

Weekly Update



California Department of Public Health Influenza Surveillance Program

California Influenza and Other Respiratory Disease Surveillance for Week 9 (February 23 to March 1, 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 was downgraded to “local*” during Week 9.

Influenza activity in California is decreasing; the number of influenza-associated deaths in persons <65 years of age decreased in Week 9 compared to Week 8, 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 9, the percentage of influenza detections in the RLN and sentinel laboratories decreased compared to Week 8 with less than 10% 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 9 (2.9%) was within expected levels for this time of year. Statewide, the percentage of outpatient visits for ILI decreased in Week 9 compared to Week 8 (3.4%).
- Hospitalizations for pneumonia and influenza (P&I) during Week 9 (5.5%) were within expected levels for this time of the year. Statewide, the percentage of hospitalizations for P&I decreased in Week 9 compared to Week 8 (6.3%).
- Of 2,278 specimens tested during Week 9,
 - 122 (5.4%) were positive for influenza virus; of these
 - 38 (31.1%) were influenza B and
 - 84 (68.9%) were influenza A
 - 7 (8.3%) were subtyped as seasonal A (H3)
 - 44 (52.4%) were subtyped as 2009 A (H1)
 - 33 (39.3%) were not subtyped.
- Seventeen laboratory-confirmed influenza deaths were reported during Week 9.
- Five laboratory-confirmed influenza outbreaks previously reported were laboratory

confirmed in Week 9.

- No cases of novel influenza have been detected in California to date.

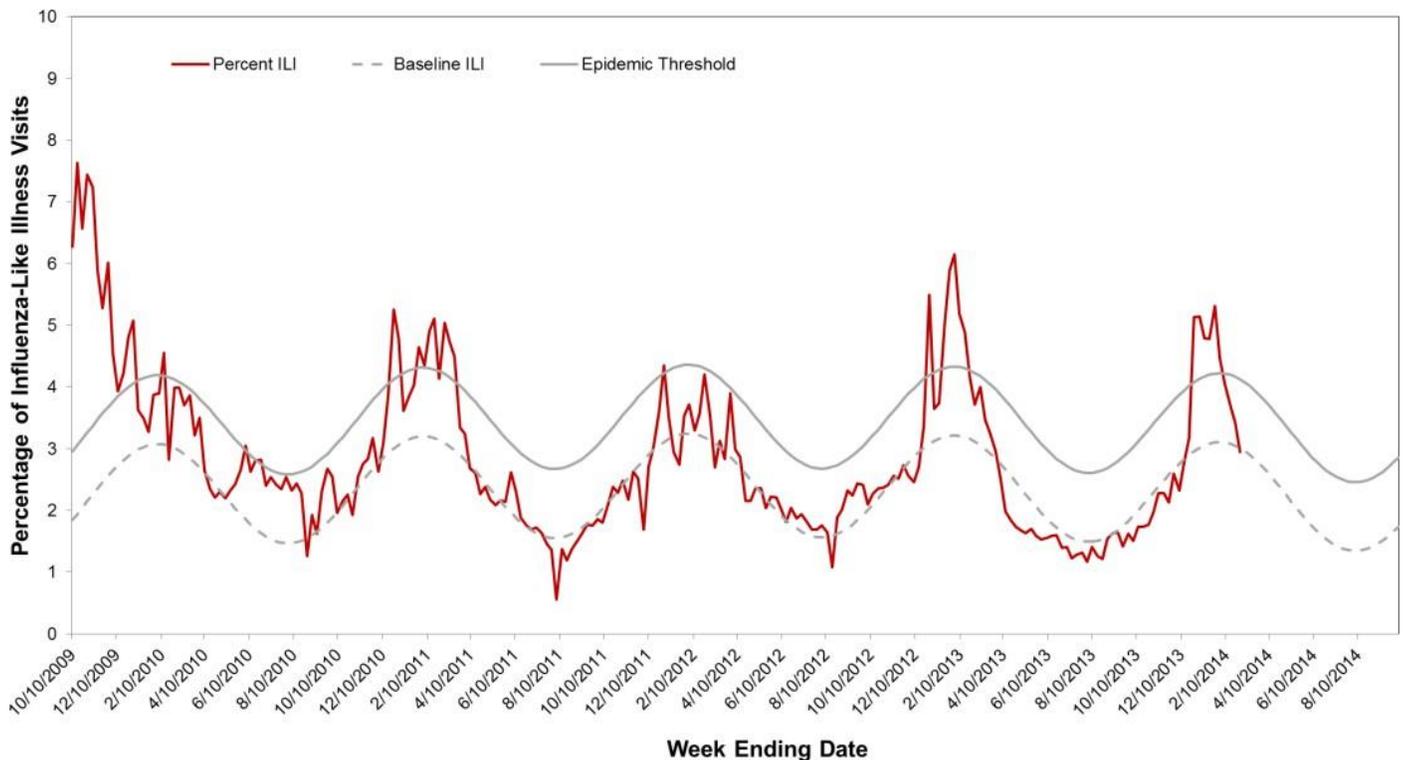
*For the Centers for Disease Control and Prevention (CDC) definitions of influenza geographic distribution, please go to the [CDC Influenza page](http://www.cdc.gov/flu/weekly/overview.htm) (<http://www.cdc.gov/flu/weekly/overview.htm>).

