

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].

CALIFORNIA 2009 H1N1 INFLUENZA UPDATE

Highlights:

Summary:

- In California, 2009 H1N1 influenza continues to be 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 209 new cases (hospitalized and/or fatal) were reported to CDPH this week, 81 of which were from the current reporting period (December 13 – 19, 2009) and 128 of which were delayed reports from prior to December 13, 2009. Reported cases of new hospitalizations decreased from 248 cases last week to 209 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 increased from 20 cases last week to 32 this week. Of these 32, 4 fatalities occurred during the reporting week (December 13-19, 2009); the remaining 28 occurred during preceding weeks. As with national data, almost all influenza viruses detected over the last week continue to be 2009 H1N1.

Specific Highlights:

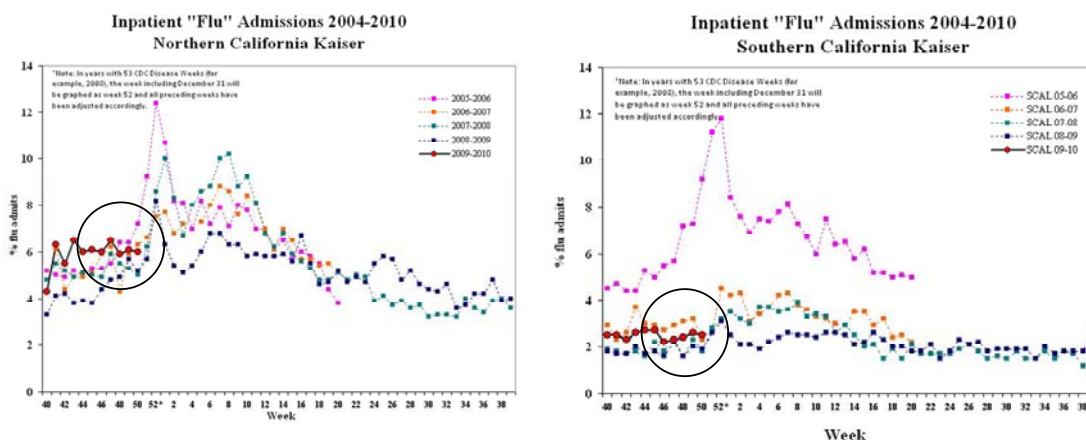
- Local health departments have been reporting hospitalized 2009 H1N1 influenza cases as weekly aggregate numbers since August 12, 2009. From December 13 – December 19, 2009, 209 hospitalized and/or fatal cases were reported to CDPH, 81 of which were from the current reporting period (December 13 – 19, 2009) and 128 of which were delayed reports from prior to December 13, 2009.
- There have been 8,003 hospitalizations and/or fatalities, with 1,590 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 20.7 per 100,000 population.
- CDPH received 32 reports of fatal 2009 H1N1 influenza cases for the week ending on December 19, 2009, four of which occurred during the reporting week (December 13-19); a total of 449 deaths due to 2009 H1N1 influenza have been reported to CDPH to date.
- A total of 2,822 hospitalized or fatal 2009 H1N1 influenza cases in pediatric patients 18 years or younger, including 46 deaths, have been reported to CDPH to date.
- Twenty-two new cases meeting the case definition for severe pediatric influenza were reported this week, including one fatality. Eighteen of the cases are confirmed/probable 2009 H1N1 influenza; additional testing is pending for the remaining four cases.

- The aggregate numbers of hospitalized or fatal cases reported to CDPH this week included 6 pregnant 2009 H1N1 influenza cases; a total of 528 pregnant hospitalized 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.
- This week, VRDL identified one new case of oseltamivir-resistance in a resident of San Francisco; the test result was confirmed by CDC. 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, Figures 1 and 1 show that in both northern and southern California, the percentage of Kaiser hospitalizations for pneumonia and influenza (P&I) decreased slightly in Week 50 (December 13 – December 19, 2009) and is within the range of percentages seen for seasonal influenza in previous years.

