

# California Influenza Surveillance Project

## California Department of Public Health

2009-2010

### Influenza Update

This week, overall influenza activity in California was downgraded to “regional” (defined by the CDC as “outbreaks of influenza or increases in ILI (influenza-like illness) and recent laboratory confirmed influenza in at least two but less than half the regions of the state”). Laboratory detections of influenza have decreased statewide over the last several reporting periods.

Detections of respiratory syncytial virus (RSV) continue to increase. Reports of ILI from sentinel providers have increased over the last two reporting periods, but this is probably due to an increase in RSV detections.

#### **CALIFORNIA 2009 H1N1 INFLUENZA UPDATE**

##### **Highlights:**

##### **Summary:**

- In California, 2009 H1N1 influenza activity has changed to regional this week (downgraded from widespread). Most indicators suggest that illness may be declining, with levels of illness approaching the normal range for this time of year. A total of 72 new cases (hospitalized and/or fatal) were reported to CDPH this week, 25 of which were from the current reporting period (December 20 – 26, 2009) and 47 of which were delayed reports from prior to December 20, 2009. Reported cases of new hospitalizations decreased from 209 cases last week to 72 cases this week. As in previous weeks, the rate of hospitalizations remains highest among children under one year of age. The number of fatalities reported to CDPH decreased from 32 cases last week to 12 this week. Of these 12, two fatalities occurred during the reporting week (December 20-26, 2009); the remaining 10 occurred during preceding weeks. All influenza viruses detected over the last week by the Respiratory Laboratory Network were 2009 H1N1 influenza.

##### **Specific Highlights:**

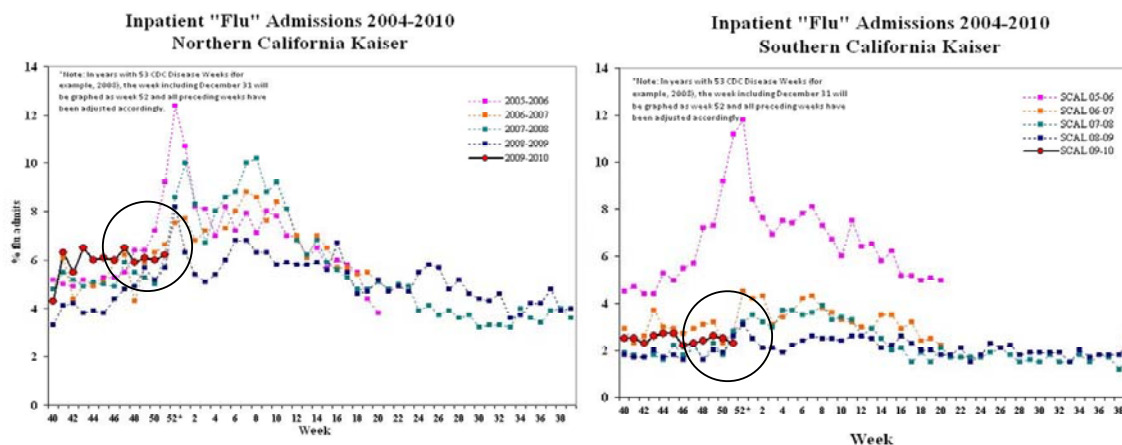
- Local health departments have been reporting hospitalized 2009 H1N1 influenza cases as weekly aggregate numbers since August 12, 2009. From December 20 – December 26, 2009, 72 hospitalized and/or fatal cases were reported to CDPH, 25 of which were from the current reporting period (December 20 – 26, 2009) and 47 of which were delayed reports from prior to December 20, 2009.
- There have been 8,075 hospitalizations and/or fatalities, with 1,656 cases requiring intensive care, reported to date since the beginning of the pandemic.
- The statewide cumulative incidence rate of reported 2009 H1N1 influenza hospitalizations and/or fatalities is 20.9 per 100,000 population.

