

Weekly Update



California Department of Public Health Influenza Surveillance Program

California Influenza and Other Respiratory Disease Surveillance for Week 4 (January 19, 2014 to January 25, 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. The information in this report may be updated in later reports as additional data are received and should not be considered as population-based data or representative of all California public health jurisdictions.

Overall influenza activity in California during Week 4 was “widespread*.”

California continues to see high levels of influenza activity with outpatient influenza-like illness (ILI) and pneumonia and influenza (P&I) hospitalization above expected levels and influenza isolated from >20% of clinical specimens. While influenza activity varies from year to year and is unpredictable, California generally sees an increase in cases in late December or early January and it often peaks in February or March. During Week 4, influenza-associated deaths in person <65 remained elevated statewide. While P&I hospitalizations at Kaiser Permanente facilities remain above expected levels for this time of year and the percentage of specimens testing positive for influenza was above 20%, P&I hospitalization levels decreased from Week 3 to Week 4. Outpatient visits for ILI during Week 4 increased slightly compared to Week 3 and remain above expected levels for this time of year. Most influenza-positive specimens identified in California during the 2013–2014 influenza season are influenza A; of the influenza A viruses subtyped, most are 2009 A (H1N1) viruses. The H1N1 strain appears to be the predominant strain so far this flu season and is one that is contained in the current flu vaccine. Of the specimens antigenically characterized this season nationwide, all match components in the 2013-2014 influenza vaccine.

Influenza Report Highlights

- Outpatient influenza-like illness (ILI) during Week 4 (5.0%) exceeded expected levels for this time of year. Statewide, the percentage of outpatient visits for ILI slightly increased in Week 4 compared to Week 3 (4.9%).
- Hospitalizations for pneumonia and influenza (P&I) during Week 4 (7.3%) exceeded expected levels for this time of year. Statewide, the percentage of hospitalizations for P&I decreased in Week 4 compared to Week 3 (8.5%).
- Of 5,100 specimens tested during Week 4,
 - 1,493 (29.3%) were positive for influenza virus; of these
 - 153 (3.0%) were influenza B and
 - 1,340 (26.3%) were influenza A
 - 22 (1.6%) were subtyped as seasonal A (H3)
 - 564 (42.1%) were subtyped as 2009 A (H1)
 - 754 (56.3%) were not subtyped.
- Fifty-two laboratory-confirmed influenza deaths were reported during Week 4.

- Four laboratory-confirmed influenza outbreaks were reported during Week 4.
- No cases of novel influenza have been detected in California to date.

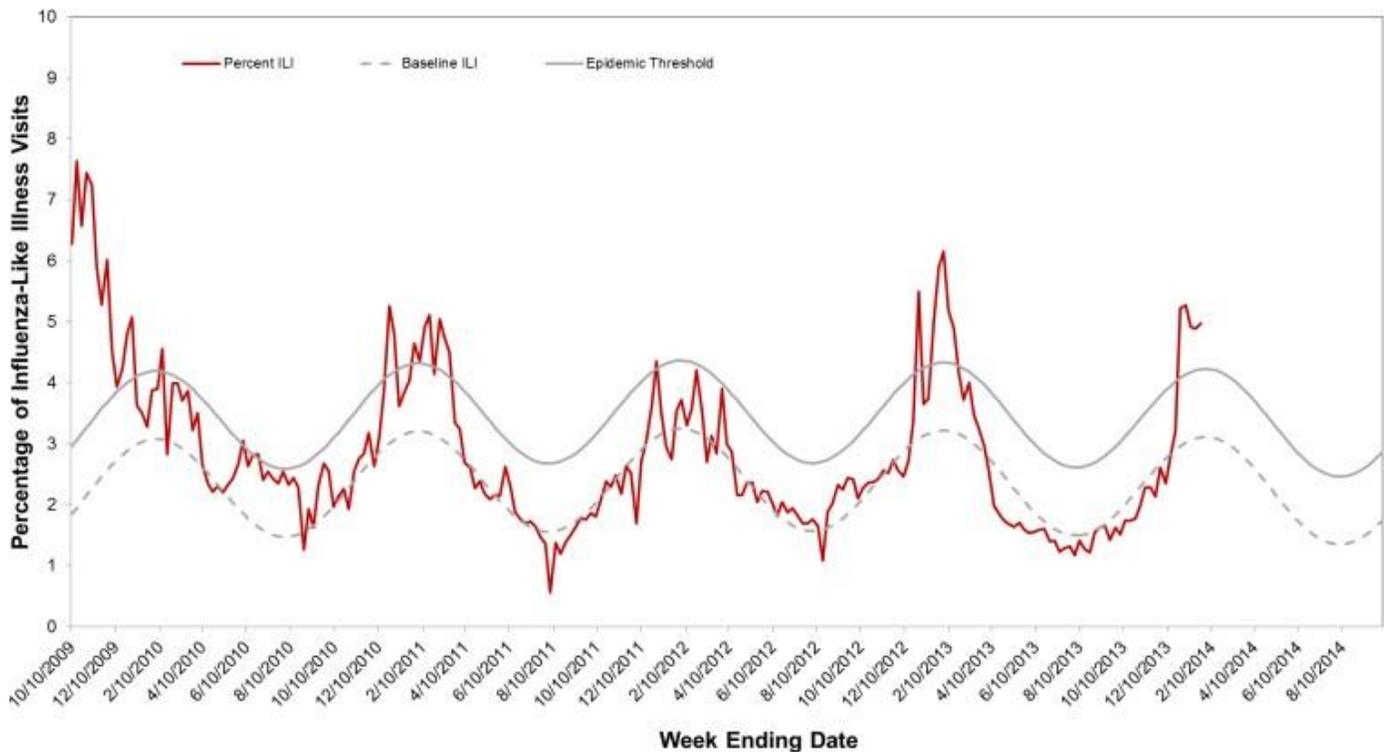
*For the Centers for Disease Control and Prevention (CDC) definitions of influenza geographic distribution, please go to the [CDC Influenza page](http://www.cdc.gov/flu/weekly/overview.htm) (<http://www.cdc.gov/flu/weekly/overview.htm>).

