

California Influenza Surveillance Project

California Department of Public Health

2009-2010

Influenza Update

This week, overall influenza activity in California remained “sporadic” (defined by the CDC as “small numbers of laboratory-confirmed influenza cases or a single laboratory-confirmed influenza outbreak has been reported, but there is no increase in cases of ILI”). Reports of ILI from sentinel providers decreased in *MMWR* week 8 (February 21-27, 2010). Laboratory detections of influenza remained steady while detections of respiratory syncytial virus (RSV) decreased. The Respiratory Laboratory Network (RLN) reported one specimen positive for influenza A/H3. The percentage of Kaiser hospitalizations for pneumonia and influenza (P&I) continued an upward trend in northern California. The percentage of Kaiser hospitalizations for southern California remains similar to previous weeks.

NATIONAL PERSPECTIVE

During the week February 14 - 20, 2010, CDC reported that overall flu activity remained low in the United States. No states reported widespread flu activity and 3 states reported regional flu activity.

The proportion of visits to doctors for influenza-like illness (ILI) is 1.8%, below the national baseline level (2.3%).

Total influenza EIP hospitalization rates for laboratory-confirmed flu remained elevated for all age groups.

All subtyped influenza A viruses reported were identified as 2009 H1N1 influenza. These viruses remain similar to the virus chosen for the 2009 H1N1 vaccine, and remain susceptible to the antiviral drugs oseltamivir and zanamivir with rare exception*.

*Since April 2009, 60 cases of oseltamivir resistance have been found in the United States, with no new cases during the last week.

CALIFORNIA 2009 H1N1 INFLUENZA UPDATE

Highlights:

Summary:

- In California, 2009 H1N1 influenza activity remains “sporadic” this week. Most indicators suggest that illness continues to decline, with levels of illness at or below the usual range for

this time of year. A total of 24 new cases (hospitalized and/or fatal) were reported to CDPH this week, all of which were from the current reporting period (February 21 - 27, 2010). Reported cases of new hospitalizations decreased from 35 cases last week to 24 cases this week. As in previous weeks, the rate of hospitalization remains highest among children under one year of age. A total of four fatalities were reported to CDPH this week, all of which were delayed reports from prior to this reporting week (February 21 - 27, 2010). Reports of ILI from sentinel providers decreased this past week (February 21-27, 2010) but may increase as delayed reports are received. Detections of RSV appear to be decreasing. Two percent of specimens tested by the RLN were influenza A, of which one was influenza A/H3.

H1N1 Highlights:

- Local health departments have been reporting hospitalized 2009 H1N1 influenza cases as weekly aggregate numbers since August 12, 2009. From February 21 - 27, 24 hospitalized and/or fatal cases were reported to CDPH, all of which were from the current reporting period (February 21 - 27).
- There have been 8,798 hospitalizations and/or fatalities reported to date since the beginning of the pandemic, of which 1,923 cases required intensive care.
- The statewide cumulative rate of reported 2009 H1N1 influenza hospitalizations and/or fatalities is 22.7 per 100,000 population.
- CDPH received four reports of fatal 2009 H1N1 influenza cases for the week ending on February 27, 2010, all of which were delayed reports from prior to the reporting week (February 21 - 27, 2010); a total of 546 deaths caused by 2009 H1N1 influenza have been reported to CDPH to date.
- The case-fatality ratio among hospitalized and/or fatal cases is highest among individuals aged 50-64 years (10.8%, a decrease of 0.1% from the previous reporting week) and second-highest among individuals aged 36-49 years (10.4%, the same as the previous reporting week). The case-fatality ratio among hospitalized and/or fatal cases for all ages combined is 6.2%.
- A total of 3,060 hospitalized and/or fatal 2009 H1N1 influenza cases in pediatric patients 18 years or younger, including 53 deaths, have been reported to CDPH to date.
- Two new cases meeting the case definition for severe pediatric influenza were reported this week; no fatalities were reported. Both of these cases are confirmed/probable 2009 H1N1 influenza.
- From February 21 - 27, 2010, four pregnant 2009 H1N1 influenza cases were reported to CDPH as aggregate numbers, all of which were delayed reports from prior to the current reporting period (February 21 - 27, 2010). A total of 573 pregnant hospitalized and/or fatal cases, including 17 deaths (case-fatality proportion 3.0%), have been reported to CDPH to date.
- In the last several weeks, a low percentage of specimens tested positive for influenza by VRDL and the RLN.
- Two percent (3/188) of specimens received by the Respiratory Laboratory Network (RLN) were positive for influenza, representing a decrease from 3% in the previous reporting week.
- This week, one of the specimens tested by the RLN that was positive for influenza A was A/H3, while the remaining two specimens were unsubtypeable.
- Of 2,209 specimens tested, nine 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 very low.

