data for Week 1, compared to an average of 128 providers reporting for each of the previous weeks. Based on available data, the percentage of visits for ILI in Week 1 (5.2%) was above the epidemic threshold (4.1%) (Figure 1).

Figure 1. Percentage of Influenza-like Illness Visits Among Patients Seen by California Sentinel Providers, 2009–2014

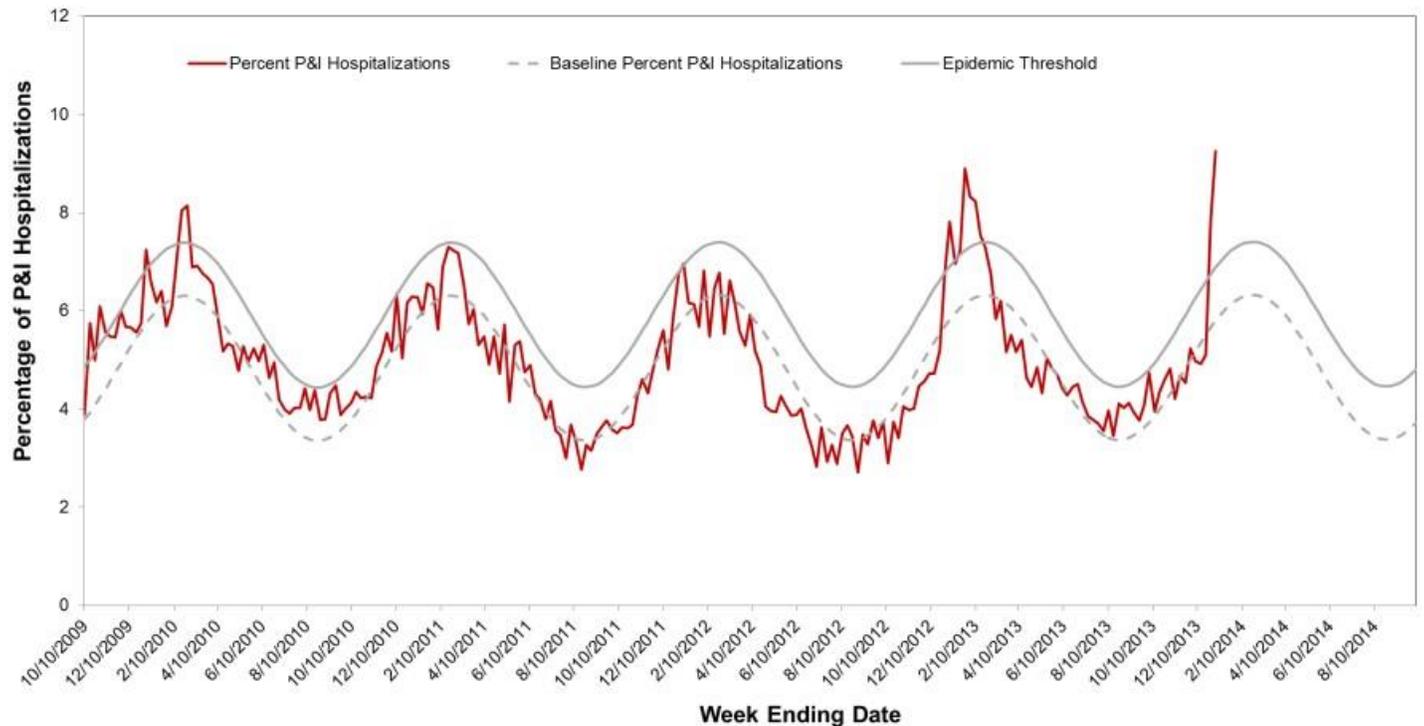


The seasonal baseline was calculated using a regression model applied to data from the previous eight years. The epidemic threshold is two standard deviations above the seasonal baseline and is the point at which the observed percentage of ILI is significantly higher than would be expected at that time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

2. Kaiser Permanente Hospitalization Data

The percentage of hospitalizations for pneumonia and influenza (P&I) in Kaiser Permanente facilities in northern and southern California increased during Week 1 (9.3%), compared to Week 52 (7.8%) (Figure 2). The percentage exceeded the epidemic threshold (6.7%) during Week 1.