A. Syndromic Surveillance Update

1. CDC Influenza Sentinel Providers

A total of 86 enrolled sentinel providers have reported data for Week 4, compared to an average of 135 providers reporting for each of the previous weeks. Based on available data, the percentage of visits for ILI in Week 4 (5.0%) was above the epidemic threshold (4.2%) (Figure 1).

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

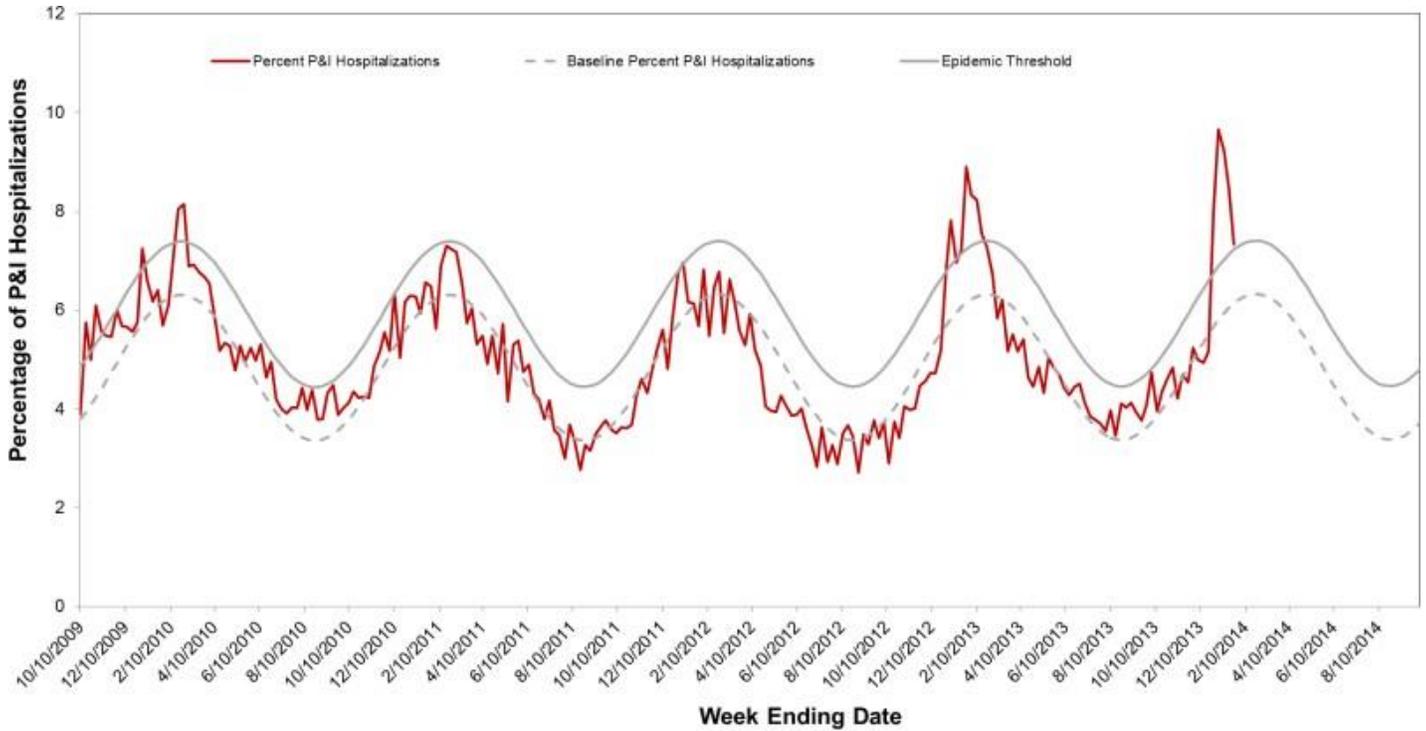


The seasonal baseline was calculated using a regression model applied to data from the previous eight years. The epidemic threshold is two standard deviations above the seasonal baseline and is the point at which the observed percentage of ILI is significantly higher than would be expected at that time 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 decreased during Week 4 (7.3%), compared to Week 3 (8.5%) (Figure 2). However, the percentage was still slightly above the epidemic threshold (7.2%) during Week 4.

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.