- CDPH received 12 reports of fatal 2009 H1N1 influenza cases for the week ending on December 26, 2009, two of which occurred during the reporting week (December 20-26); a total of 461 deaths due to 2009 H1N1 influenza have been reported to CDPH to date.
- A total of 2,857 hospitalized and/or fatal 2009 H1N1 influenza cases in pediatric patients 18 years or younger, including 47 deaths, have been reported to CDPH to date.
- Twenty new cases meeting the case definition for severe pediatric influenza were reported this week, including two fatalities. All 20 cases are confirmed/probable 2009 H1N1 influenza.
- The aggregate numbers of hospitalized and/or fatal cases reported to CDPH this week included five pregnant 2009 H1N1 influenza cases; a total of 533 pregnant hospitalized and/or fatal cases, including 17 deaths (case-fatality proportion 3.2%), have been reported to CDPH to date.
- In recent weeks, almost all influenza A-positive specimens tested by PCR at VRDL and by the Respiratory Laboratory Network have been subsequently confirmed as 2009 H1N1 influenza, reflecting that the predominant circulating influenza strain in California remains 2009 H1N1 influenza.
- A total of five cases of oseltamivir resistance have been identified in California residents with laboratory-confirmed 2009 H1N1 influenza infections.
- Available data indicate that prevalence of oseltamivir-resistant 2009 H1N1 influenza is quite limited. On December 7, 2009, the CDC released updated interim recommendations for the use of antiviral medications in the treatment and prevention of influenza.

### Kaiser Permanente Hospitalization Data ("Flu Admits")

The admission diagnoses of flu, pneumonia, and influenza ("Flu Admits") serve as surrogate markers for the more accurate discharge diagnoses. Influenza activity is tracked by dividing the number of Flu Admits by the total number of hospital admissions for the same day to obtain a percentage of influenza and pneumonia admissions. As indicated in the circles, Figure 1 shows that in northern California, the percentage of Kaiser hospitalizations for pneumonia and influenza (P&I) increased slightly in Week 51 (December 20 – December 26, 2009), while southern California showed a slight decrease (Figure 2). This is within the range of percentages seen for seasonal influenza in previous years.

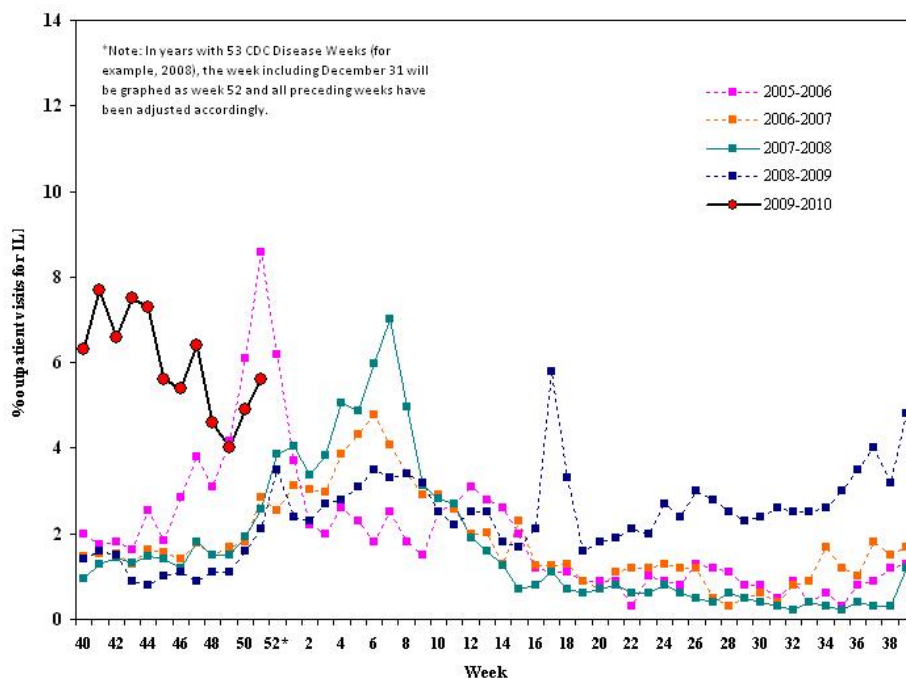
**Figures 1-2.** Inpatient "Flu" Admissions at Kaiser Facilities, 2004-2009.



## CDC Influenza Sentinel Providers

Sentinel providers report the number of outpatient visits for influenza-like illness (ILI) and the total number of visits per week. These data are reported weekly as a percentage of total visits. Figure 3 shows a peak in Weeks 17-18 (April 26 – May 9, 2009) when 2009 H1N1 influenza was first identified. ILI has increased in the last two reported periods but this is most likely due to RSV. ILI is within the range of percentages seen for seasonal influenza in previous years. A total of 55 sentinel providers reported in Week 51.