Seasonal Influenza Highlights:

- Reports of ILI from sentinel providers decreased from last week.
- One isolate reported this week from the RLN was positive for influenza A/H3. This specimen came from Orange County.

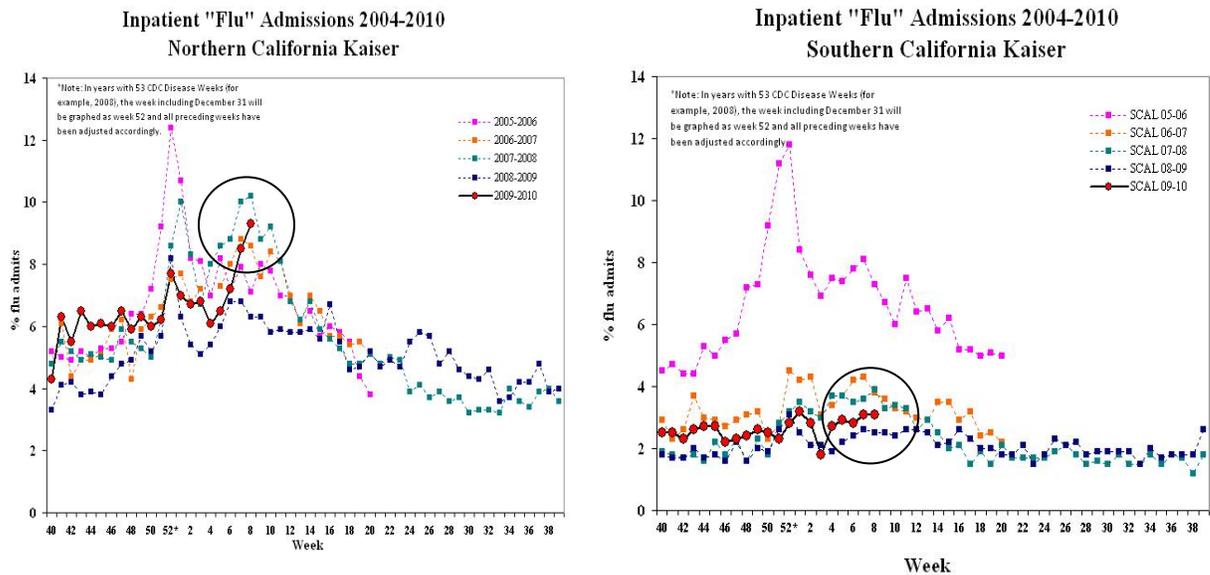
Other Respiratory Disease Highlights:

- This week, 30% of specimens submitted to sentinel laboratories/RLN were positive for RSV; 29% were positive during the previous week.
- This week, 16% of specimens tested for other respiratory viruses were positive, which is an increase of 1% from last week. Of those that tested positive for other respiratory viruses, 10% were human metapneumovirus and 5% were rhinovirus.