Figure 2. Percentage of P&I Hospitalizations in Kaiser Permanente Northern and Southern California Hospitals, 2009–2014



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.

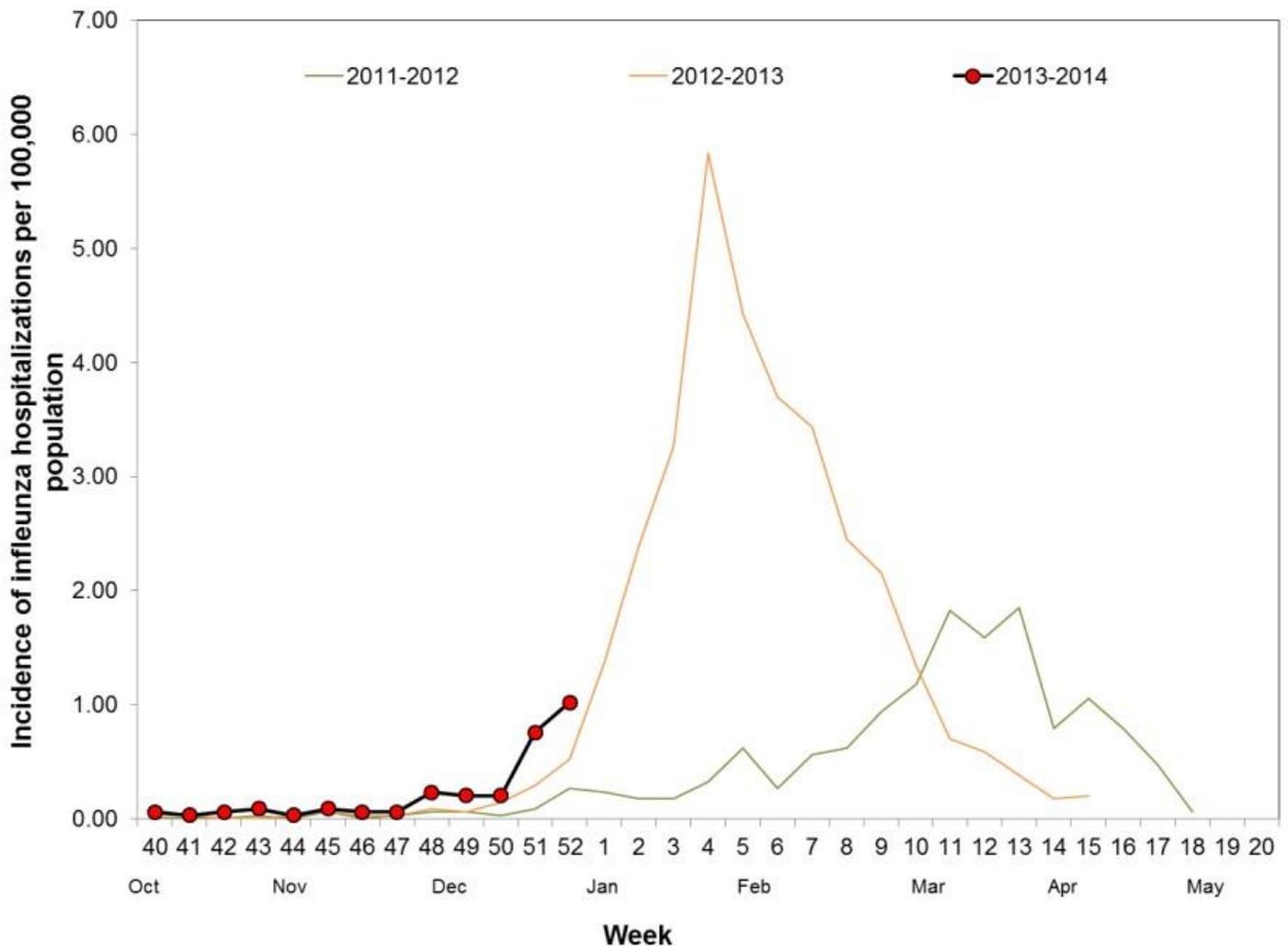
B. Hospitalization Surveillance Update

1. Influenza-Associated Hospitalizations, California Emerging Infections Program

The California Emerging Infections Program (CEIP), Influenza Surveillance Network (FluSurvNET) 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 (1.02) compared to Week 51 (0.76). Data for Week 1 are not shown because results are still being collected and are likely to change.