A. Syndromic Surveillance Update

1. CDC Influenza Sentinel Providers

A total of 70 enrolled sentinel providers have reported data for Week 9, compared to an average of 133 providers reporting for each of the previous weeks. Based on available data, the percentage of visits for ILI in Week 9 (2.9%) 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

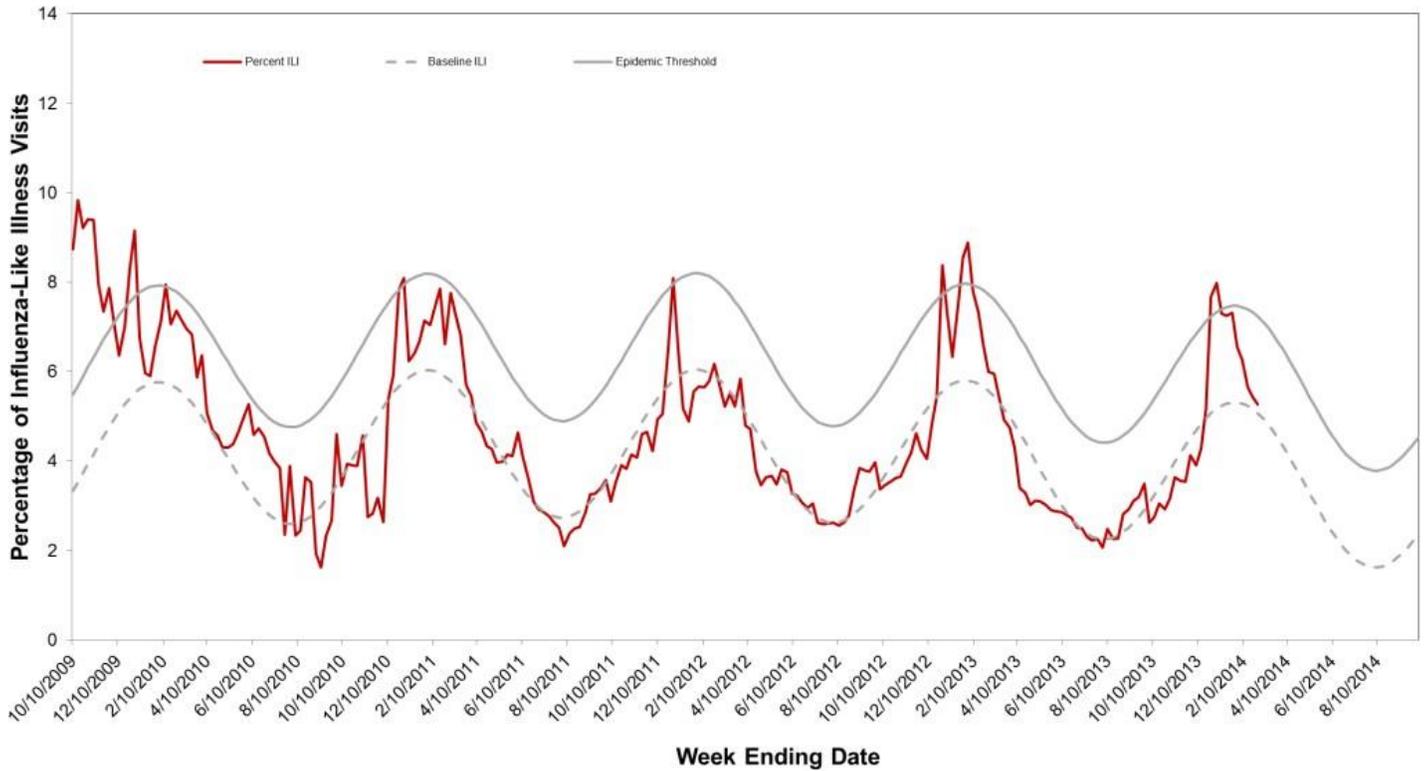


The seasonal baseline was calculated using a regression model applied to data from the previous eight years. The epidemic threshold is two standard deviations above the seasonal baseline and is the point at which the observed percentage of ILI is significantly higher than would be expected at that time 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 9 (5.5%) compared to Week 8 (6.3%) 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 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.

