

# California Influenza Surveillance Project

## California Department of Public Health

2009-2010

### Influenza Update

This week, overall influenza activity in California remained “widespread” [defined by CDC as outbreaks of influenza or increases in influenza-like illness (ILI) cases and recent laboratory confirmed influenza in at least half of the regions in the state]. Laboratory detections and reports of ILI from sentinel providers have declined in recent weeks, but still remain high.

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

##### **Highlights:**

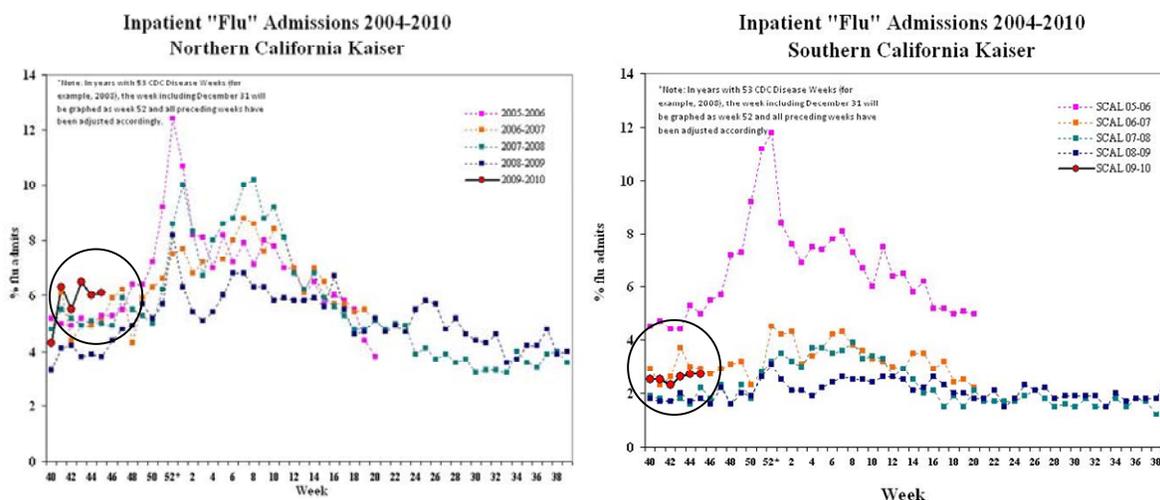
- In California, 2009 H1N1 influenza continues to be widespread. Although most indicators are showing sustained high levels of illness, some indicators suggest that illness may be leveling off. While up from last week, reported cases of new hospitalizations are lower than at their peak a couple of weeks ago. As in previous weeks, the rate of hospitalizations remains highest among children under one year of age. Reported fatalities among all age groups declined from 31 cases last week to 21 this week. Outpatient ILI illness continues to be well above expected levels for this time of year; however, the percent of visits for ILI appears to be leveling off or declining somewhat. Additionally, influenza A detections at sentinel laboratories have declined for the last three weeks. As with national data, almost all influenza viruses detected over the last week continue to be 2009 H1N1.
- Using the new estimation approach reported by CDC, we calculate the total number of 2009 H1N1 infections among Californians to be approximately 3.1 million from April through the end of October.
- Local health departments have been reporting hospitalized 2009 H1N1 influenza cases as weekly aggregate numbers since August 12, 2009. From November 8 – November 14, 2009, 689 hospitalized/fatal cases were reported; there have been 6,069 hospitalizations and/or fatalities, with 1118 cases requiring intensive care, reported to date.
- The statewide incidence rate of reported 2009 H1N1 influenza hospitalizations and fatalities is 15.7 per 100,000 population.
- CDPH received 21 reports of fatal 2009 H1N1 influenza cases for the week ending on November 14, 2009; a total of 318 2009 H1N1 influenza deaths have been reported to CDPH to date.
- A total of 2,184 hospitalized or fatal 2009 H1N1 influenza cases in pediatric patients 18 years or younger, including 39 deaths, have been reported to CDPH to date.
- Forty-six new cases meeting the case definition for severe pediatric influenza were reported this week, including 3 fatalities. Forty of the cases are confirmed/probable 2009 H1N1 influenza; additional testing is pending for the remaining six cases.
- The aggregate numbers of hospitalized or fatal cases reported to CDPH this week included 18 pregnant 2009 H1N1 influenza cases; a total of 412 pregnant hospitalized or fatal cases, including 11 deaths (case-fatality ratio 2.7%), 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.
- Three cases of oseltamivir resistance have been identified in California residents with laboratory-confirmed 2009 H1N1 influenza infections. One case was initially identified at VRDL; the other two were initially confirmed by outside laboratories. To date, of 1368 specimens tested at VRDL, all but two have tested negative for the H275Y resistance mutation.
- Available data indicate that prevalence of oseltamivir-resistant 2009 H1N1 influenza is quite limited. On September 22, 2009, the CDC released updated interim recommendations for the use of antiviral medications in the treatment and prevention of influenza. These recommendations are available at: <http://www.cdc.gov/h1n1flu/recommendations.htm>.
- Outbreaks continue to be reported and the number declined for the second consecutive week. In the last several weeks, the greatest number of outbreaks of respiratory diseases has been reported from schools.