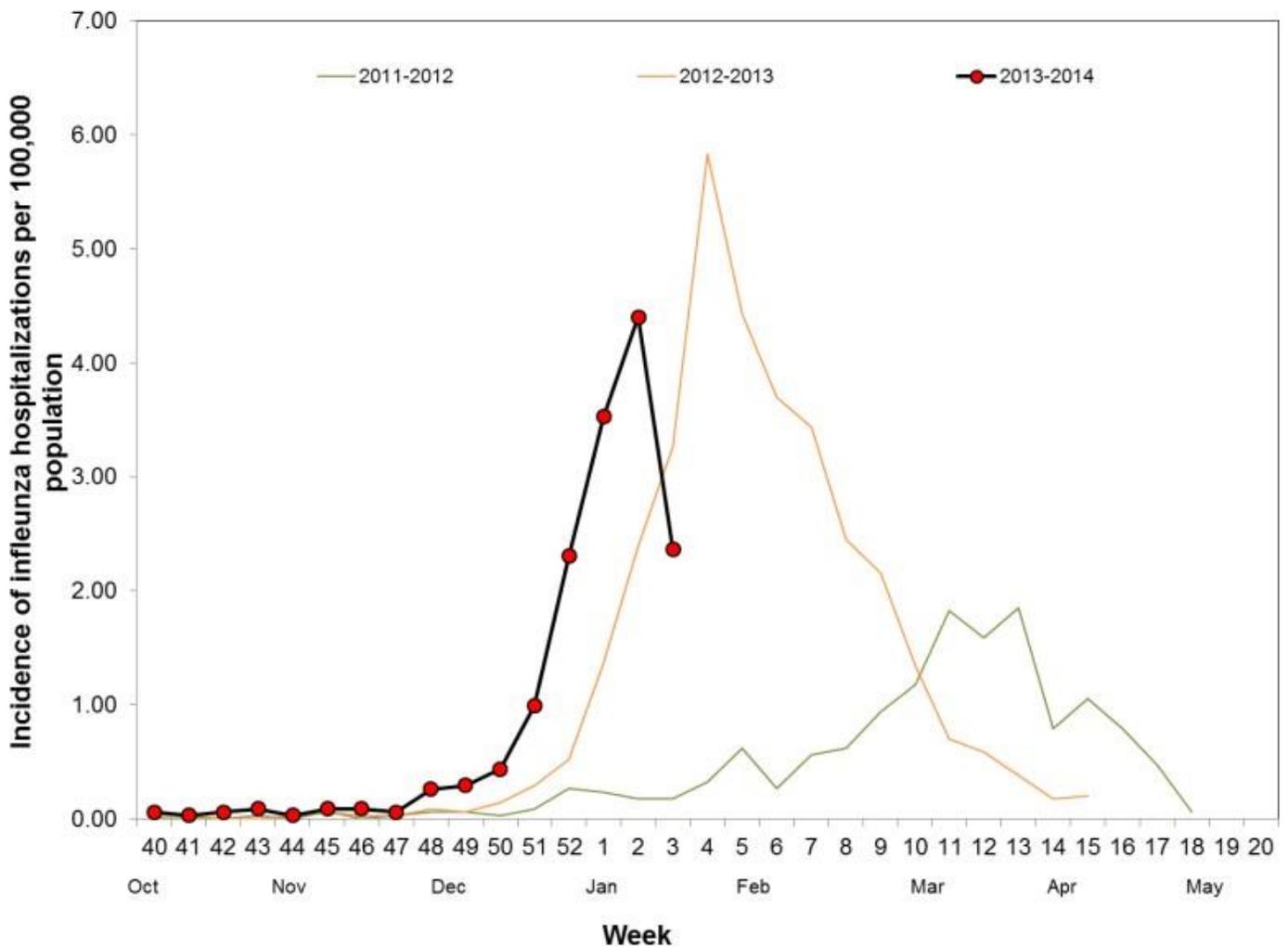
B. Hospitalization Surveillance Update

1. Influenza-Associated Hospitalizations, California Emerging Infections Program

The California Emerging Infections Program (CEIP), Influenza Surveillance Network (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 decreased in Week 3 (2.4) compared to Week 2 (4.4). Data for Week 4 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