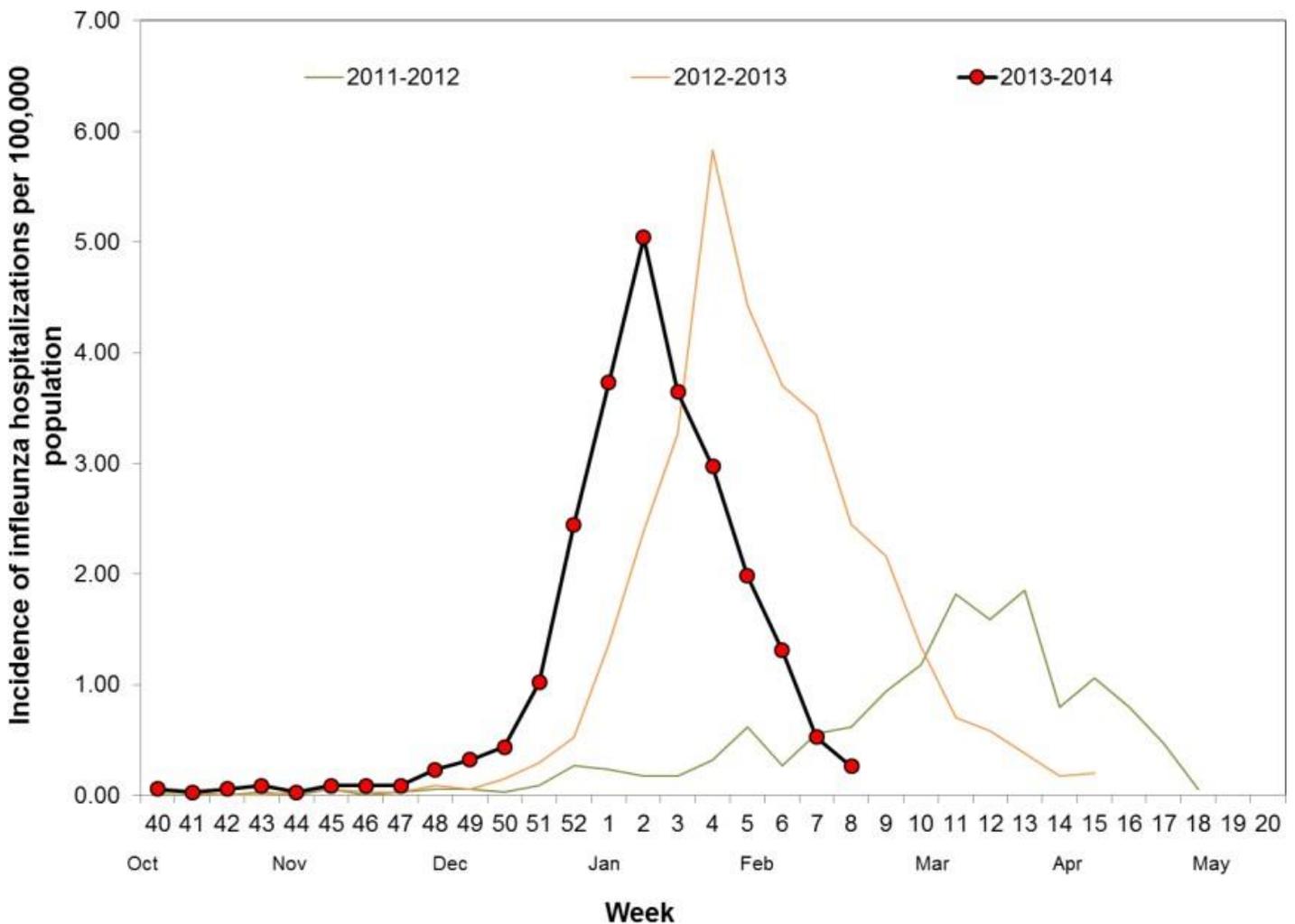
B. Hospitalization Surveillance Update

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 8 (0.3) compared to Week 7 (0.5). Data for Week 9 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

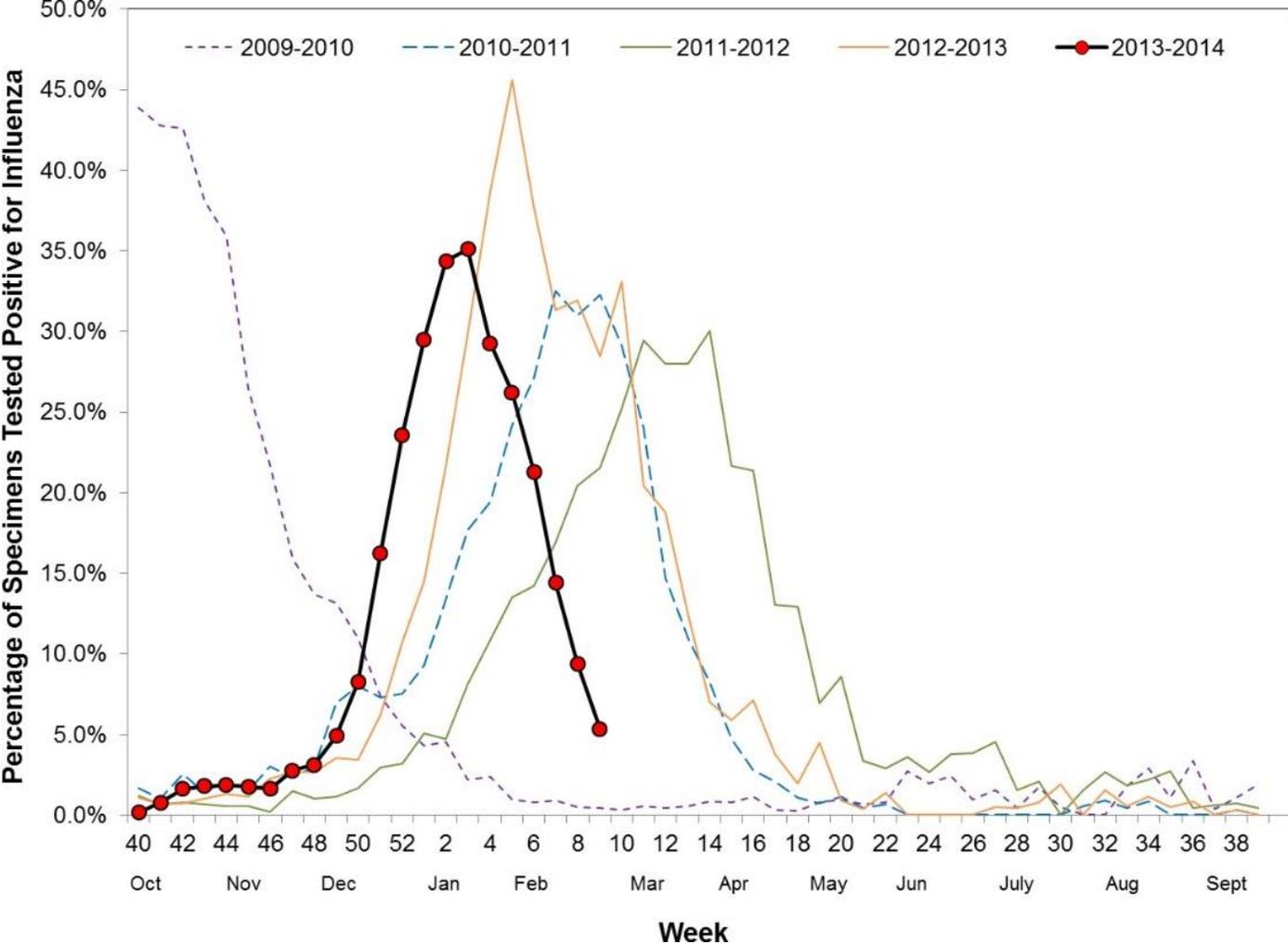
1. Respiratory Laboratory Network (RLN) and Sentinel Laboratory Surveillance Results

The percentage of influenza detections in the RLN and sentinel laboratories decreased in Week 9 (5.4%) compared to Week 8 (9.4%) (Figure 4). In Week 9, of 2,278 specimens tested by the RLN and sentinel laboratories, 38 (1.7%) were positive for influenza B and 84 (3.7%) were positive for influenza A. Of the 84 specimens that tested positive for influenza A, 7 (8.3%) were subtyped as seasonal A (H3), 44 (52.4%) were subtyped as 2009 A (H1), and 33 (39.3%) had no further subtyping performed.