### **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) decreased slightly in Week 44 (November 1-7, 2009) and remained steady in week 45 (November 8-14, 2009). Hospitalizations in southern California have remained steady for several reporting periods (Figure 2).

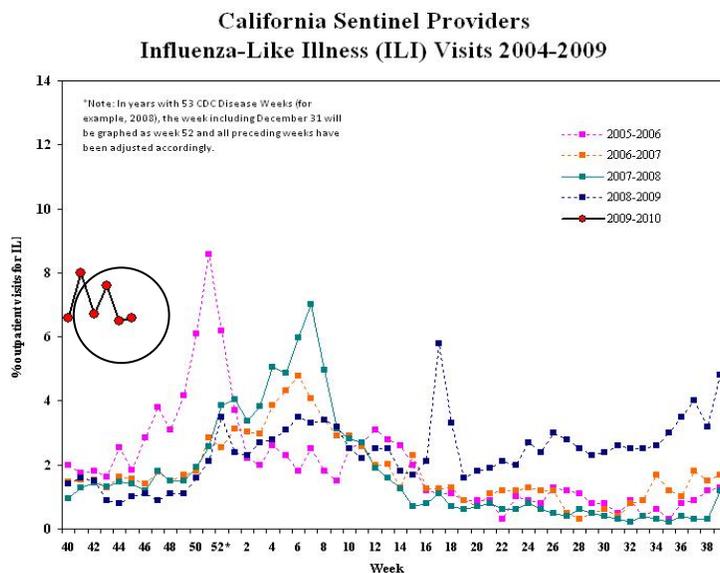
**Figures 1-2.** Inpatient "Flu" Admissions at Kaiser Facilities, 2004-2009.



## 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. As indicated in the circle, during Week 45 (November 8-14, 2009), ILI was 6.6%, which was similar to the previous reporting period. A total of 92 sentinel providers reported in Week 45.

**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 45 (November 8-14, 2009), 28% of specimens received by the Respiratory Laboratory Network were positive for influenza A. This is a decrease from 32% in the previous week. Detections of Influenza A have steadily decreased for the last five reporting periods. 2009 H1N1 influenza remains the predominant strain circulating in California.

**Table 1.** Respiratory Laboratory Network (RLN) Influenza PCR Surveillance Results from Selected

	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>1064</b>	<b>299 (28%)</b>	<b>0 (0%)</b>	<b>0 (0%)</b>	<b>299 (100%)</b>	<b>651</b>	<b>0 (0%)</b>
Northern	421	101 (24%)	0 (0%)	0 (0%)	101 (100%)	182	0 (0%)
Central	276	64 (23%)	2 (1%)	0 (0%)	64 (100%)	134	0 (0%)
Southern	367	134 (37%)	0 (0%)	0 (0%)	134 (100%)	335	0 (0%)

Laboratories\*, Week 45 (November 8-14, 2009)

\* 15 RLN laboratories reporting, including:

Northern CA: Contra Costa, El Dorado, Marin, Sacramento, San Francisco, Santa Clara, Shasta

Central CA: Fresno, San Joaquin, Tulare

Southern CA: Long Beach, Orange, Riverside, San Luis Obispo, Santa Barbara

## Laboratory Positive Results Data

Table 2 shows positive influenza and other virus results from sentinel laboratories, local public health laboratories and VRDL.