**Figure 3.** California Sentinel Providers – Influenza-Like Visits, 2004-2009.



## Respiratory Laboratory Network (RLN) Influenza PCR Surveillance Results

As noted in Table 1, during Week 51 (December 20 - 26, 2009), 11% of specimens received by the Respiratory Laboratory Network were positive for influenza A. This is a decrease from 16% in the previous week. 2009 H1N1 influenza remains the predominant strain circulating in California.

**Table 1.** Respiratory Laboratory Network (RLN) Influenza PCR Surveillance Results from Selected Laboratories\*, Week 51 (December 20-26, 2009)

	Total Flu A tested	Flu A (% of total)	H1 (% of Flu A)	H3 (% of Flu A)	Unsubtypeable (% of Flu A)	Total Flu B tested	Flu B (% of total)
<b>Total RLN*</b>	<b>339</b>	<b>37 (11%)</b>	<b>0 (0%)</b>	<b>0 (0%)</b>	<b>37 (100%)</b>	<b>301</b>	<b>0 (0%)</b>
Northern	139	14 (10%)	0 (0%)	0 (0%)	14 (100%)	125	0 (0%)
Central	91	9 (10%)	2 (1%)	0 (0%)	9 (100%)	67	0 (0%)
Southern	109	14 (13%)	0 (0%)	0 (0%)	14 (100%)	109	0 (0%)

\* 15 RLN laboratories reporting, including:

Northern CA: Contra Costa, Monterey, Sacramento, San Mateo, Santa Clara, Shasta

Central CA: Fresno, San Joaquin, Tulare

Southern CA: Long Beach, Los Angeles, Orange, San Luis Obispo, Santa Barbara, Ventura

## Laboratory Positive Results Data

Table 2 shows positive influenza and other virus results from sentinel laboratories, local public health laboratories and VRDL. Detections for influenza A are decreasing. Detections for respiratory syncytial virus (RSV) continue to increase.

**Table 2.** Influenza and other respiratory virus detections, December 20-26, 2009.

		Sentinel Laboratories/Respiratory Laboratory Network <sup>‡</sup>	Sentinel Providers
<b>Week 51</b>	<b>Number</b>	23 sites reporting	454 specimens submitted (256 positive by PCR, 36 pending)
	<b>Influenza A</b>	100 <sup>a</sup> Total tested week 51: 1556	0
	<b>Influenza B</b>	0 Total tested week 51: 1576	0
	<b>RSV</b>	67 <sup>b</sup> Total tested week 51: 989	N/A
	<b>Other Respiratory Viruses</b>	15 <sup>c</sup> Total tested week 51: 263	N/A

<sup>‡</sup>Sentinel laboratories are hospital, academic, private, and public health laboratories located throughout California that provide data on the number of laboratory-confirmed influenza and other respiratory virus detections and isolations. The Respiratory Laboratory Network (RLN) is a network of 23 local public health laboratories that offer enhanced diagnostic testing with the “R-mix” shell vial assay, which detects several respiratory pathogens, including influenza A and B viruses, respiratory syncytial virus, parainfluenza virus, and adenovirus. Some RLN labs also offer PCR testing for influenza A and B.

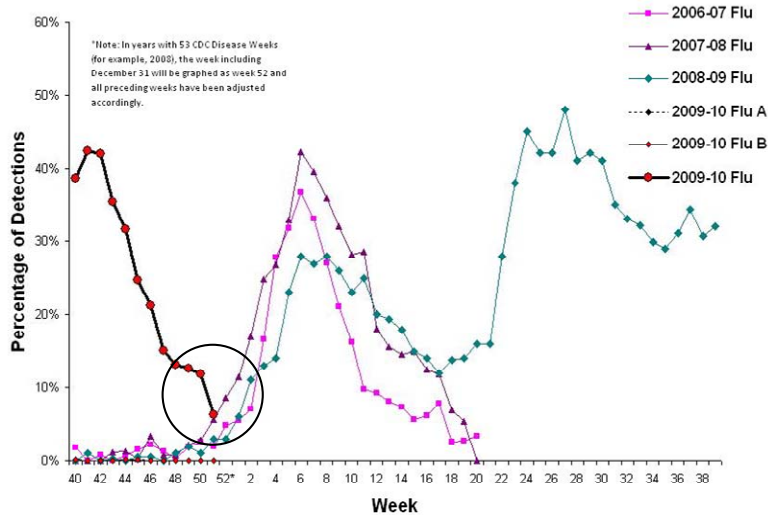
<sup>a</sup> Alameda (5); Contra Costa (8); Fresno (10); Long Beach (14); Los Angeles (4); Marin (2); Orange (5); Placer (1); Riverside (1); Sacramento (5); San Diego (4); San Francisco (1); San Joaquin (5); San Luis Obispo (2); San Mateo (4); Santa Barbara (1); Santa Clara (14); Shasta (3); Solano (2); Sonoma (2); Stanislaus (1); Tulare (4); Ventura (2)