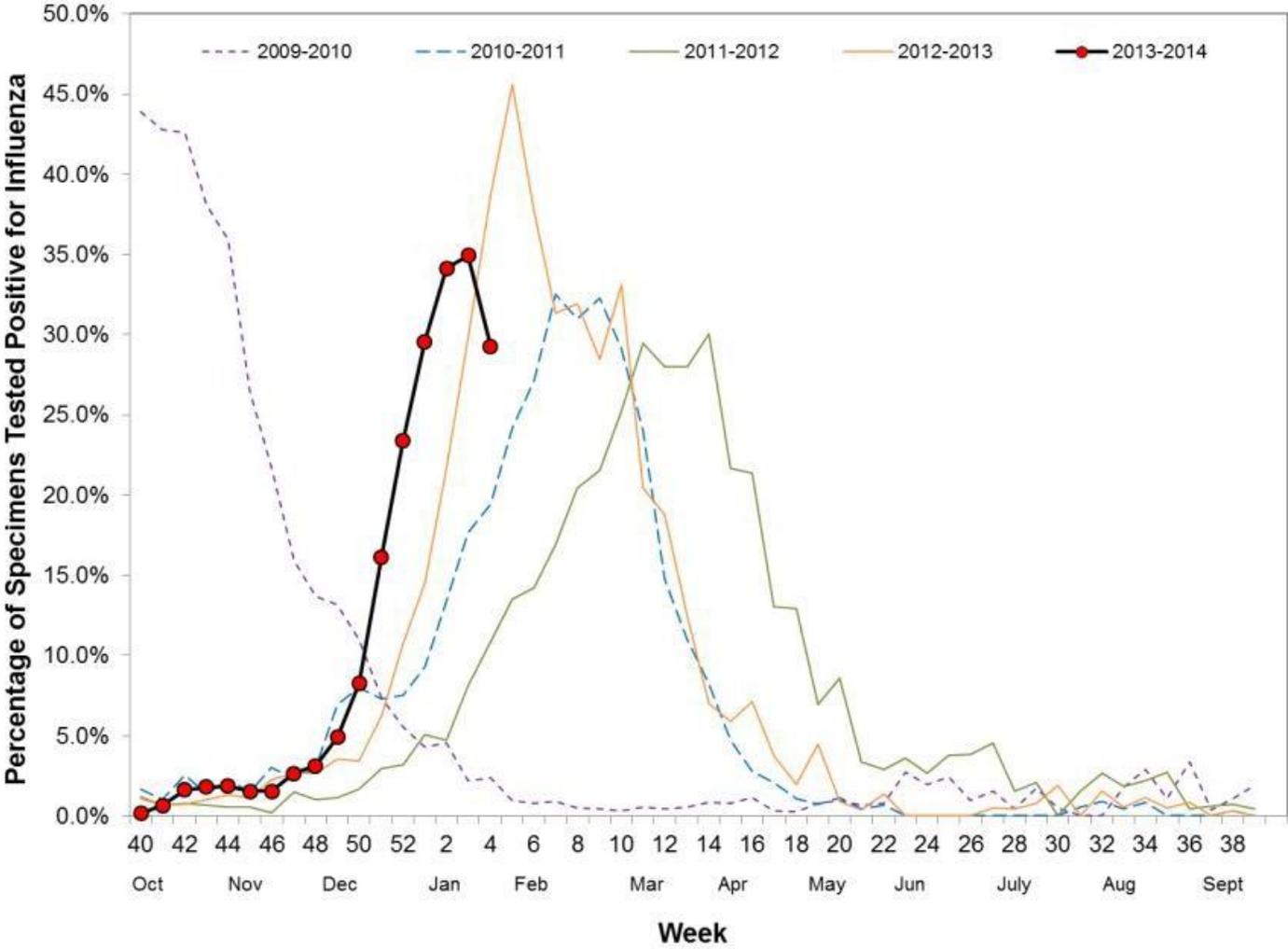
1. Respiratory Laboratory Network (RLN) and Sentinel Laboratory Surveillance Results

The percentage of influenza detections in the RLN and sentinel laboratories decreased in Week 4 (29.3%) compared to Week 3 (34.9%) (Figure 4). In Week 4, of 5,100 specimens tested by the RLN and sentinel laboratories, 153 (3.0%) were positive for influenza B and 1,340 (26.3%) were positive for influenza A. Of the 1,340 specimens that tested positive for influenza A, 22 (1.6%) were subtyped as seasonal A (H3), 564 (42.1%) were subtyped as 2009 A (H1), and 754 (56.3%) had no further subtyping performed.

To date for the 2013–2014 season, of 33,715 specimens tested, 7,350 (21.8%) were positive for influenza; of these, 384 (1.1%) were influenza B and 6,966 (20.7%) were influenza A. Of the 6,966 specimens that tested positive for influenza A, 108 (1.6%) were subtyped as seasonal A (H3), 2,696 (38.7%) were subtyped as 2009 A (H1), and 4,162 (59.7%) had no further subtyping performed. Positive specimens have been detected throughout the state.

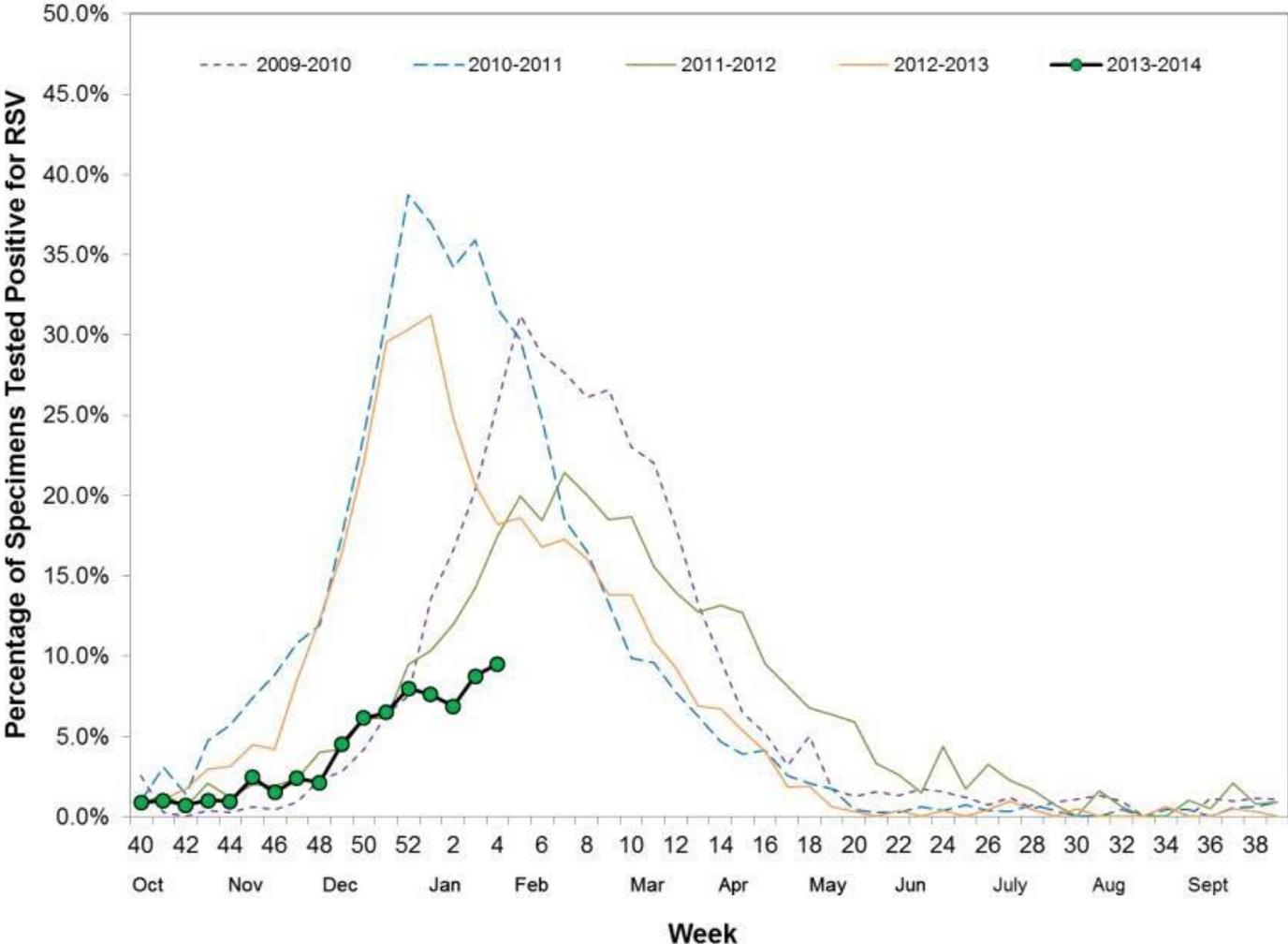
Neither the RLN nor CDPH-VRDL have identified any influenza viruses by polymerase chain reaction (PCR) typing or subtyping that are suggestive of a novel influenza virus.