Figure 3. Incidence of Influenza Hospitalizations in CEIP Counties, 2011–2014



C. Laboratory Update

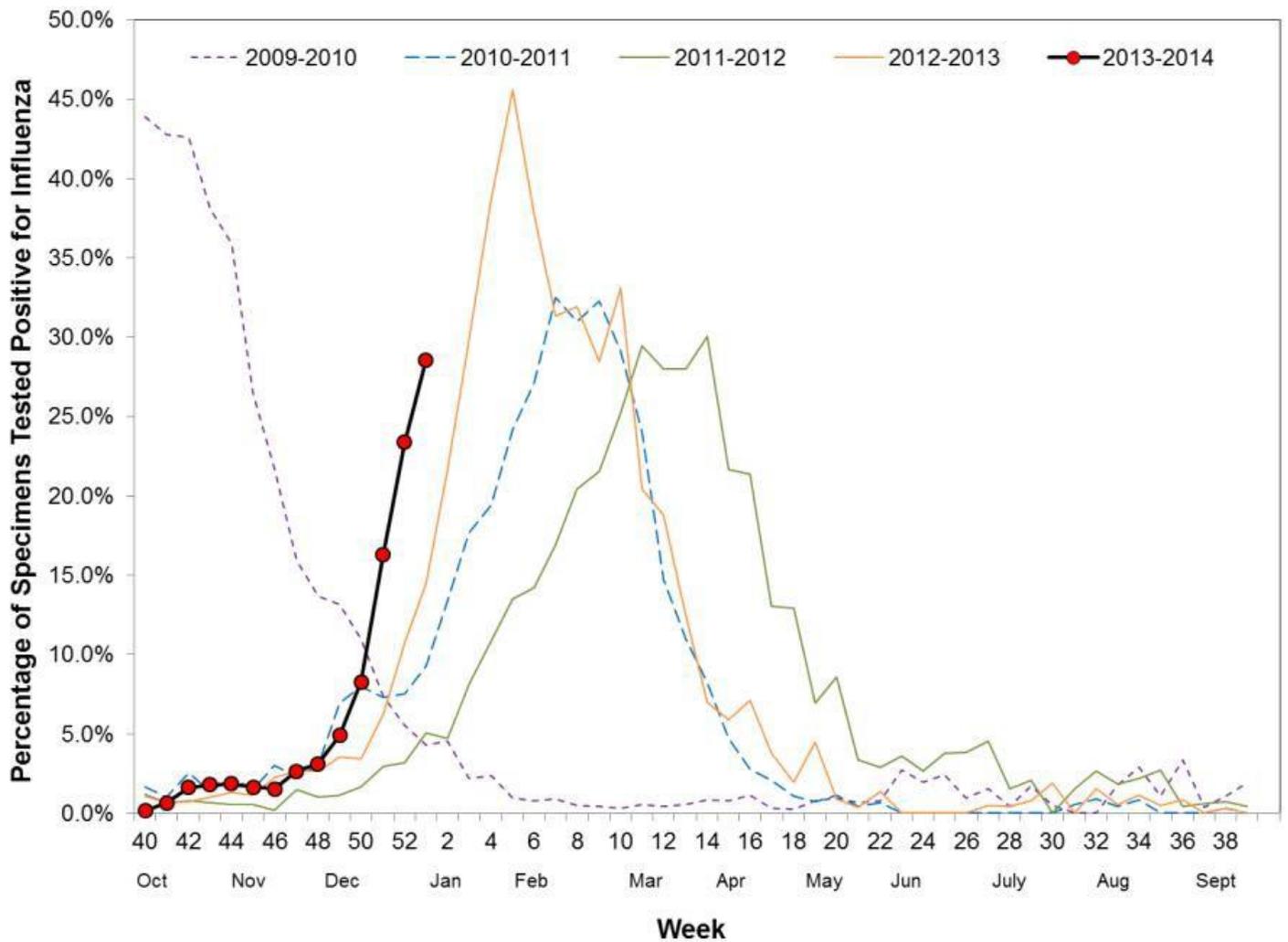
1. Respiratory Laboratory Network (RLN) and Sentinel Laboratory Surveillance Results

The percentage of influenza detections in the RLN and sentinel laboratories increased in Week 1 (28.6%) compared to Week 52 (23.4%) (Figure 4). In Week 1, of 3,431 specimens tested by the RLN and sentinel laboratories, 34 (1.0%) were positive for influenza B and 946 (27.6%) were positive for influenza A. Of the 946 specimens that tested positive for influenza A, 11 (1.2%) were subtyped as seasonal A (H3), 249 (26.3%) were subtyped as 2009 A (H1), and 686 (72.5%) had no further subtyping performed.