To date for the 2013–2014 season, of 53,205 specimens tested, 10,940 (20.6%) were positive for influenza; of these, 1,013 (9.3%) were influenza B and 9,927 (90.7%) were influenza A. Of the 9,927 specimens that tested positive for influenza A, 240 (2.4%) were subtyped as seasonal A (H3), 4,317 (43.5%) were subtyped as 2009 A (H1), and 5,370 (54.1%) had no further subtyping performed.

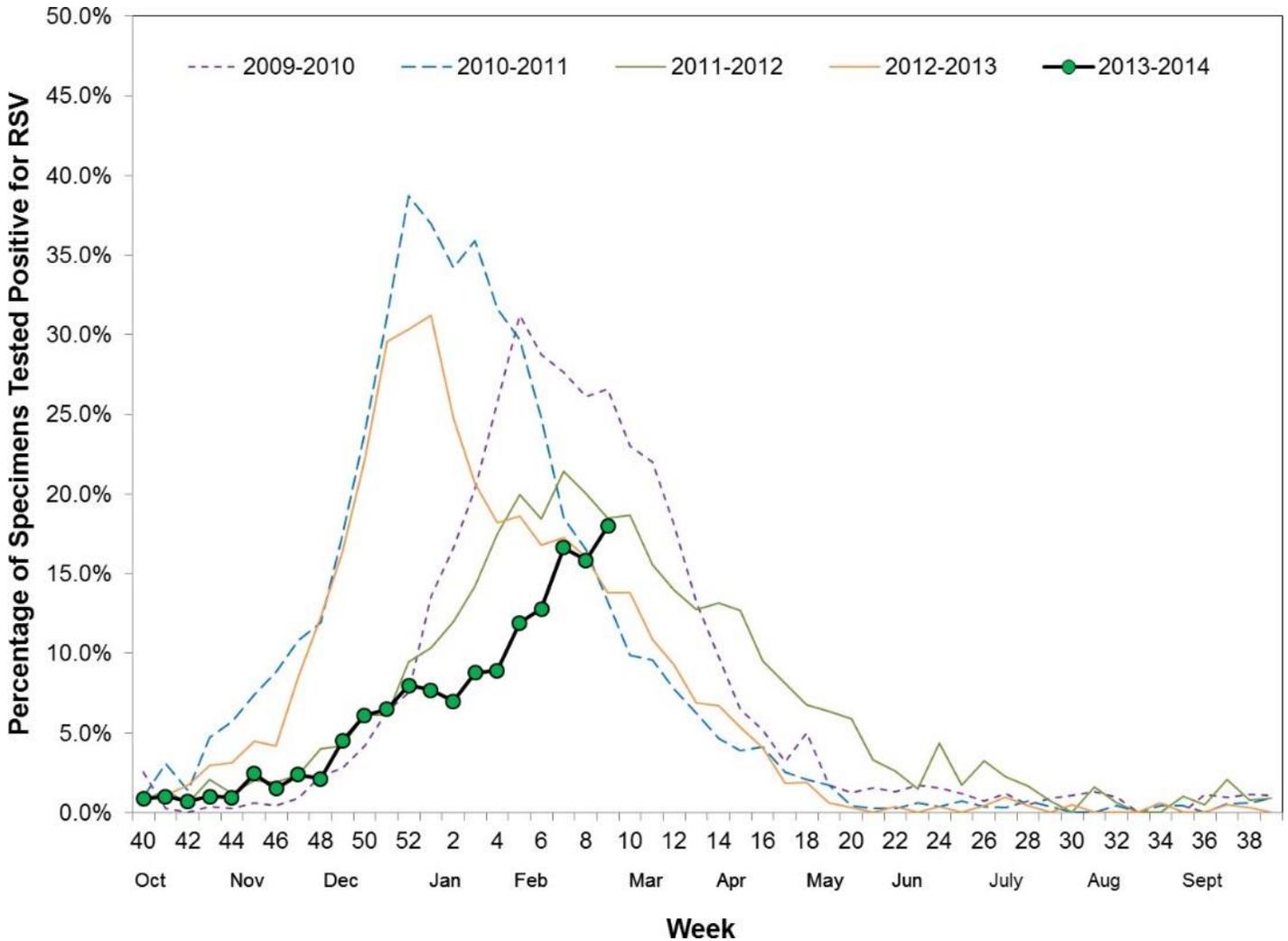
Neither the RLN nor CDPH-VRDL have identified any influenza viruses by polymerase chain reaction (PCR) typing or subtyping that are suggestive of a novel influenza virus.

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



During Week 9, 1,724 specimens were tested for RSV and 310 (18.0%) were positive, which represents an increase compared to Week 8 (15.9%) (Figure 5).