**Table 2.** Influenza and other respiratory virus detections, November 8-14, 2009.

		Sentinel Laboratories/Respiratory Laboratory Network <sup>‡</sup>	Sentinel Providers
<b>Week 45</b>	<b>Number of Sites Reporting</b>	21	353 specimens submitted (1191 positive by PCR, 162 pending)
	<b>Influenza A</b>	705 <sup>a</sup> Total tested week 45: 2885	0
	<b>Influenza B</b>	2 <sup>b</sup> Total tested week 45: 2470	0
	<b>RSV</b>	6 <sup>c</sup> Total tested week 45: 1070	N/A
	<b>Other Respiratory Viruses</b>	5 <sup>d</sup> Total tested week 45: 154	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 (34); Contra Costa (28); El Dorado (2); Fresno (28); Kern (1); Long Beach (72); Los Angeles (91); Marin (11); Mendocino (1); Orange (85); Placer (6); Riverside (41); Sacramento (38); San Bernardino (10); San Diego (58); San Francisco (23); San Joaquin (18); San Luis Obispo (8); San Mateo (12); Santa Clara (70); Shasta (7); Solano (13); Sonoma (17); Stanislaus (4); Tulare (27)

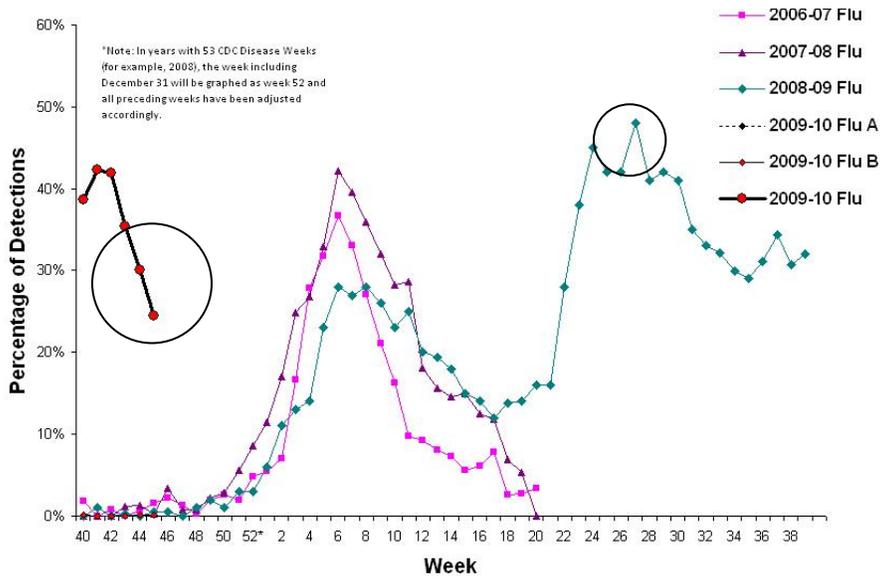
<sup>b</sup> Long Beach (1); Los Angeles (1)

<sup>c</sup> Kern (1); Long Beach (1); Marin (1); Sacramento (1); San Joaquin (1); Santa Clara (1)

<sup>d</sup> parainfluenza type 1 (2); parainfluenza type 2 (1); rhinovirus (2)

As indicated in the circles below, Figure 4 shows that laboratory detections peaked in week 27 (July 5 - 11, 2009). Influenza A detections have declined in recent reporting periods. This is consistent with other surveillance parameters.

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



**Antiviral Resistance for 2009 H1N1 influenza**

Three cases of oseltamivir resistance have been identified in California residents with laboratory-confirmed 2009 H1N1 influenza infections. One case was initially identified at VRDL, while the other two were initially confirmed by outside laboratories (Table 2). Of 1,368 specimens tested this year, VRDL has detected two specimens with the H275Y resistance mutation (Table 3), including one specimen that was previously confirmed by the CDC. VRDL has intensified testing for antiviral resistance to monitor for changing resistance patterns.

**Table 2.** Oseltamivir-resistant viruses identified in California residents.

	Total	Initially Detected at VRDL	Detected at Other Laboratory*
<b>Oseltamivir-Resistant Individuals</b>	3	1	2

\* Two oseltamivir-resistant viruses have been 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 3.** Antiviral resistance testing of California residents, VRDL, 2009.

2009 H1N1 influenza	Oseltamivir Resistant	Adamantanes Resistant
<b>VRDL testing</b>	2*/ 1368	178/178

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