<sup>b</sup> Alameda (8); Contra Costa (1); Fresno (3); Long Beach (2); Los Angeles (5); Merced (1); Placer (5); Sacramento (2); San Diego (4); San Francisco (5); San Joaquin (2); San Mateo (3); Santa Clara (16); Solano (3); Sonoma (3); Tulare (1); Yolo (1); Unknown (2)

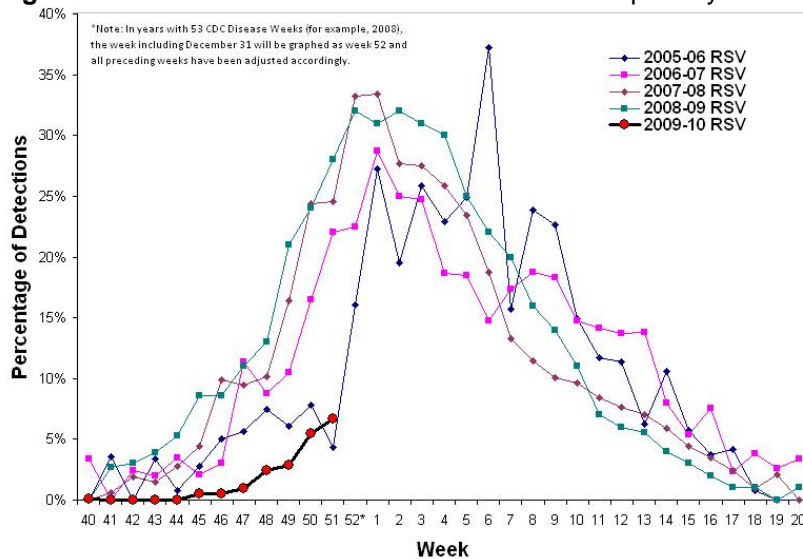
<sup>c</sup> parainfluenza type 1 (7); human metapneumovirus (4); parainfluenza type 3 (2); adenovirus (1); rhinovirus (1)

Figure 4 shows that laboratory detections peaked in week 27 (July 5 - 11, 2009). Influenza A detections have declined for multiple reporting periods. Figure 5 shows that RSV detections are increasing, which is typical for this time of year.

**Figure 4.** Influenza detections at sentinel laboratories/Respiratory Laboratory Network (RLN), 2005-2010.



**Figure 5.** RSV detections at sentinel laboratories/Respiratory Laboratory Network (RLN), 2005-2010.



Antiviral Resistance for 2009 H1N1 influenza

A total of five cases of oseltamivir resistance have been identified in California residents with laboratory-confirmed 2009 H1N1 influenza infections. Three cases were initially identified at VRDL, while the other two were initially confirmed by outside laboratories (Table 3). Of 1,737 specimens from California residents tested this year, VRDL has detected four specimens with the H275Y resistance mutation (Table 4), including one specimen that was previously confirmed by the CDC. VRDL continues intensified testing for antiviral resistance to monitor for changing resistance patterns.

**Table 3.** Oseltamivir-resistant viruses identified in California residents.

	<b>Total</b>	<b>Detected at VRDL</b>	<b>Detected at Other Laboratory*</b>
<b>Oseltamivir-Resistant Individuals</b>	5	3	2

\* Two oseltamivir-resistant viruses were identified by outside laboratories; the first in a San Francisco resident who traveled to Hong Kong, and a second in a San Diego resident that was initially tested by the CDC

**Table 4.** Antiviral resistance testing of California residents, VRDL, 2009.

<b>2009 H1N1 influenza</b>	<b>Oseltamivir Resistant</b>	<b>Adamantanes Resistant</b>
<b>VRDL testing</b>	4*/ 1,737	219/219

\* One oseltamivir-resistant virus was identified in a sample from a San Diego resident previously confirmed and reported by the CDC