

Weekly Update



California Department of Public Health Influenza Surveillance Program

California Influenza and Other Respiratory Disease Surveillance for Week 10 (March 2 to March 8, 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 remained “local*” during Week 10.

Influenza activity in California is decreasing; the number of influenza-associated deaths in persons <65 years of age decreased in Week 10 compared to Week 9, and outpatient visits for influenza-like illness (ILI) and P&I hospitalizations at Kaiser Permanente facilities have been within expected baseline levels for this time of year since Week 6. During Week 10, the percentage of influenza detections in the RLN and sentinel laboratories decreased compared to Week 9 with less than 5% of clinical specimens testing positive for influenza. 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. 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 contained in the current influenza vaccine. Of the 2009 A (H1N1) specimens antigenically characterized this season nationwide, 99.9% match the component in the 2013–2014 influenza vaccine.

Influenza Report Highlights

- Outpatient influenza-like illness (ILI) during Week 10 (2.8%) was within expected levels for this time of year. Statewide, the percentage of outpatient visits for ILI was similar in Week 10 compared to Week 9 (2.8%).
- Hospitalizations for pneumonia and influenza (P&I) during Week 10 (5.2%) were within expected levels for this time of the year. Statewide, the percentage of hospitalizations for P&I decreased in Week 10 compared to Week 9 (5.6%).
- Of 1,910 specimens tested during Week 10,
 - 70 (3.7%) were positive for influenza virus; of these
 - 28 (40.0%) were influenza B and
 - 42 (60.0%) were influenza A
 - 3 (7.1%) were subtyped as seasonal A (H3)
 - 8 (19.0%) were subtyped as 2009 A (H1)
 - 31 (73.8%) were not subtyped.
- Fourteen laboratory-confirmed influenza deaths were reported during Week 10.

- Two laboratory-confirmed influenza outbreaks that occurred previously were confirmed in Week 10.
- No cases of novel influenza have been detected in California to date.

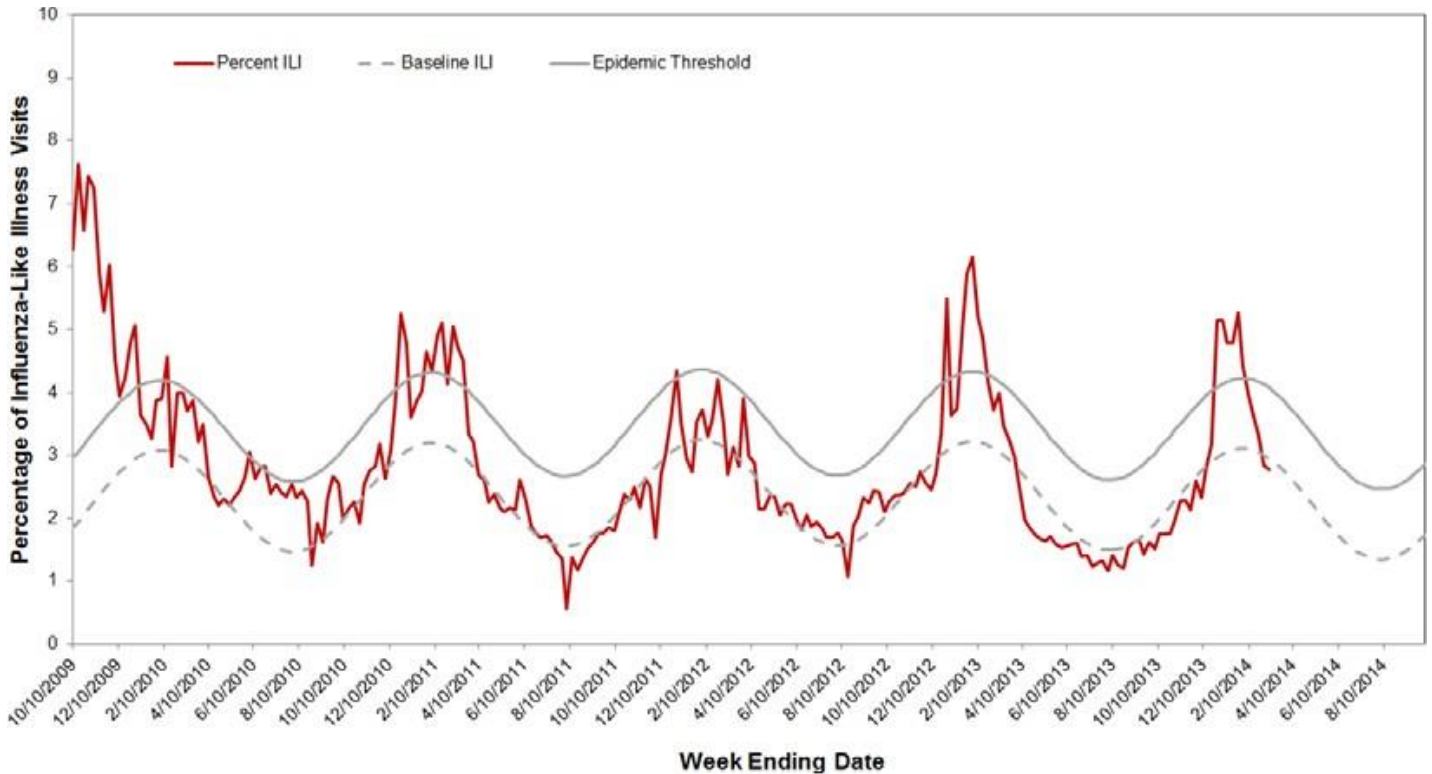
*For the Centers for Disease Control and Prevention (CDC) definitions of influenza geographic distribution, please go to the [CDC Influenza page](http://www.cdc.gov/flu/weekly/overview.htm) (<http://www.cdc.gov/flu/weekly/overview.htm>).

A. Syndromic Surveillance Update

1. CDC Influenza Sentinel Providers

A total of 65 enrolled sentinel providers have reported data for Week 10, compared to an average of 131 providers reporting for each of the previous weeks. Based on available data, the percentage of visits for ILI in Week 10 (2.8%) was within expected baseline levels for this time of year (Figure 1).