To date for the 2013–2014 season, of 17,798 specimens tested, 2,100 (11.8%) were positive for influenza; of these, 98 (4.6%) were influenza B and 2,002 (95.3%) were influenza A. Of the 2,002 specimens that tested positive for influenza A, 44 (2.2%) were subtyped as seasonal A (H3), 544 (27.2%) were subtyped as 2009 A (H1), and 1,414 (70.6%) had no further subtyping performed. Positive specimens have been detected throughout the state.

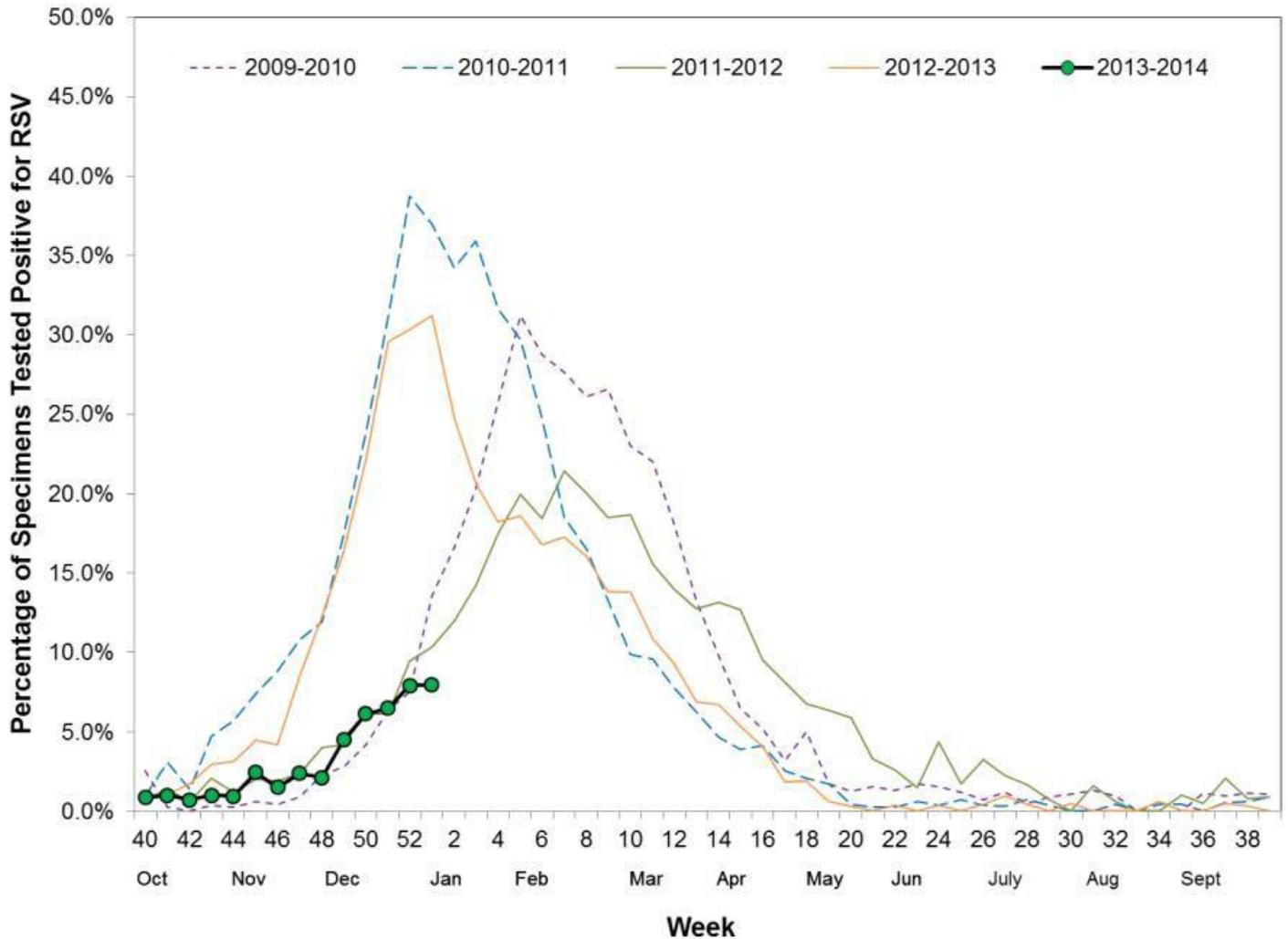
Neither the RLN nor CDPH-VRDL have identified any influenza viruses by polymerase chain reaction (PCR) typing or subtyping that are suggestive of a novel influenza virus.