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



During Week 4, 2,807 specimens were tested for RSV and 267 (9.5%) were positive, which represents an increase compared to Week 3 (8.8%) (Figure 5).

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

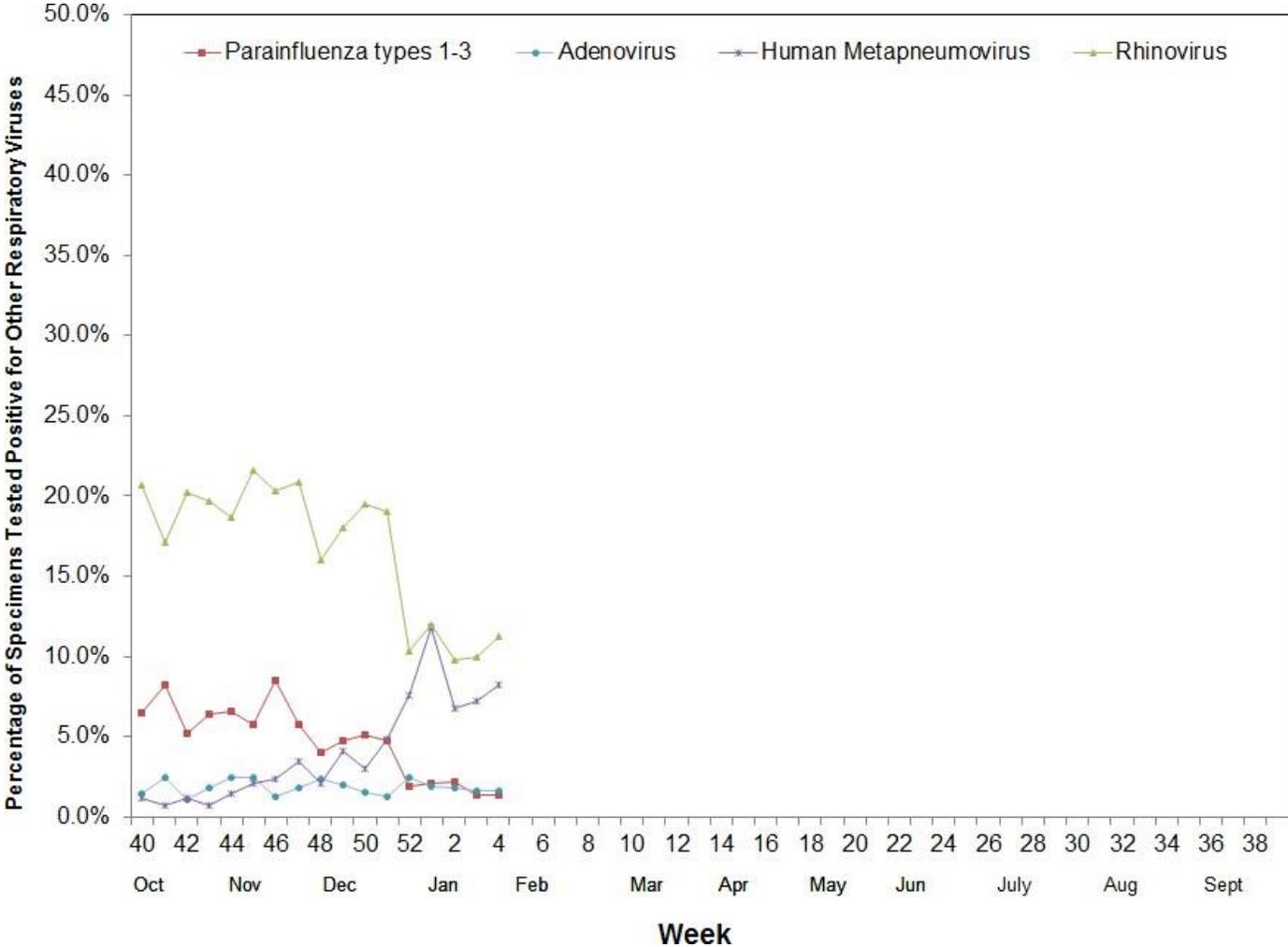


In Week 4, parainfluenza virus detections remained the same (1.3%, compared to 1.3% in Week 3), adenovirus detections remained the same (1.6%, compared to 1.6% in Week 3), human metapneumovirus detections increased (8.3%, compared to 7.2% in Week 3), and rhinovirus detections increased (11.2%, compared to 10.0% in Week 3) (Table 1, Figure 5).

Table 1. Number of specimens tested for other respiratory viruses and percentage positive in Week 4

Other Respiratory Pathogens	No. Specimens Tested	No. Specimens Tested Positive n (%)
Parainfluenza types 1-3	750	10 (1.3%)
Adenovirus	750	12 (1.6%)
Human Metapneumovirus	642	53 (8.3%)