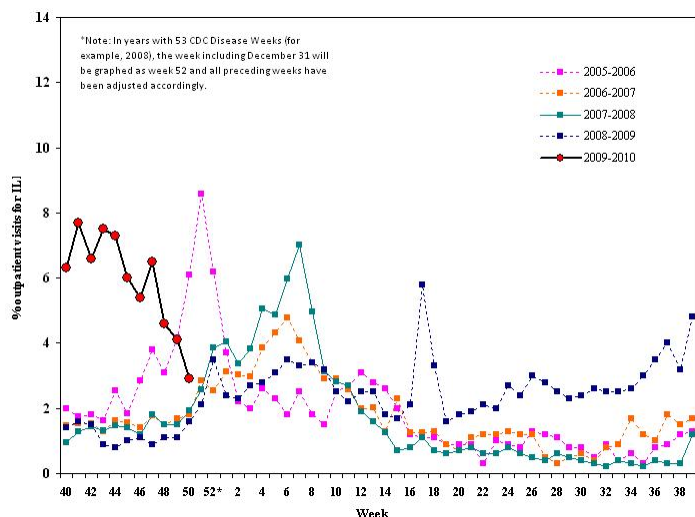
Figures 1-2. Inpatient "Flu" Admissions at Kaiser Facilities, 2004-2009.



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 decreased in the last three reporting periods and is now within the range of percentages seen for seasonal influenza in previous years. A total of 64 sentinel providers reported in Week 50.

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 50 (December 13 - 19, 2009), 18% of specimens received by the Respiratory Laboratory Network were positive for influenza A. This is a slight decrease from 22% 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 50 (December 13-19, 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)
Total RLN*	466	84 (18%)	0 (0%)	0 (1%)	81 (96%)	306	0 (0%)
Northern	254	46 (18%)	0 (0%)	0 (0%)	43 (93%)	221	0 (0%)
Central	71	10 (14%)	2 (1%)	0 (0%)	10 (100%)	37	0 (0%)
Southern	141	28 (20%)	0 (0%)	0 (0%)	28 (100%)	48	0 (0%)

* 16 RLN laboratories reporting, including:

Northern CA: Contra Costa, El Dorado, Monterey, Sacramento, San Francisco, San Mateo, Santa Clara, Shasta, Sonoma

Central CA: Fresno, Tulare

Southern CA: Long Beach, Los Angeles, Orange, 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. Detections for influenza A remain steady. Detections for respiratory syncytial virus (RSV) are increasing.

Table 2. Influenza and other respiratory virus detections, December 13-19, 2009.

		Sentinel Laboratories/Respiratory Laboratory Network [‡]	Sentinel Providers
Week 50	Number	24 sites reporting	452 specimens submitted (256 positive by PCR, 40 pending)
	Influenza A	206 ^a Total tested week 50: 1740	0
	Influenza B	0 Total tested week 50: 1576	0
	RSV	49 ^b Total tested week 50: 893	N/A
	Other Respiratory Viruses	12 ^c Total tested week 50: 141	N/A

[‡]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.

^a Alameda (16); Contra Costa (22); Fresno (7); Long Beach (10); Los Angeles (23); Merced (1); Monterey (2); Orange (11); Placer (4); Riverside (3); Sacramento (12); San Bernardino (4); San Diego (2); San Francisco (12); San Joaquin (5); San Luis Obispo (2); San Mateo (13); Santa Clara (31); Shasta (2); Solano (6); Sonoma (6); Stanislaus (2); Tulare (10)

^b Alameda (7); Contra Costa (2); Fresno (7); Long Beach (1); Los Angeles (3); Marin (1); San Diego (1); San Francisco (10); San Joaquin (1); San Mateo (4); Santa Clara (4); Solano (3); Sonoma (3); Stanislaus (1); Tulare (1)

^c parainfluenza type 1 (7); rhinovirus (3); adenovirus (1); parainfluenza type 3 (1);

Figure 4 shows that laboratory detections of influenza 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.