Figure 4. Percentage of Influenza Detections in Respiratory Laboratory Network and Sentinel Laboratories, 2009–2014



During Week 1, 2,566 specimens were tested for RSV and 204 (8.0%) were positive, which represents a slight increase compared to Week 52 (7.9%) (Figure 5).

Figure 5. Percentage of RSV Detections in Respiratory Laboratory Network and Sentinel Laboratories, 2009–2014

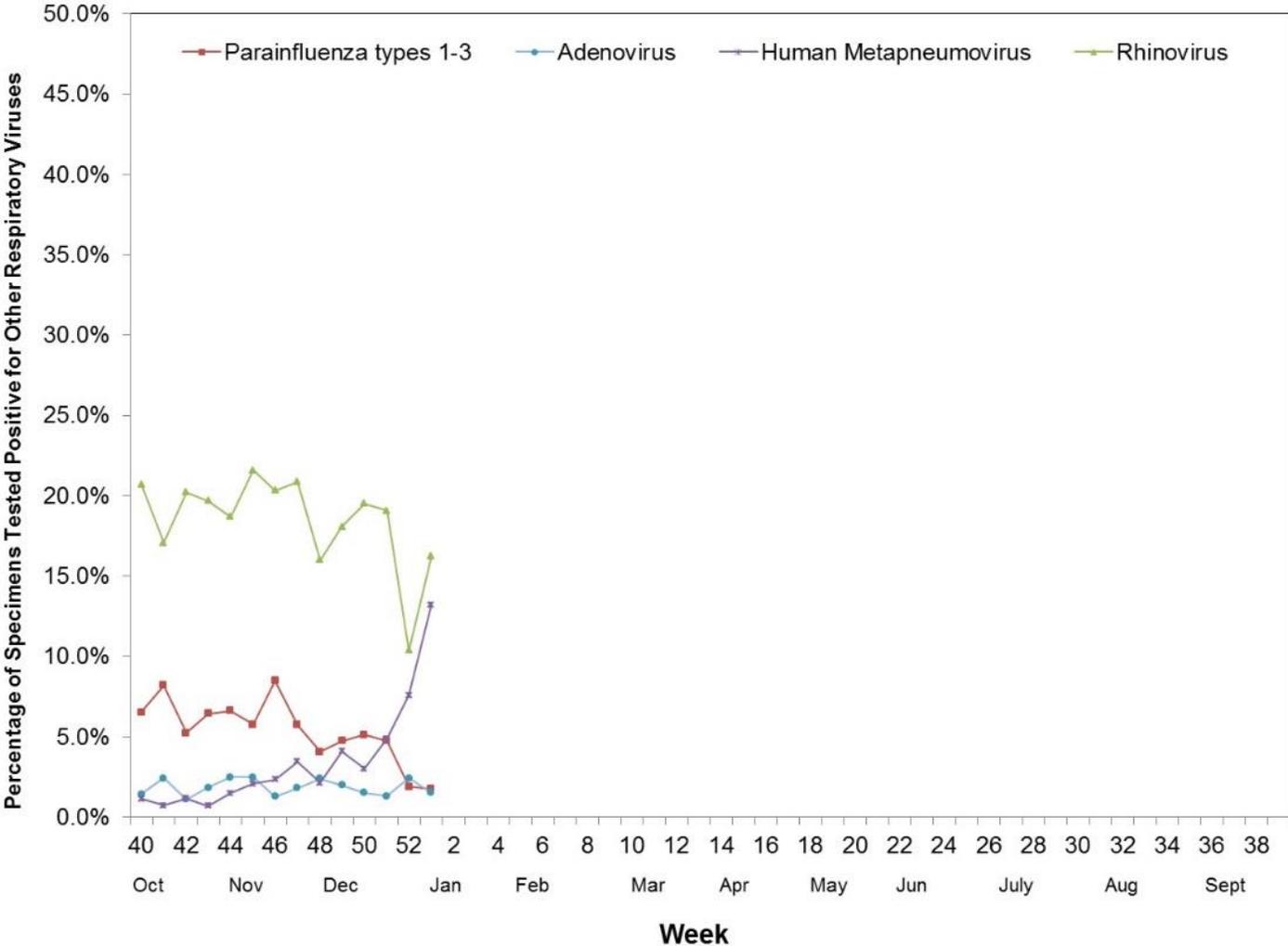


In Week 1, parainfluenza virus detections decreased slightly (1.7%, compared to 1.9% in Week 52), adenovirus detections decreased (1.5%, compared to 2.4% in Week 52), human metapneumovirus detections increased (13.2%, compared to 7.6% in Week 52), and rhinovirus detections increased (16.2%, compared to 10.4% in Week 52) (Table 1, Figure 5).

Table 1. Number of specimens tested for other respiratory viruses and percentage positive in Week 1

Other Respiratory Pathogens	No. Specimens Tested	No. Specimens Tested Positive n (%)
Parainfluenza types 1-3	461	8 (1.7%)
Adenovirus	461	7 (1.5%)
Human Metapneumovirus	379	50 (13.2%)
Rhinovirus	228	37 (16.2%)

Figure 5. Percentage of Other Respiratory Pathogen Detections in Respiratory Laboratory Network and Sentinel Laboratories, 2013–2014



2. Antiviral Resistance Testing

The CDPH-VRDL has tested seventeen 2009 A (H1) specimens and six A (H3) specimens for antiviral resistance to date during the 2013–2014 influenza season (Table 2). All specimens were sensitive to neuraminidase inhibitors.