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

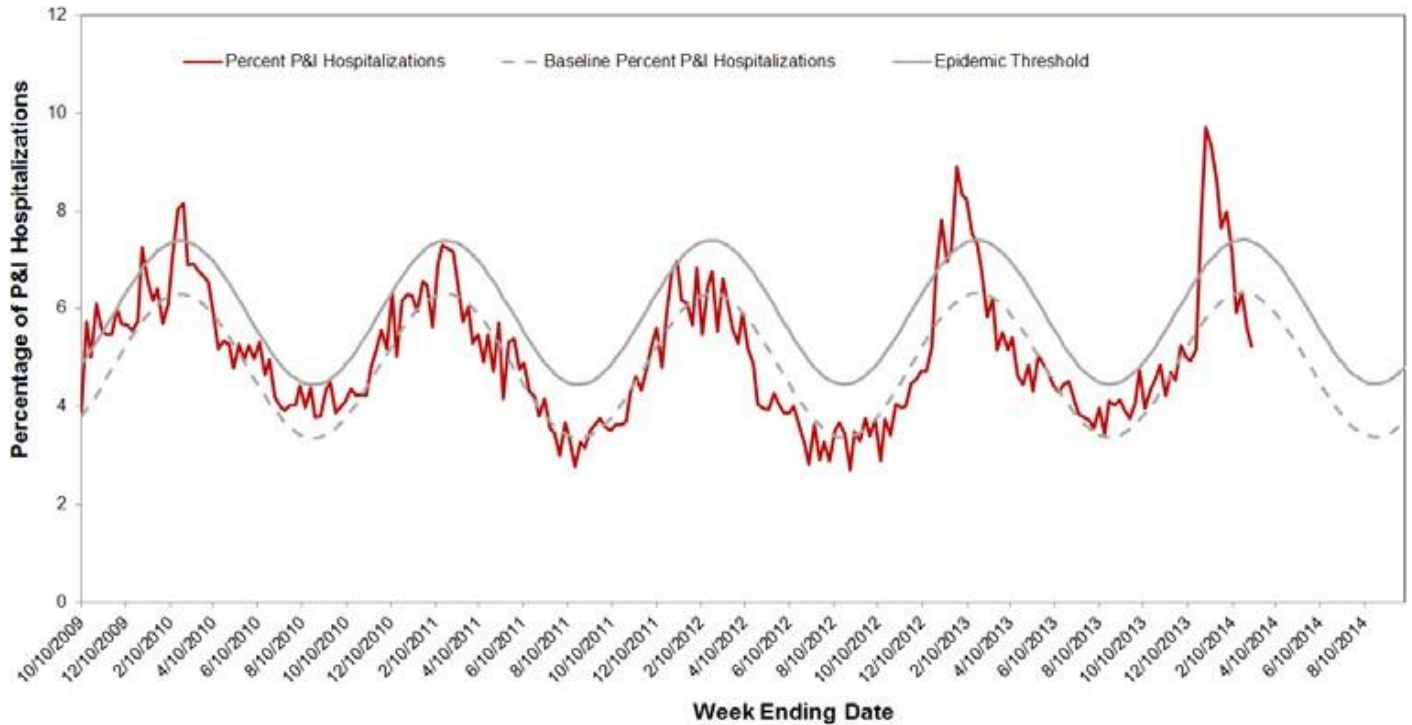


The seasonal baseline was calculated using a regression model applied to data from the previous eight years. The epidemic threshold is two standard deviations above the seasonal baseline and is the point at which the observed percentage of ILI is significantly higher than would be expected at that time 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 10 (5.2%) compared to Week 9 (5.6%) and is within expected baseline levels for this time of the year (Figure 2).

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.