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

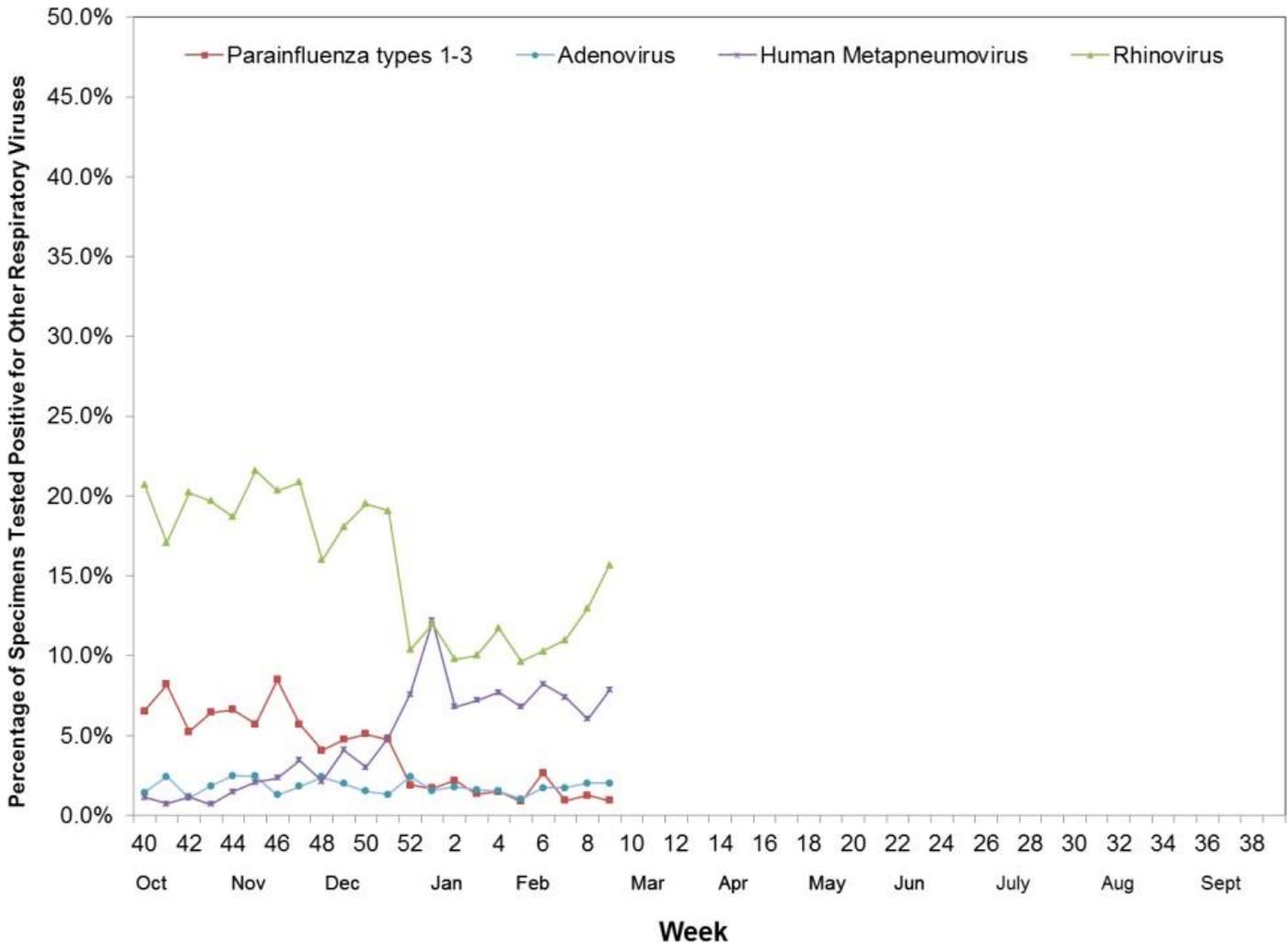


In Week 9, parainfluenza virus detections slightly decreased (0.9%, compared to 1.3 % in Week 8), adenovirus detections did not change (2.0%, compared to 2.0% in Week 8), human metapneumovirus detections increased (7.9%, compared to 6.0% in Week 8), and rhinovirus detections increased (15.7%, compared to 13.0% in Week 8) (Table 1, Figure 5).

Table 1. Number of specimens tested for other respiratory viruses and percentage positive in Week 9

Other Respiratory Pathogens	No. Specimens Tested	No. Specimens Tested Positive n (%)
Parainfluenza types 1-3	548	5 (0.9%)
Adenovirus	548	11 (2.0%)
Human Metapneumovirus	484	38 (7.9%)
Rhinovirus	364	57 (15.7%)

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 77 2009 A (H1) influenza specimens, 39 A (H3) influenza specimens, and 15 influenza B specimens for antiviral resistance to date during the 2013–2014 influenza season (Table 2). Two 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)	2/77
Influenza A (H3)	0/39
Influenza B	0/15

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.

Seven 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.