Rhinovirus	393	44 (11.2%)

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 41 2009 A (H1) influenza specimens and 7 A (H3) influenza specimens for antiviral resistance to date during the 2013–2014 influenza season (Table 2). One 2009 A (H1) specimen was found to be resistant to oseltamivir.

Table 2. Number of specimens tested for antiviral resistance

Influenza A	Neuraminidase Inhibitors Resistance
Influenza 2009 A (H1)	1/41
Influenza A (H3)	0/7

3. Influenza Virus Strain Characterization

Twenty-eight 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.

Six 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.

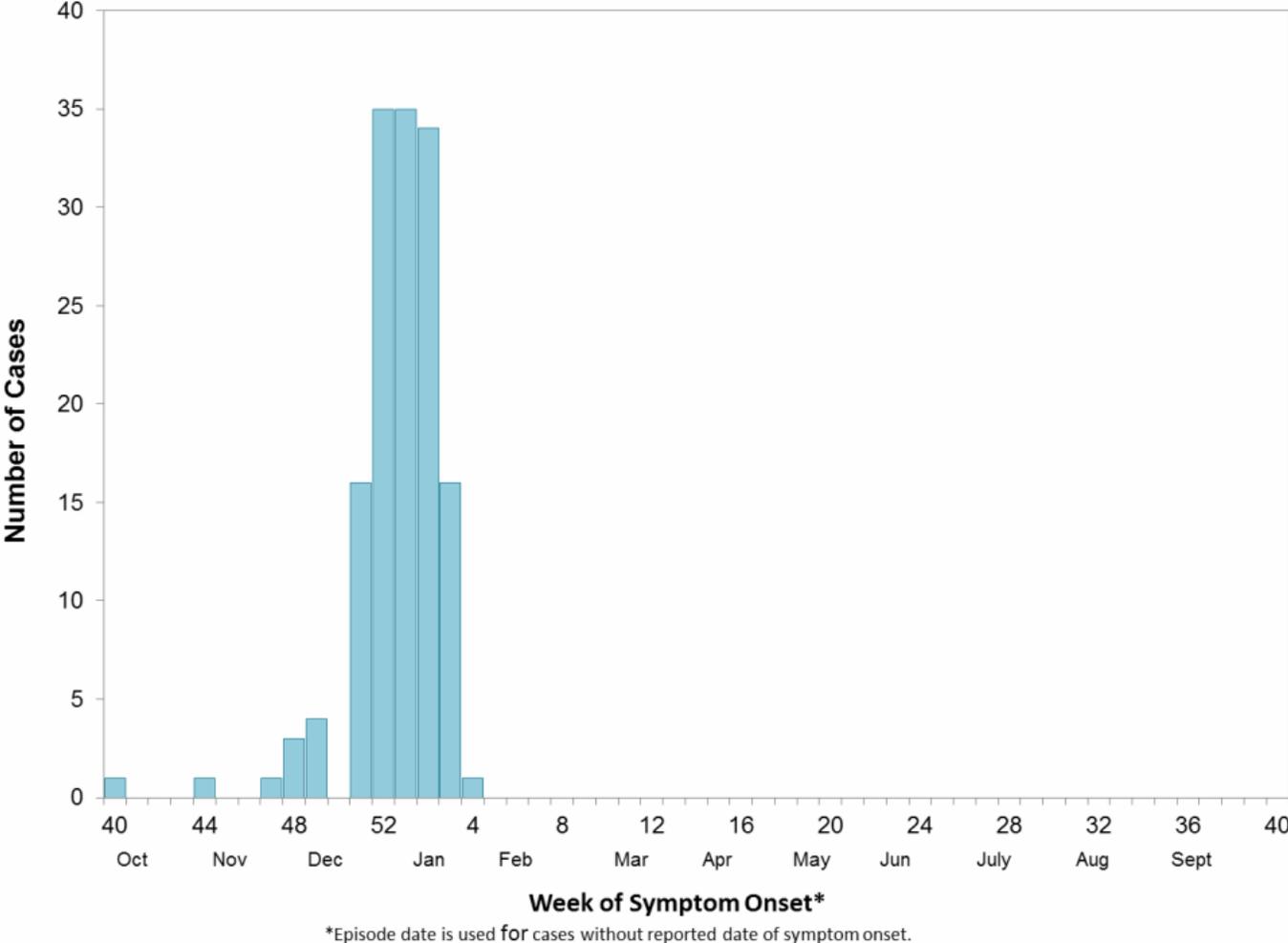
D. Laboratory-Confirmed Fatal Case Reports

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 4, 52 laboratory-confirmed influenza fatalities were reported. One of the newly reported fatalities was in a child <18 years of age.