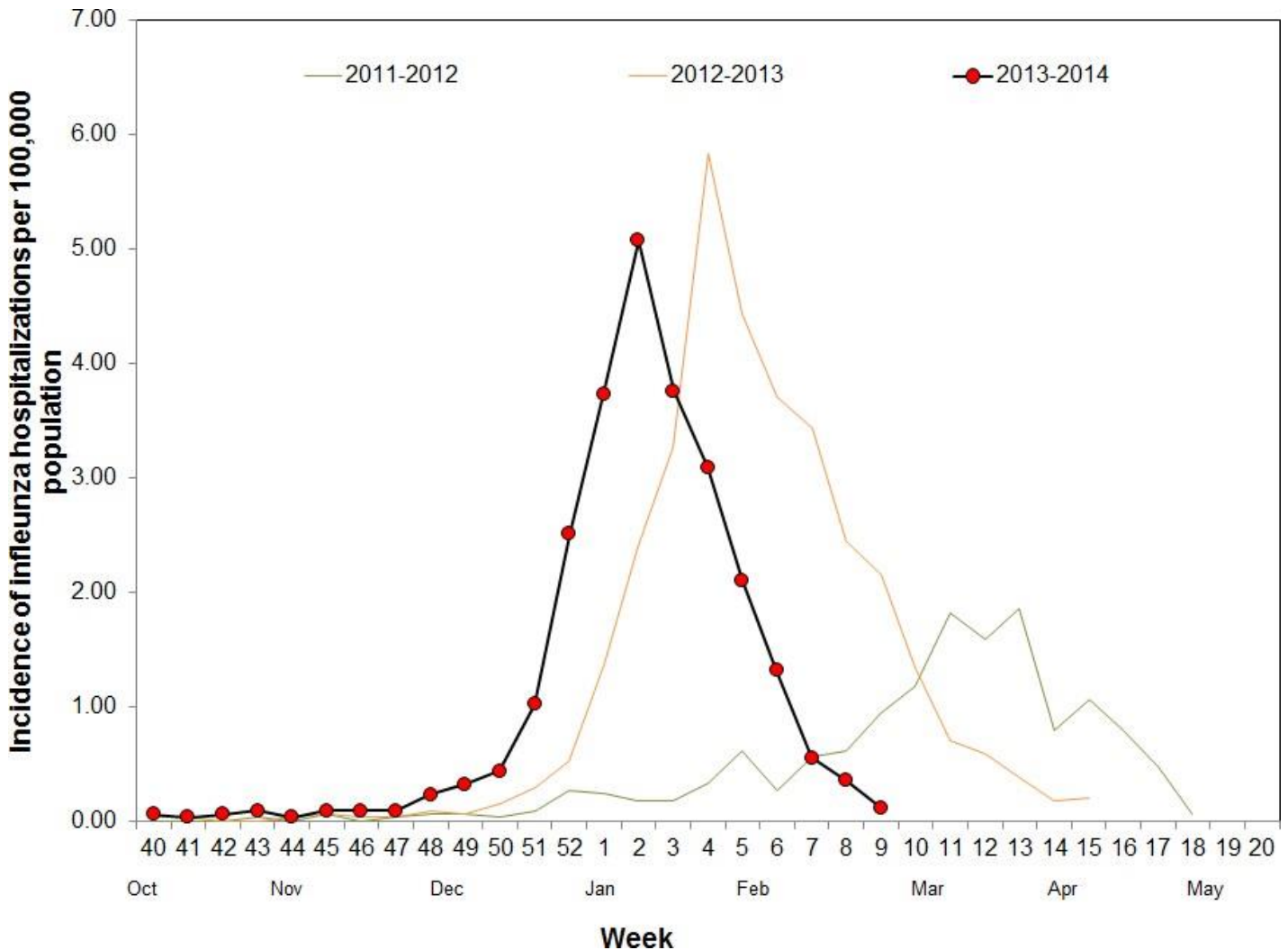
B. Hospitalization Surveillance Update

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 9 (0.1) compared to Week 8 (0.3). Data for Week 10 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

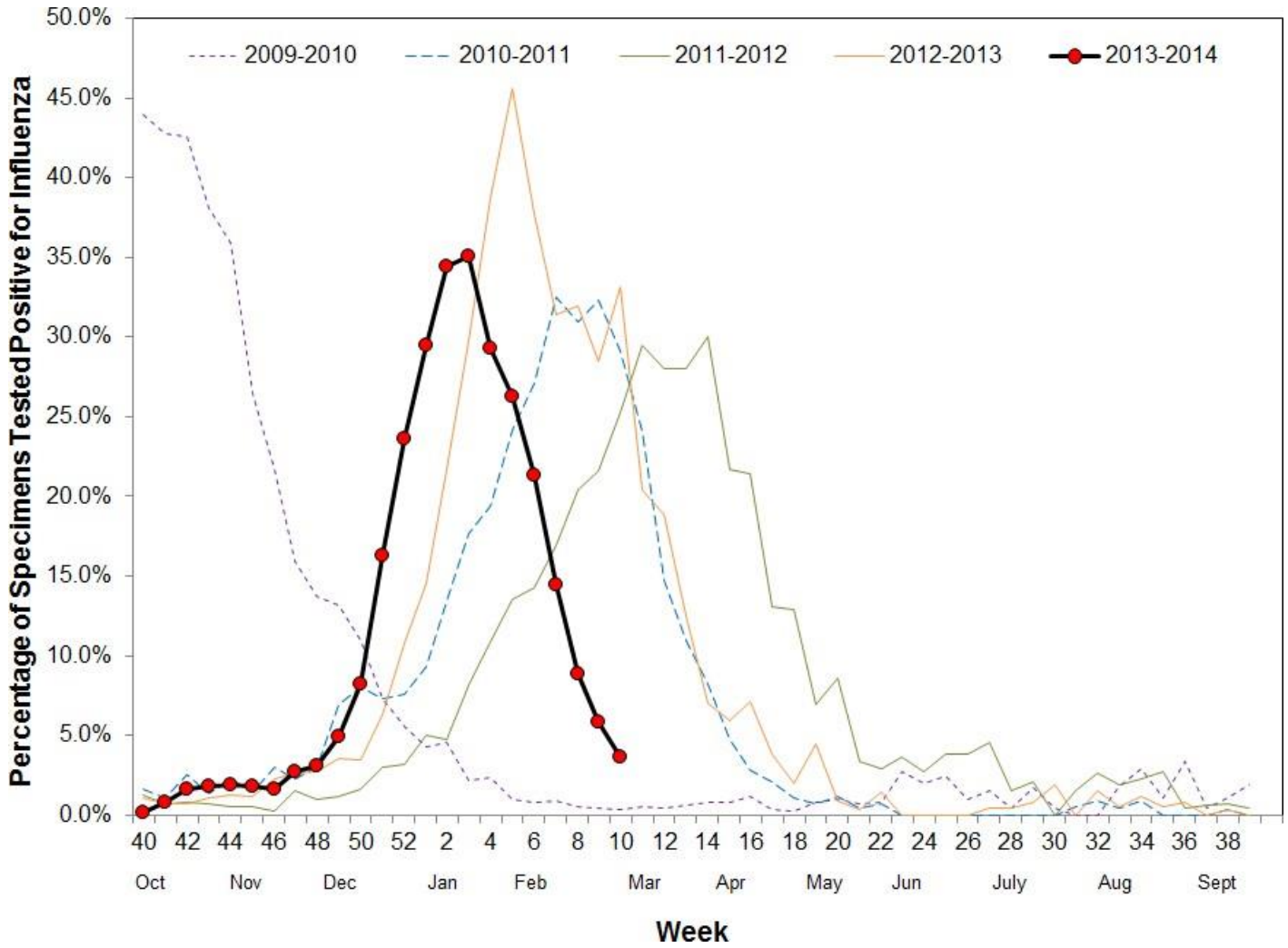
1. Respiratory Laboratory Network (RLN) and Sentinel Laboratory Surveillance Results

The percentage of influenza detections in the RLN and sentinel laboratories decreased in Week 10 (3.7%) compared to Week 9 (5.8%) (Figure 4). In Week 10, of 1,910 specimens tested by the RLN and sentinel laboratories, 28 (1.5%) were positive for influenza B and 42 (2.2%) were positive for influenza A. Of the 42 specimens that tested positive for influenza A, 3 (7.1%) were subtyped as seasonal A (H3), 8 (19.0%) were subtyped as 2009 A (H1), and 31 (73.8%) had no further subtyping performed.