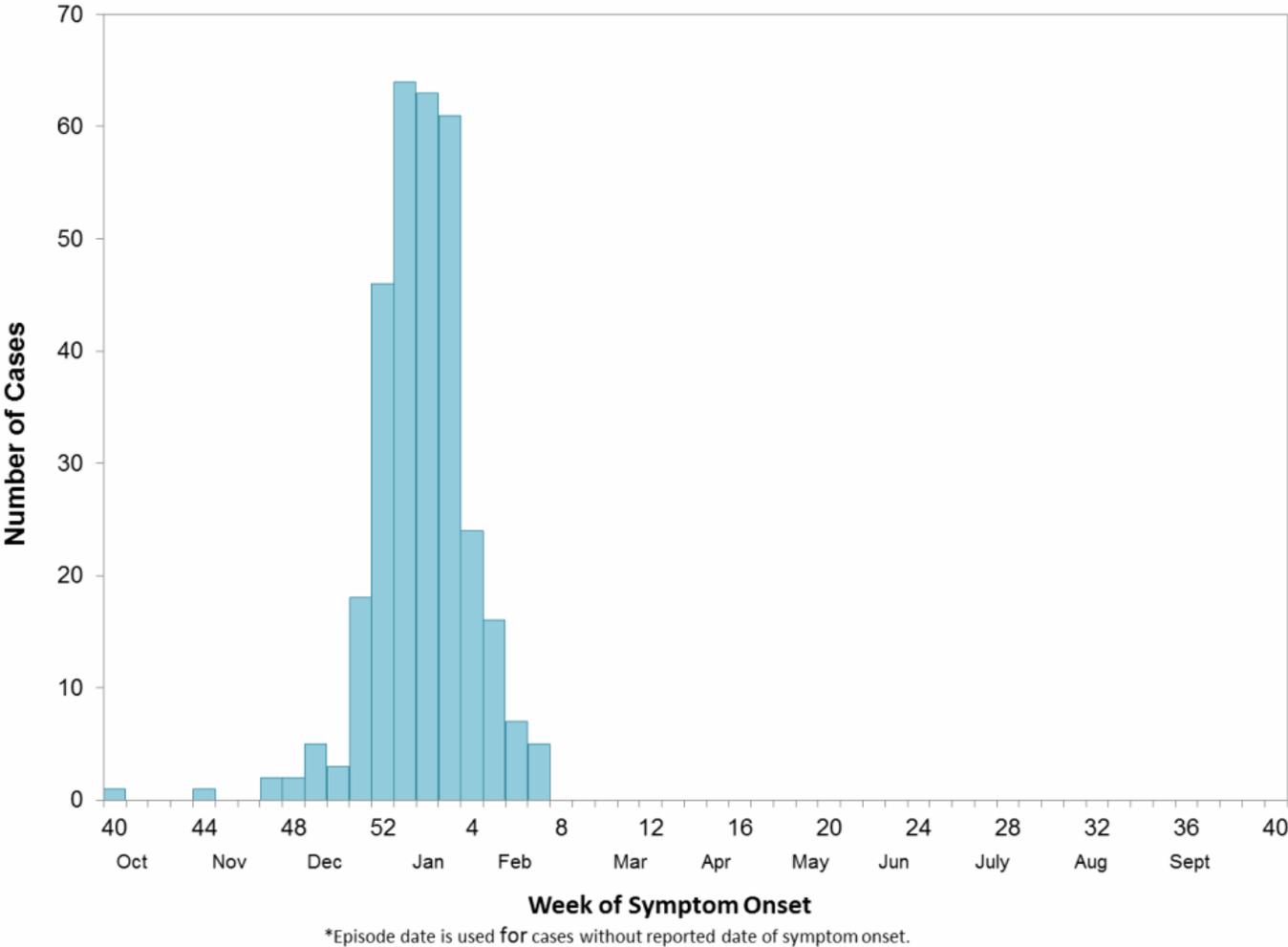
D. Laboratory-Confirmed Severe Influenza Case Reports

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 9, 17 laboratory-confirmed influenza fatalities were reported.

To date for the 2013–2014 season, 318 laboratory-confirmed influenza fatalities have been reported to CDPH, of which 6 occurred among children <18 years of age. Of the 318 fatalities, 312 (98.1%) were positive for influenza A, 4 (1.3%) were positive for influenza B, 1 (0.3%) was positive for influenza A and B, and 1 (0.3%) was positive for influenza but the type was not known. Of the 312 positive for influenza A, 4 (1.3%) were subtyped A (H3), 230 (73.7%) were subtyped 2009 A (H1N1), and 78 (25.0%) were not subtyped. Of the 318 fatalities, 283 (89.0%) had data available on underlying medical conditions. Of these, 214 (75.6%) had co-morbid conditions considered by the Advisory Committee on Immunization Practices (ACIP) to increase the risk for severe influenza, 48 (17.0%) had other underlying medical conditions, and 21 (7.4%) 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 (21), Glenn (1), Humboldt (1), Imperial (1), Kern (10), Kings (6), Lake (1), Lassen (1), Long Beach (7), Los Angeles (52), Madera (3), Marin (2), Mendocino (4), Merced (5), Monterey (5), Nevada (1), Orange (13), Riverside (15), Sacramento (26), San Bernardino (23), San Diego (27), San Francisco (3), San Joaquin (7), San Luis Obispo (1), San Mateo (6), Santa Barbara (3), Santa Clara (16), Santa Cruz (3), Shasta (3), Siskiyou (2), Solano (3), Sonoma (6), Stanislaus (13), Sutter (1), Tulare (3), Tuolumne (1), and Ventura (3). By Week 9 of the 2012–2013 season, CDPH had received reports on a total of 43 influenza fatalities.

The weekly influenza report includes confirmed deaths formally reported to CDPH as of March 1, 2014 (Week 9). Twenty-six 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