Kaiser Permanente Hospitalization Data ("Flu Admits")

The admission diagnoses of flu, pneumonia, and influenza ("Flu Admits") serve as surrogate markers for the more accurate, but less timely, diagnoses contained in discharge data. 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 circle, Figure 1 shows that during week 8 (February 21-27, 2010), the percentage of Kaiser hospitalizations for pneumonia and influenza (P&I) continued an upward trend in northern California. The percentage of Kaiser hospitalizations for southern California remains steady for week 8 (Figure 2). Both data points remain within the range of percentages seen for seasonal influenza in previous years.

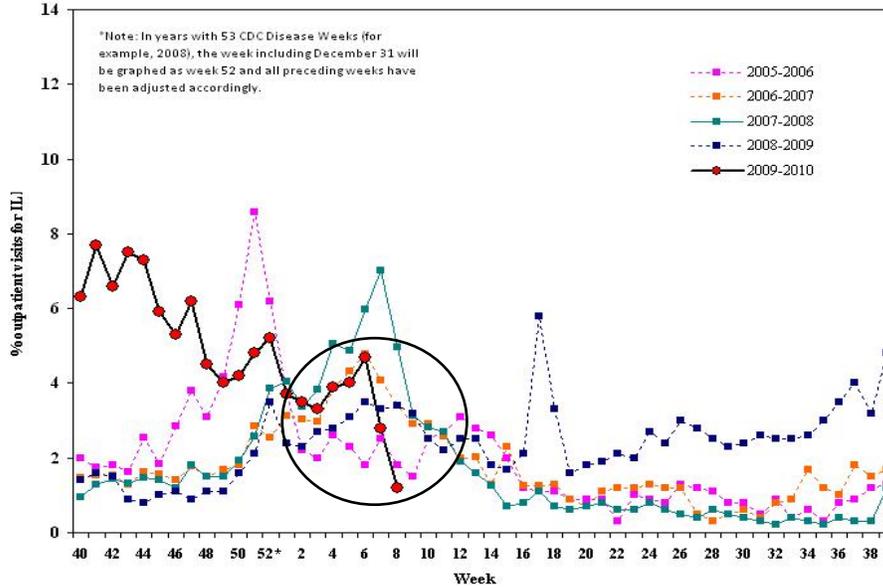
Figures 1-2. Inpatient "Flu" Admissions at Kaiser Facilities, 2004-2010.



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 decreased during the last two reporting periods. However, as a result of a delay in reporting, the actual percentage may be higher for week 8 (February 21-27, 2009). A total of 70 sentinel providers reported in Week 7.

Figure 3. California Sentinel Providers – Influenza-Like Visits, 2004-2010.



Respiratory Laboratory Network (RLN) Influenza PCR Surveillance Results

As noted in Table 1, during Week 8 (February 21 - 27, 2010), 2% of specimens received by the Respiratory Laboratory Network were positive for influenza A. This represents an decrease from 3% in the previous week. There was one H3 detection in southern California this 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 8 (February 21-27, 2010)

| | 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 RSV tested (R-mix) | RSV (% of total) |
|-------------------|--------------------|--------------------|-----------------|-----------------|----------------------------|--------------------|--------------------|--------------------------|------------------|
| Total RLN* | 188 | 3 (2%) | 0 (0%) | 1 (33%) | 2 (67%) | 183 | 0 (0%) | 29 | 0 (0%) |
| Northern | 142 | 2 (1%) | 0 (0%) | 0 (0%) | 2 (100%) | 137 | 0 (0%) | 0 | 0 (0%) |
| Central | 24 | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 24 | 0 (0%) | 0 | 0 (0%) |
| Southern | 22 | 1 (5%) | 0 (0%) | 1 (100%) | 0 (0%) | 22 | 0 (0%) | 0 | 0 (0%) |

* 17 RLN laboratories reporting, including:

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

Central CA: Fresno, Monterey, San Joaquin, Tulare

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

Laboratory Positive Results Data

Table 2 shows positive influenza and other virus results from sentinel laboratories, local public health laboratories and VRDL. This week there were 3 detections of influenza B. Detections of RSV are decreasing.