To date for the 2013–2014 season, of 55,479 specimens tested, 11,034 (19.9%) were positive for influenza; of these, 1,049 (9.5%) were influenza B and 9,985 (90.5%) were influenza A. Of the 9,985 specimens that tested positive for influenza A, 243 (2.4%) were subtyped as seasonal A (H3), 4,338 (43.4%) were subtyped as 2009 A (H1), and 5,404 (54.1%) had no further subtyping performed.

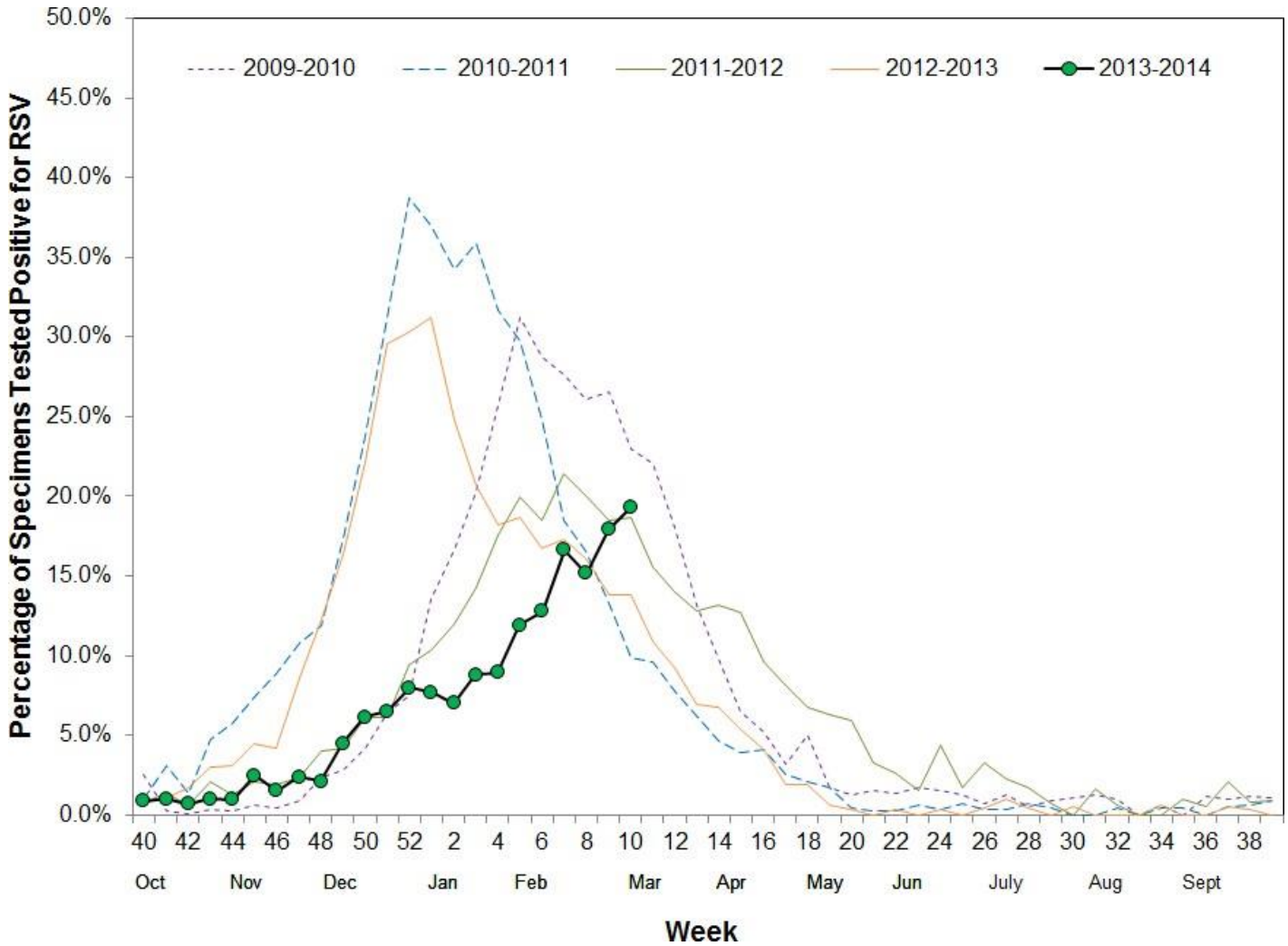
Neither the RLN nor CDPH-VRDL have identified any influenza viruses by polymerase chain reaction (PCR) typing or subtyping that are suggestive of a novel influenza virus.

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



During Week 10, 1,463 specimens were tested for RSV and 282 (19.3%) were positive, which represents an increase compared to Week 9 (17.9%) (Figure 5).