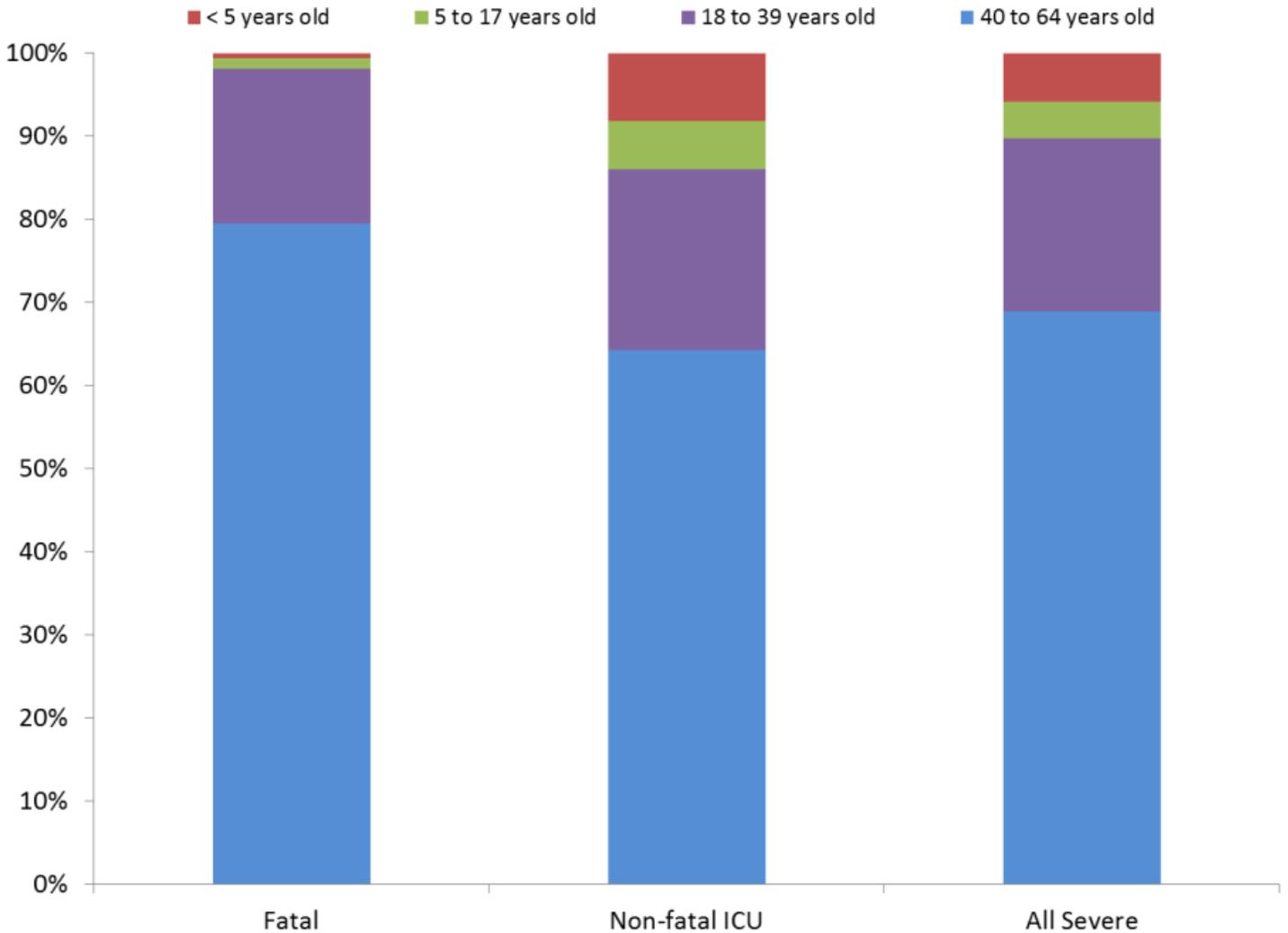


Note: These data are preliminary and may be revised upward as more cases are reported.

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, 720 laboratory-confirmed non-fatal influenza ICU admissions have been reported to CDPH.

Age was available for 318 (100%) influenza-associated fatalities and 720 (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 9, 5 influenza outbreaks reported prior to Week 9 were laboratory confirmed. The outbreaks were reported from Los Angeles, Monterey (2), San Diego, and San Mateo. All outbreaks occurred in a congregate setting. All outbreaks were associated with influenza A; 2 were subtyped as 2009 A (H1N1) and 3 were not subtyped.

To date, 40 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. Thirty-nine were associated with influenza A; 5 were subtyped as A (H3), 20 were subtyped as 2009 A (H1N1), and 14 were not subtyped.

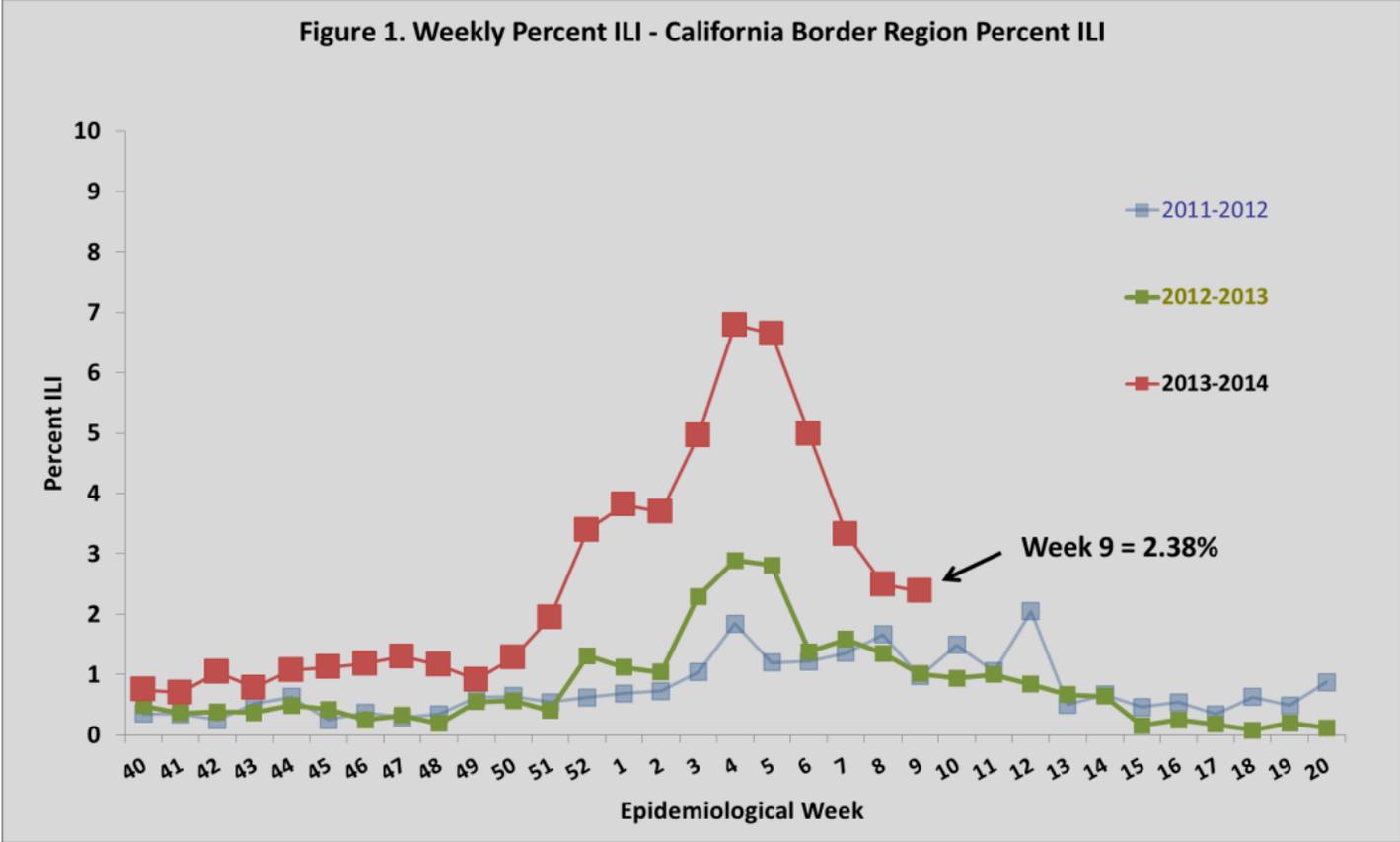
F. California Border Region Influenza Surveillance Network Data