Table 2. Number of specimens tested for antiviral resistance

Influenza A	Neuraminidase Inhibitors Resistance
Influenza 2009 A (H1)	0/17
Influenza A (H3)	0/6

3. Influenza Virus Strain Characterization

Sixteen 2009 A (H1) strains have been antigenically characterized to date during the 2013–2014 influenza season. All were strain-typed as A/California/07/2009-like (H1N1), the H1N1 component included in the 2013–2014 vaccine for the Northern Hemisphere.

Five A (H3) strains have been antigenically characterized to date during the 2013–2014 influenza

season. All were strain-typed as A/Texas/50/2012-like (H3N2), the H3N2 component included in the 2013–2014 vaccine for the Northern Hemisphere.

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 1, three laboratory-confirmed influenza deaths were reported; all were confirmed as 2009 A (H1N1). These deaths occurred in Lassen, Sacramento, and San Francisco counties; all were adults. As of Week 1, a total of seven laboratory-confirmed influenza deaths have been reported for the 2013–2014 season, compared to four laboratory-confirmed influenza deaths reported as of Week 1 during the 2012- 2013 influenza season.

The weekly influenza report includes confirmed deaths formally reported to CDPH as of January 4, 2014 (Week 1). Twenty-eight deaths were reported to CDPH after this date and are currently being investigated. Deaths will be included in the report for the week they are confirmed.