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

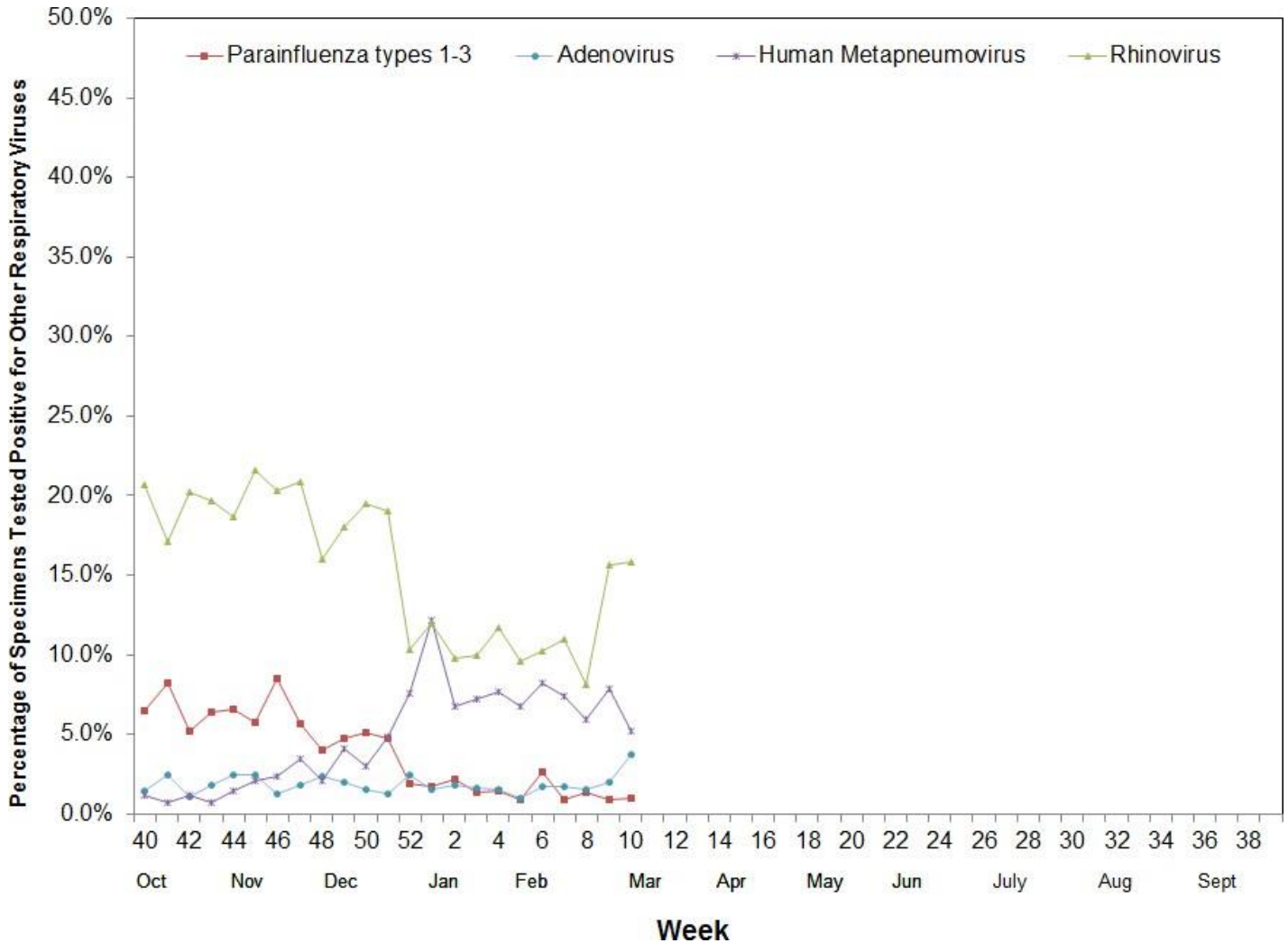


In Week 10, parainfluenza virus detections were similar to the previous week (0.9%, compared to 0.9% in Week 9), adenovirus detections increased (3.7%, compared to 2.0% in Week 9), human metapneumovirus detections decreased (5.2%, compared to 7.9% in Week 9), and rhinovirus detections were similar to the previous week (15.8%, compared to 15.7% in Week 8) (Table 1, Figure 5).

Table 1. Number of specimens tested for other respiratory viruses and percentage positive in Week 10

Other Respiratory Pathogens	No. Specimens Tested	No. Specimens Tested Positive n (%)
Parainfluenza types 1-3	534	5 (0.9%)
Adenovirus	534	20 (3.7%)
Human Metapneumovirus	478	25 (5.2%)
Rhinovirus	297	47 (15.8%)

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 87 2009 A (H1) influenza specimens, 45 A (H3) influenza specimens, and 16 influenza B specimens for antiviral resistance to date during the 2013–2014 influenza season (Table 2). Three 2009 A (H1) specimen were found to be resistant to Oseltamivir.

Table 2. Number of specimens tested for antiviral resistance

Influenza A	Neuraminidase Inhibitors Resistance
Influenza 2009 A (H1)	3/87
Influenza A (H3)	0/45
Influenza B	0/15

3. Influenza Virus Strain Characterization

Forty-four 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.

Twenty-eight 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.

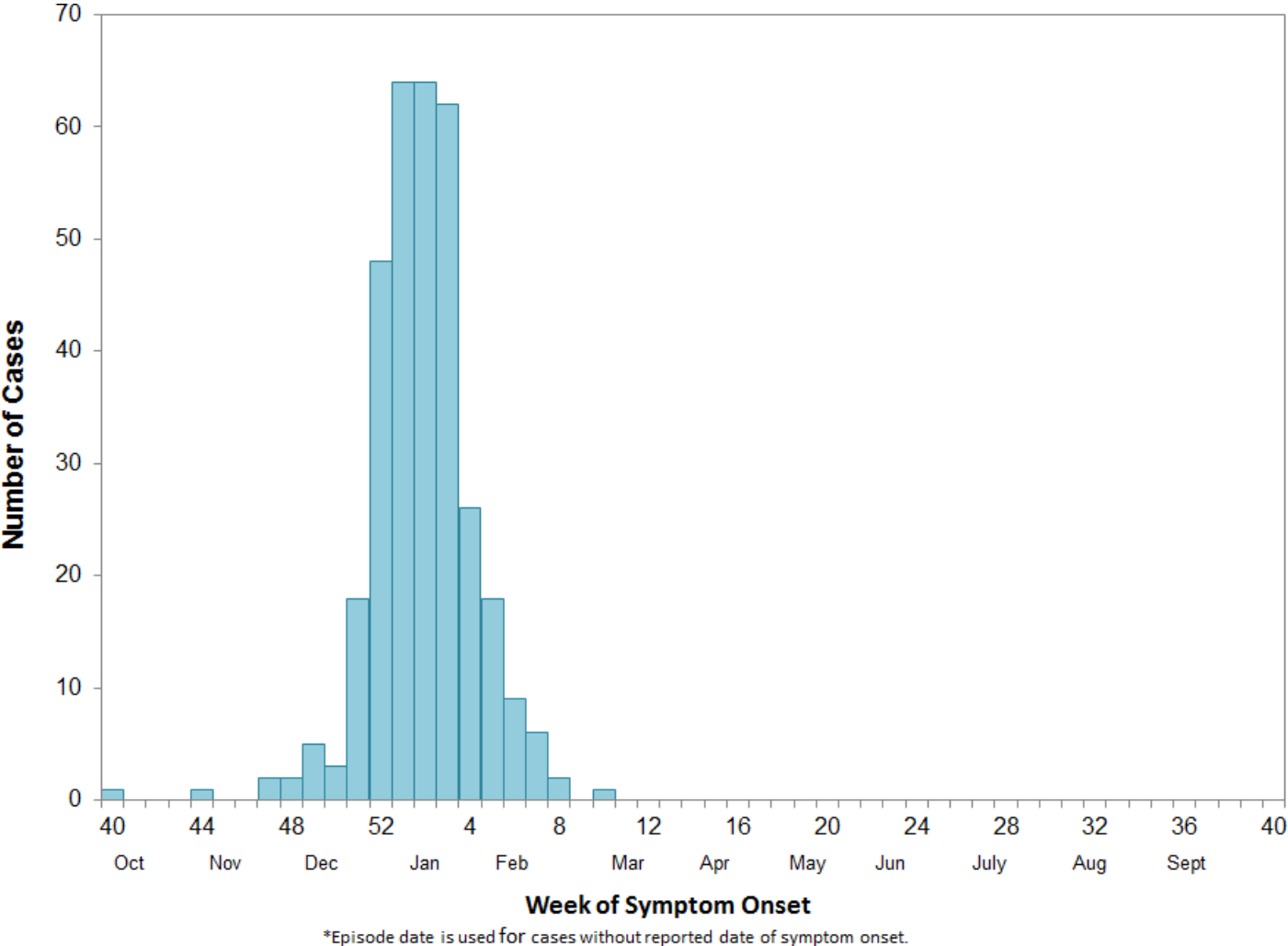
D. Laboratory-Confirmed Severe Influenza Case Reports