To date for the 2013-2014 season, 147 laboratory-confirmed influenza fatalities have been reported to CDPH. Of the 147 fatalities, 144 (97.9%) were positive for influenza A, 1 (0.7%) was positive for influenza B, 1 (0.7%) was positive for both influenza A and B, and 1 (0.7%) was positive for influenza but the type is pending. Of the 144 positive for influenza A, 0 (0%) were subtyped A (H3), 112 (77.8%) were subtyped 2009 A (H1N1), and 32 (22.2%) were not subtyped. One-hundred and twenty-one (82.3%) of the 147 fatalities had data available on underlying medical conditions. Of these, 94 (77.7%) had co-morbid conditions considered by the Advisory Committee on Immunization Practices (ACIP) to increase the risk for severe influenza, 22 (18.2%) had other underlying medical conditions, and 5 (4.1%) were previously healthy. By Week 4 of the 2012-2013 season, CDPH had received reports on a total of 14 influenza fatalities.

The weekly influenza report includes confirmed deaths formally reported to CDPH as of January 25, 2014 (Week 4). Forty-four fatalities 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.

Figure 6. Number of Laboratory-Confirmed Fatal Influenza Cases in Persons <65 Years Old by Illness Onset Date*, 2013-2014



Note: These data are preliminary and may be revised upward as more cases are reported.

E. Influenza-Associated Outbreaks

During Week 4, 4 new laboratory-confirmed influenza outbreaks were reported from the following counties: Tulare, Stanislaus, Nevada, and San Luis Obispo. All were in congregate settings. All were associated with influenza A and subtyped as 2009 A (H1N1).

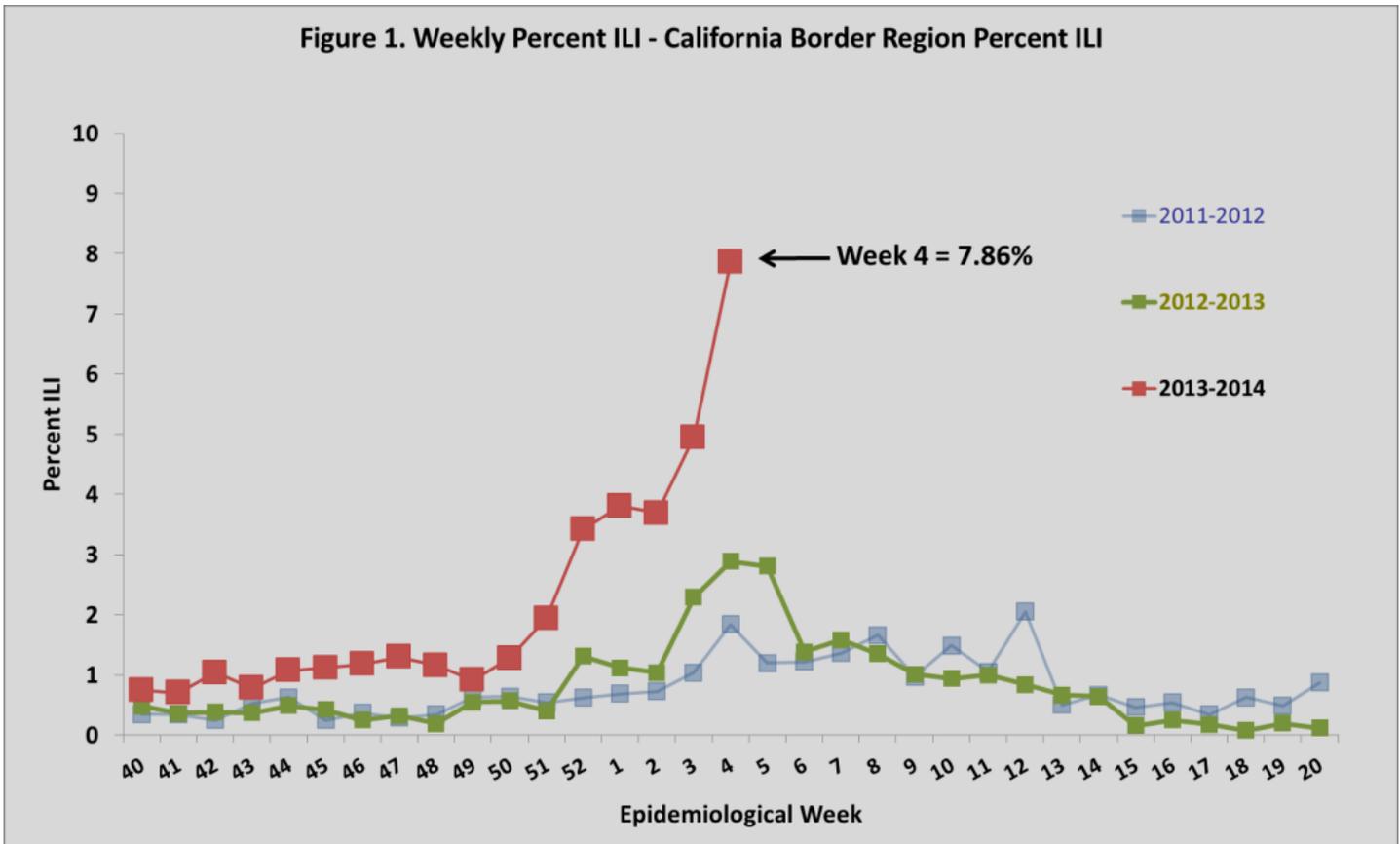
F. California Border Region Influenza Surveillance Network Data