E. Influenza-associated Outbreaks

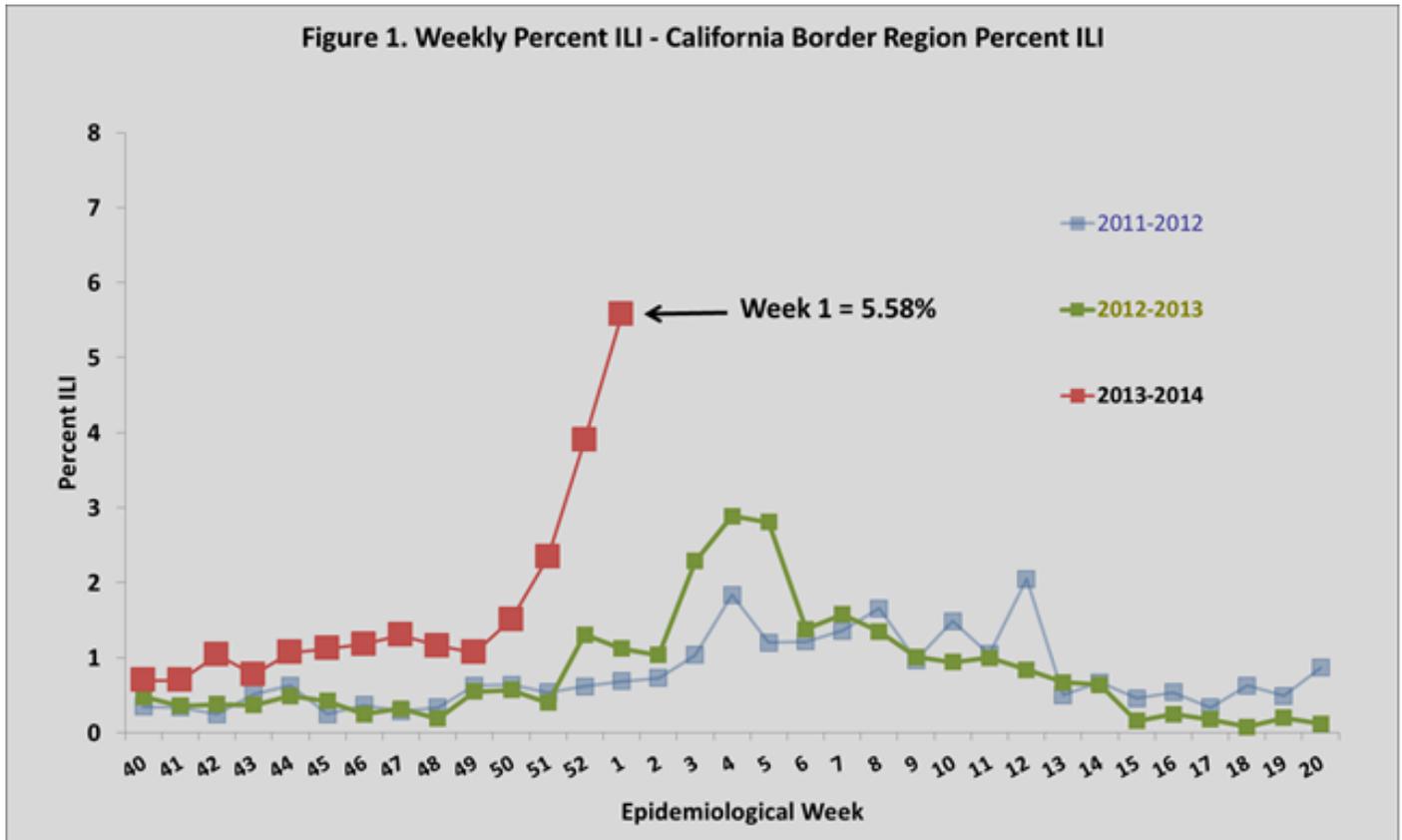
During Week 1, two laboratory-confirmed influenza outbreaks were reported. To date, three laboratory- confirmed influenza outbreaks have been reported for the 2013–2014 season. All outbreaks occurred in congregate living facilities and were caused by influenza A.

F. California Border Region Influenza Surveillance Network Data

1. Syndromic Surveillance Update

A total of 10 border region sentinel providers reported data for Week 1, compared to 9 during Week 52. The total number of patients screened by all sentinel sites for ILI during Week 1 was 2,958. Outpatient ILI activity increased by 1.68% from Week 52 (3.9% ILI) to Week 1 (5.58% ILI). ILI activity for the California border region was higher for Week 1 when compared to activity for the same weeks during the 2011–2012 and 2012–2013 influenza seasons (Figure 1). All influenza syndromic data summarized for the border region represents a subset of CDC influenza sentinel providers in California.