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. During Week 10, 14 laboratory-confirmed influenza fatalities were reported, including one death in a child <18 years of age.

To date for the 2013–2014 season, 332 laboratory-confirmed influenza fatalities have been reported to CDPH, of which 7 occurred among children <18 years of age. Of the 332 fatalities, 325 (97.9%) were positive for influenza A, 4 (1.2%) were positive for influenza B, 1 (0.3%) was positive for influenza A and B, and 2 (0.6%) were positive for influenza but the type was not known. Of the 325 positive for influenza A, 5 (1.5%) were subtyped A (H3), 239 (73.5%) were subtyped 2009 A (H1N1), and 81 (24.9%) were not subtyped. Of the 325 fatalities, 294 (90.5%) had data available on underlying medical conditions. Of these, 222 (75.5%) had co-morbid conditions considered by the Advisory Committee on Immunization Practices (ACIP) to increase the risk for severe influenza, 50 (17.0%) had other underlying medical conditions, and 22 (7.5%) were previously healthy. The influenza-associated fatalities have been reported from the following local health jurisdictions: Alameda (7), Butte (1), Calaveras (2), Contra Costa (7), El Dorado (2), Fresno (22), Glenn (1), Humboldt (1), Imperial (2), Kern (9), Kings (7), Lake (1), Lassen (1), Long Beach (7), Los Angeles (54), Madera (3), Marin (2), Mendocino (4), Merced (5), Monterey (5), Nevada (1), Orange (15), Riverside (15), Sacramento (27), San Bernardino (23), San Diego (30), San Francisco (3), San Joaquin (7), San Luis Obispo (1), San Mateo (6), Santa Barbara (3), Santa Clara (18), Santa Cruz (3), Shasta (3), Siskiyou (2), Solano (3), Sonoma (6), Stanislaus (13), Sutter (1), Tulare (4), Tuolumne (1), Ventura (3), and Yolo (1). By Week 10 of the 2012–2013 season, CDPH had received reports on a total of 47 influenza fatalities.

The weekly influenza report includes confirmed deaths formally reported to CDPH as of March 8, 2014 (Week 10). Nineteen 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