1. Syndromic Surveillance Update

A total of 8 border region sentinel providers reported data during Week 9 compared to 13 during Week 8 of 2014. The total number of patients screened by all sentinel sites for ILI during Week 9

was 3,945. Outpatient ILI activity decreased by 0.1% from Week 8 (2.5% ILI) to Week 9 (2.4% ILI). ILI activity for the California border region was higher for Week 9 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.

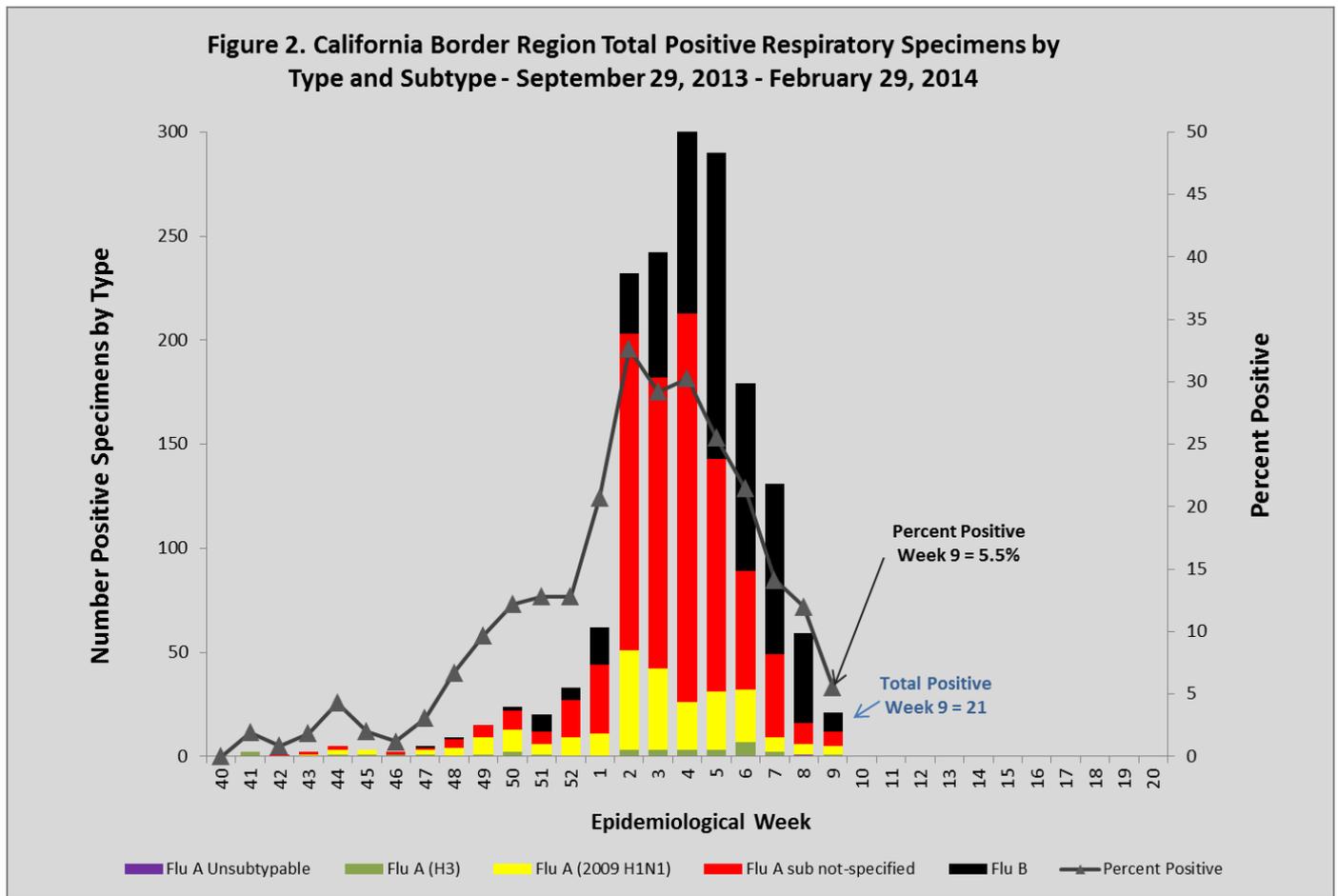
Figure 1. Weekly Percent ILI – California Border Region Percent ILI



2. Virologic Surveillance Update

Cumulatively this season, a total of 8,634 respiratory specimens have been tested from border region clinics; of these, 1,675 (19.4%) tested positive for influenza. Of the influenza positive specimens 1,054 (63.0%) were influenza A and 621 (37.0%) were influenza B. Of the 1,054 specimens that tested positive for influenza A, 32 (3.0%) were A (H3), 234 (22.2%) were 2009 A (H1), and 788 (74.8%) had no subtyping performed. For Week 9, a total of 381 respiratory specimens were submitted for testing; of these, 21 (5.5%) were positive for influenza virus. Of the positive specimens 12 (57.1%) were influenza A, and 9 (43.9%) were influenza B. Of the 12 specimens that tested positive for influenza A, 1 (8.3%) was A (H3), 4 (33.3%) were 2009 A (H1), and 7 (58.4%) had no 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 February 29, 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](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>.