Figure 1. Weekly Percent ILI - California Border Region Percent ILI

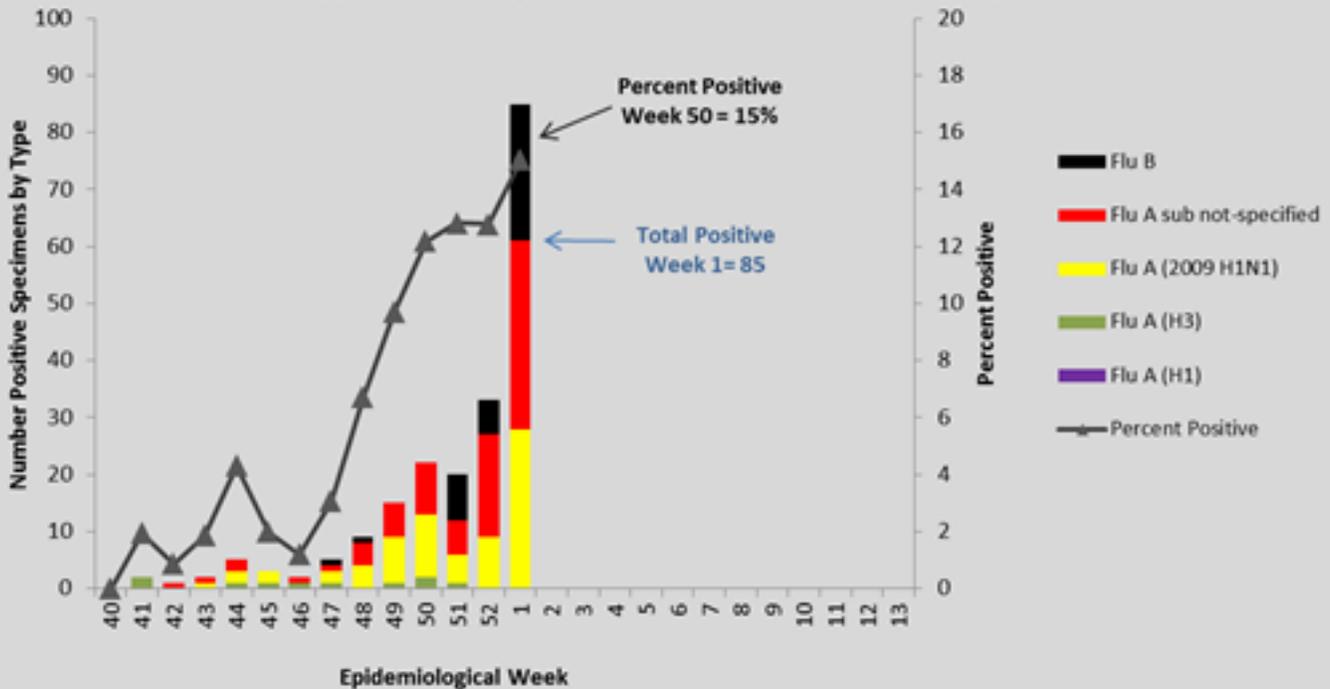


2. Virologic Surveillance Update

During Week 1, a total of 565 respiratory specimens were submitted for testing; of these, 85 (15%) were positive for influenza virus. Of the positive specimens 61 (72%) were influenza A, and 24 (28%) were influenza B. Of the 61 specimens that tested positive for influenza A, 28 (46%) were A 2009 A (H1), and 33 (54%) had no further subtyping performed (Figure 2). Laboratory data summarized in Figure 2 includes data from influenza sentinel sites as well as laboratory data from other border region laboratories.

Cumulatively this season, a total of 2,474 respiratory specimens have been tested from border region clinics; of these, 206 (8.3%) tested positive for influenza. Of the influenza positive specimens 40 (19.4%) were influenza B and 164 (79.6%) were influenza A. Of the 164 specimens that tested positive for influenza A, 10 (6.1%) were A (H3), 72 (43.9%) were 2009 A (H1), and 82 (50%) had no subtyping performed.

Figure 2. California Border Region Total Positive Respiratory Specimens by Type and Subtype - September 29, 2013 - January 4, 2013



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](https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Immunization/Flu-Reports.aspx) at <https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Immunization/Flu-Reports.aspx>

To obtain additional information regarding influenza, please visit the [CDPH influenza website](https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Immunization/Influenza.aspx) at <https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Immunization/Influenza.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 the [Severe Influenza Case History Form Link](https://www.cdph.ca.gov/CDPH%20Document%20Library/ControlledForms/cdph9070.pdf) at <https://www.cdph.ca.gov/CDPH%20Document%20Library/ControlledForms/cdph9070.pdf>.