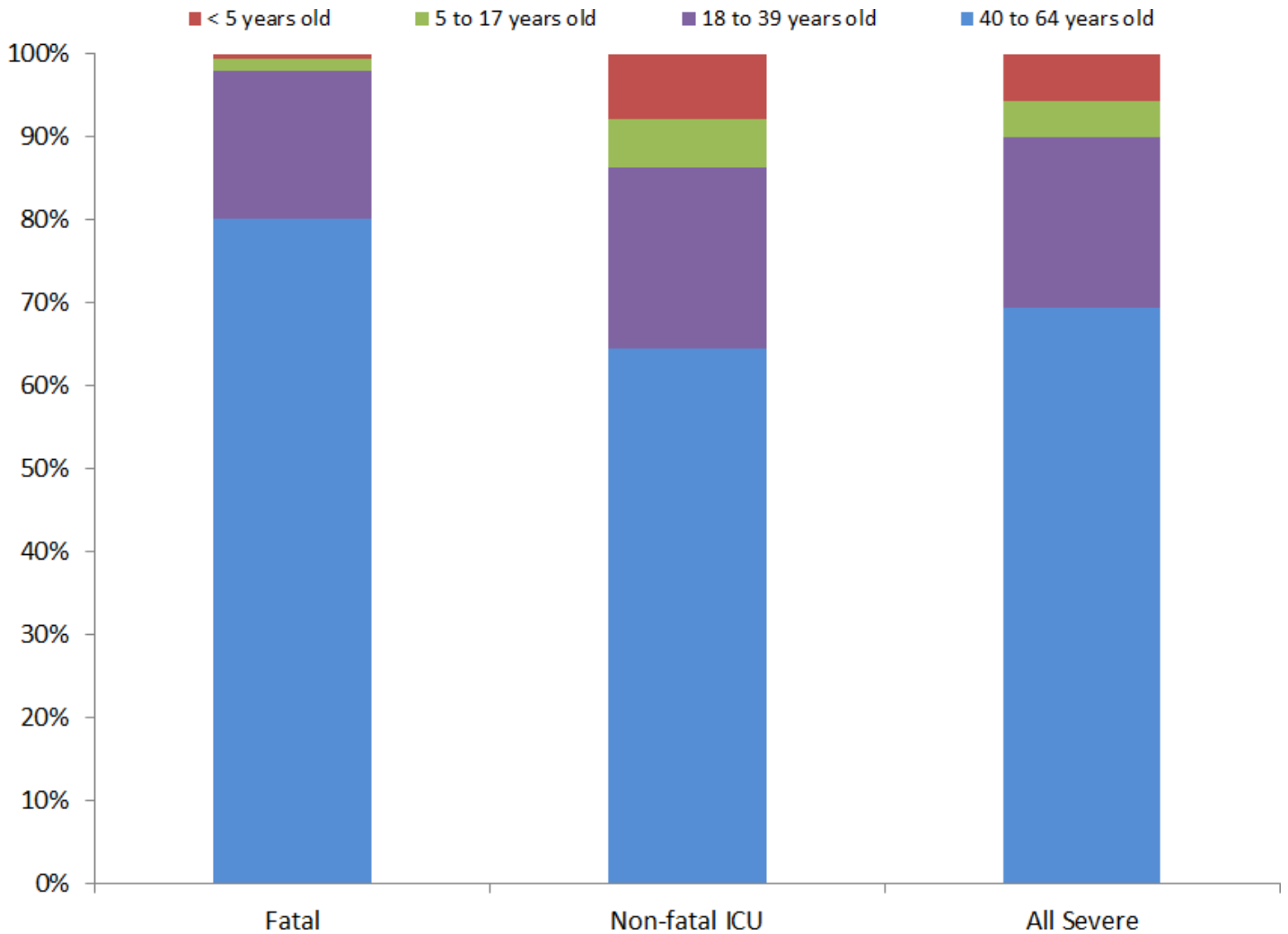


Note: These data are preliminary and may be revised upward as more cases are reported.

In addition to influenza-associated fatalities, CDPH also collects information on non-fatal intensive care unit (ICU) admissions in patients aged 0–64 years with laboratory-confirmed influenza; however, these data are voluntarily reportable, do not include all influenza-associated ICU admissions in California, and have less complete information available than the influenza-associated fatalities. To date for the 2013– 2014 season, 739 laboratory-confirmed non-fatal influenza ICU admissions have been reported to CDPH.

Age was available for 332 (100%) influenza-associated fatalities and 739 (100%) non-fatal influenza-associated ICU admissions. For both fatal and non-fatal ICU cases, the majority of cases were adults aged 40–64 years (Figure 7).

Figure 7. Percentage of Laboratory-Confirmed Severe Influenza Cases in Persons <65 Years Old by Age Group, 2013-2014



E. Influenza-Associated Outbreaks

During Week 10, 2 influenza outbreaks that occurred prior to Week 10 were confirmed. The outbreaks were reported from Los Angeles and Sacramento. Both outbreaks occurred in congregate settings. Both outbreaks were associated with influenza A; 1 was subtyped as 2009 A (H1N1) and 1 was not subtyped.

To date, 42 laboratory-confirmed influenza outbreaks have been reported to CDPH for the 2013–2014 season. All outbreaks occurred in congregate settings. One was associated with influenza B. Forty-one were associated with influenza A; 5 were subtyped as A (H3), 21 were subtyped as 2009 A (H1N1), and 15 were not subtyped.

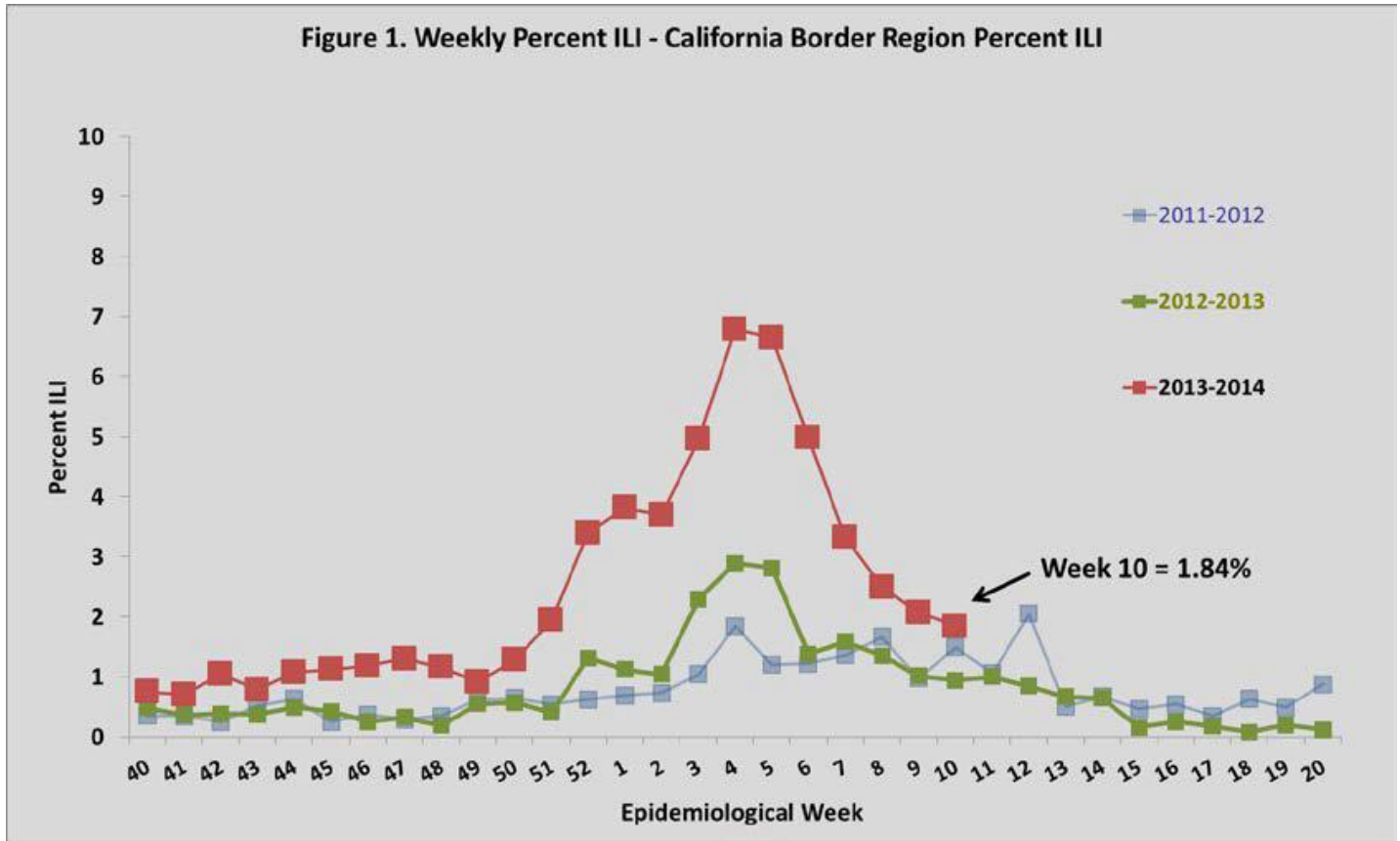
F. California Border Region Influenza Surveillance Network Data