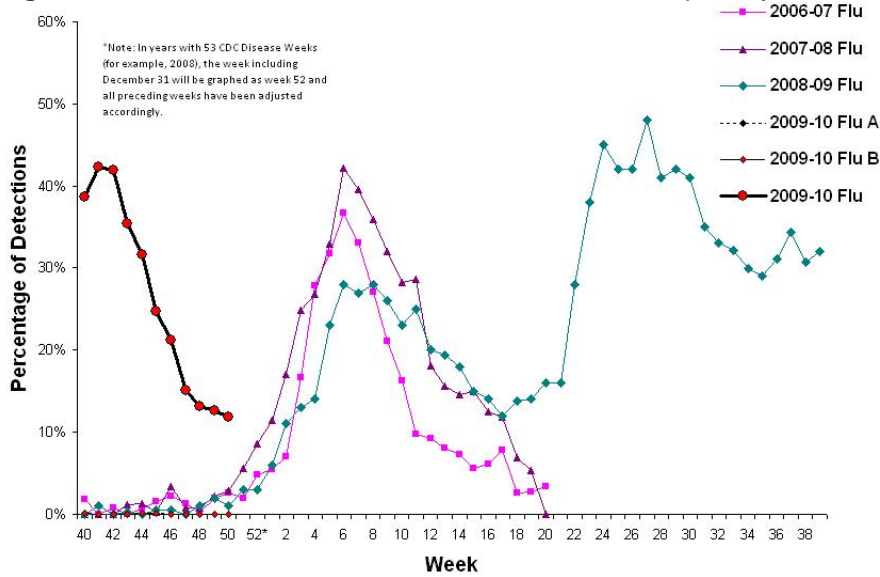
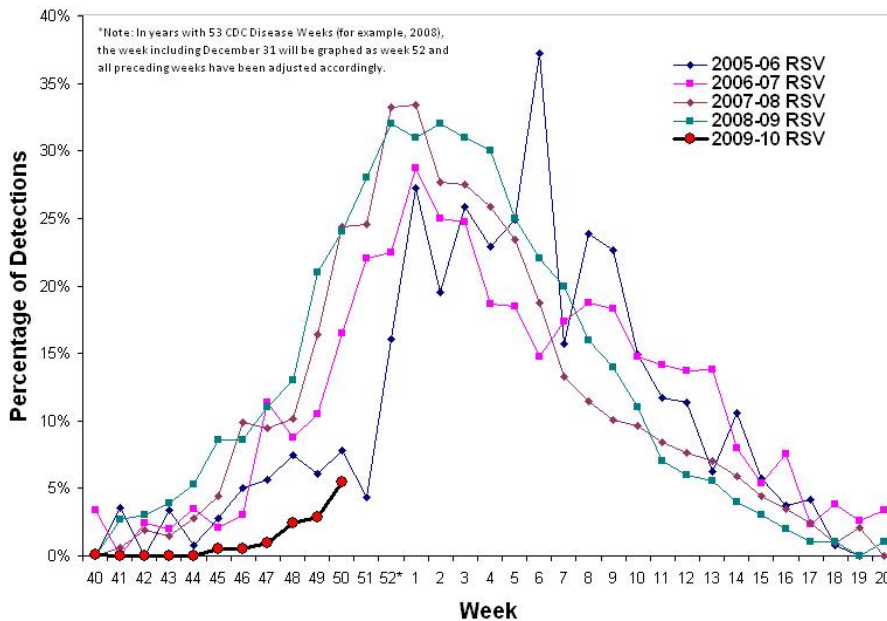


Figure 5. RSV detections at sentinel laboratories/Respiratory Laboratory Network (RLN), 2005-2010.



Antiviral Resistance for 2009 H1N1 influenza

One new case of oseltamivir resistance was identified this week, in a San Francisco resident. A total of five cases of oseltamivir resistance have been identified in California residents with laboratory-confirmed 2009 H1N1 influenza infections. These cases, including the most recent case from San Francisco, 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.

	Total	Detected at VRDL	Detected at Other Laboratory*
Oseltamivir-Resistant Individuals	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.

2009 H1N1 influenza	Oseltamivir Resistant	Adamantanes Resistant
VRDL testing	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