Table 2. Influenza and other respiratory virus detections, February 21-27, 2010.

| | | Sentinel Laboratories/Respiratory Laboratory Network [†] | Sentinel Providers |
|---------------|----------------------------------|---|---|
| Week 8 | Number | 25 sites reporting | 537 specimens submitted (261 positive by PCR, 16 pending) |
| | Influenza A | 7 ^a Total tested week 8: 1712 | 0 |
| | Influenza B | 0 Total tested week 8: 1707 | 0 |
| | RSV | 473 ^b Total tested week 8: 1591 | N/A |
| | Other Respiratory Viruses | 83 ^c Total tested week 8: 521 | 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 (1); Orange (1); Sacramento (3); Santa Clara (1); Sonoma (1)

^b Alameda (70); Contra Costa (19); Fresno (60); Kern (2); Kings (2); Long Beach (57); Los Angeles (21); Madera (8); Marin (2); Mendocino (1); Orange (2); Placer (17); Riverside (10); Sacramento (53); San Bernardino (2); San Diego (29); San Francisco (11); San Joaquin (13); San Mateo (15); Santa Clara (38); Solano (11); Sonoma (14); Stanislaus (12); Tolumne (1); Tulare (3)

^c human metapneumovirus (51), rhinovirus (27), parainfluenza type 1 (3), adenovirus (1), parainfluenza type 3 (1)

Figure 4 shows that laboratory detections for influenza peaked in week 27 (July 5 - 11, 2009). Less than 1% of specimens tested by sentinel laboratories during week 8 (February 21-27, 2010) were positive for influenza A. Figure 5 shows that RSV increased slightly during week 8.

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

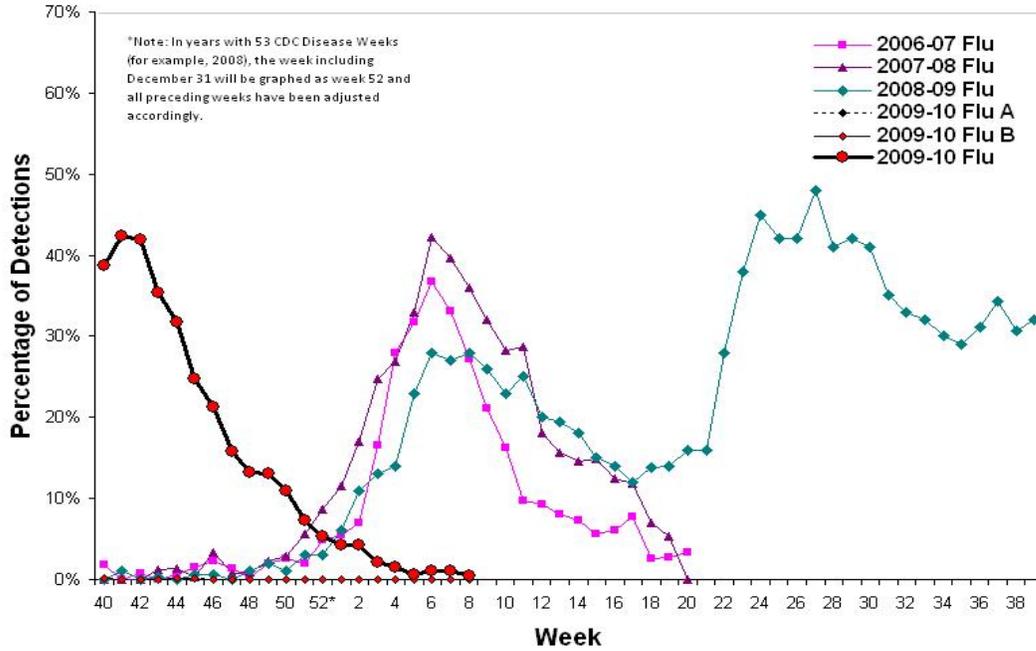


Figure 5. RSV detections at sentinel laboratories, 2005-2010.