1. Syndromic Surveillance Update

A total of 8 border region sentinel providers reported data during Weeks 4 compared to 13 during Week 3 of 2014. The total number of patients screened by all sentinel sites for ILI during Week 4 was 4,606. Outpatient ILI activity increased by 2.9% from Week 3 (5.0% ILI) to Week 4 (7.9% ILI). ILI activity for the California border region was higher for Week 4 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.

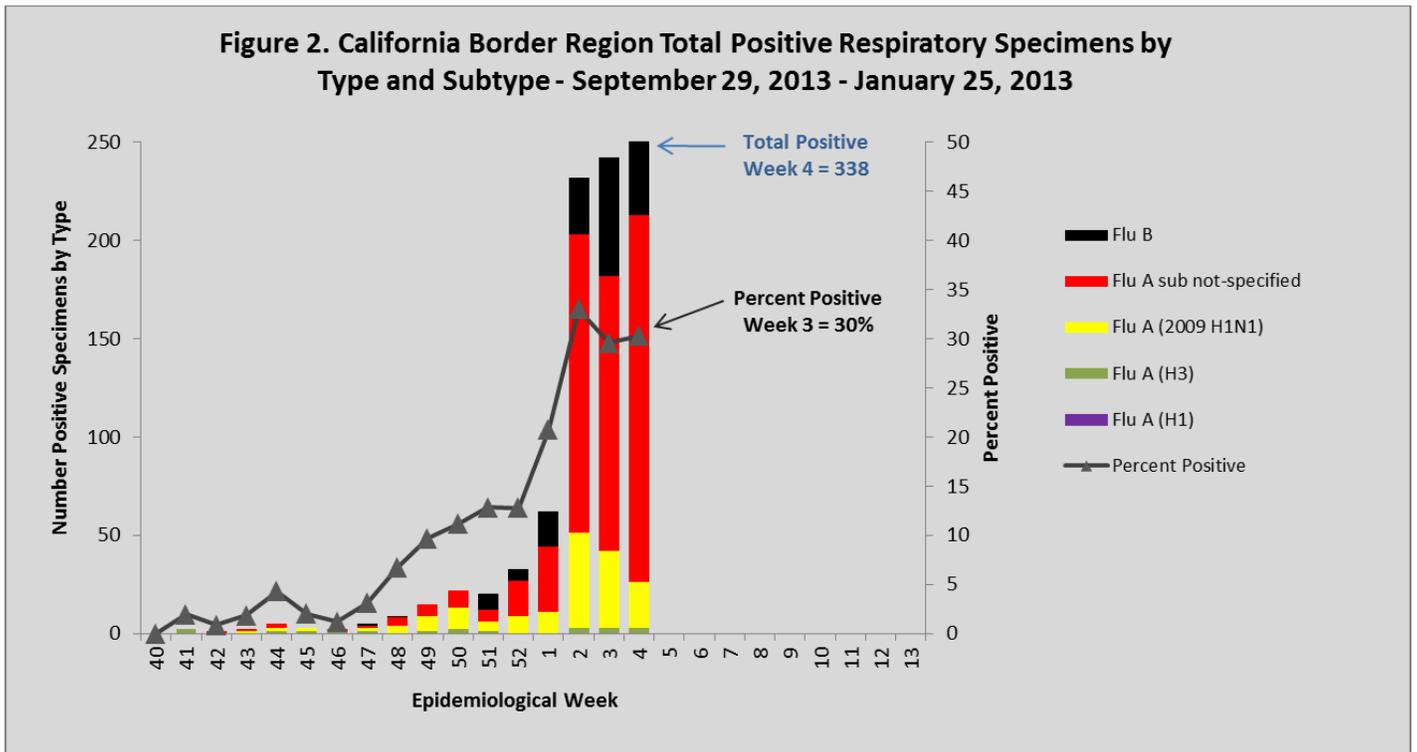
Figure 1. Weekly Percent ILI - California Border Region Percent ILI



2. Virologic Surveillance Update

Cumulatively this season, a total of 4,844 respiratory specimens have been tested from border region clinics; of these, 993 (20.5%) tested positive for influenza. Of the influenza positive specimens 745 (75%) were influenza A and 248 (25%) were influenza B. Of the 745 specimens that tested positive for influenza A, 19 (2.55%) were A (H3), 165 (22.15%) were 2009 A (H1), and 561 (75.3%) had no subtyping performed. For Week 4, a total of 1,116 respiratory specimens were submitted for testing; of these, 338 (30.0%) were positive for influenza virus. Of the positive specimens 213 (63.0%) were influenza A, and 125 (37.0%) were influenza B. Of the 213 specimens that tested positive for influenza A, 3 (1.4%) were A (H3), 23 (10.8%) were A 2009 A (H1), and 187 (87.8%) 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.

Figure 2. California Border Region Total Positive Respiratory Specimens by Type and Subtype - September 29, 2013 - January 25, 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](http://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](http://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>.