1. Syndromic Surveillance Update

A total of 8 border region sentinel providers reported data during Week 10 compared to 9 during Week 9 of 2014. The total number of patients screened by all sentinel sites for ILI during Week 10

was 4,068. Outpatient ILI activity decreased by 0.3% from Week 9 (2.1% ILI) to Week 10 (1.8% ILI). ILI activity for the California border region was higher for Week 10 when compared to activity for the same weeks during the 2012–2013 and the 2011–2012 influenza seasons (Figure 1). All influenza syndromic data summarized for the border region represents a subset of CDC influenza sentinel providers in California.

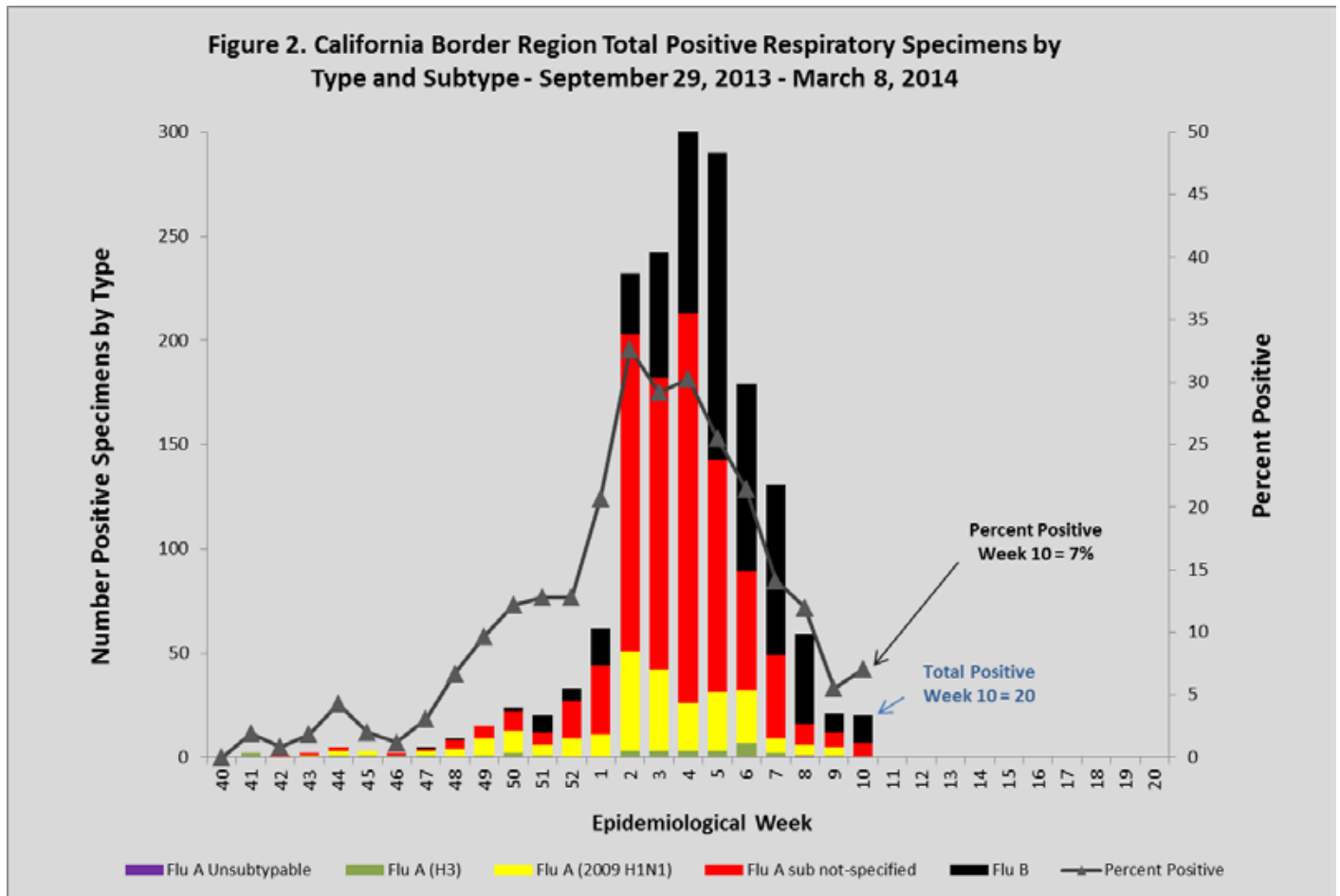
Figure 1. Weekly Percent ILI – California Border Region Percent ILI



2. Virologic Surveillance Update

Cumulatively this season, a total of 8,917 respiratory specimens have been tested from border region clinics; of these, 1,695 (19.0%) tested positive for influenza. Of the influenza positive specimens, 1,061 (62.6%) were influenza A and 634 (37.4%) were influenza B. Of the 1,061 specimens that tested positive for influenza A, 32 (3.0%) were A (H3), 234 (22.1%) were 2009 A (H1), and 795 (74.9%) had no subtyping performed. For Week 10, a total of 283 respiratory specimens were submitted for testing; of these, 20 (7.1%) were positive for influenza virus. Of the positive specimens 7 (35.0%) were influenza A, and 13 (65.0%) were influenza B. Of the 7 specimens that tested positive for influenza A, none had 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 to March 8, 2014



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>.