Influenza and Respiratory Disease Surveillance for February 28 – April 3, 2010

This report is the first one following the transition to monthly reporting.

During the past month, 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 influenza-like-illness (ILI)"). Reports of ILI from sentinel providers remained steady for the past three weeks but declined sharply in Week 13 (March 28 – April 3, 2010). This could be due to a delay in reporting. Laboratory detections of influenza remained low and detections of respiratory syncytial virus (RSV) continued to decrease during the past month.

NATIONAL PERSPECTIVE

During the week March 20-27, 2010, CDC reported that overall flu activity remained low in the United States. No states reported widespread flu activity and three states reported regional flu activity.

The proportion of visits to doctors for influenza-like illness (ILI) is 1.6%, below the national baseline level (2.3%).

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

98% of 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, 64 cases of oseltamivir resistance have been found in the United States, with two new cases during the last week.

CALIFORNIA 2009 H1N1 INFLUENZA UPDATE

Highlights:

Summary:

- In California, 2009 H1N1 influenza activity remains "sporadic" this month. 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 119 new cases (hospitalized and/or fatal) were reported to CDPH this month, 90 of which were from the current reporting period (February 28 – April 3, 2010). As in previous months, the rate of hospitalization remains highest among children under one year of age. A total of 20 fatalities were reported to CDPH this month, 17 of which were delayed reports from prior to this reporting month (February 28 – April 3, 2010). Reports of ILI from sentinel providers decreased this past week but may increase as delayed reports are received. Detections of RSV are to be decreasing. Two percent of specimens tested by the RLN were positive for influenza, an increase of one percent from the previous week.

H1N1 Highlights:

- Local health departments have been reporting hospitalized 2009 H1N1 influenza cases as weekly aggregate numbers since August 12, 2009. From February 28 – April 3, 119 hospitalized and/or fatal cases were reported to CDPH, 90 of which were from this monthly reporting period (February 28 – April 3).
- There have been 8,917 hospitalizations and/or fatalities reported to date since the beginning of the pandemic, of which 1,984 cases required intensive care.
- The statewide cumulative rate of reported 2009 H1N1 influenza hospitalizations and/or fatalities is 23.0 per 100,000 population.
- CDPH received 20 reports of fatal 2009 H1N1 influenza cases for the reporting period (February 28 – April 3), 17 of which were delayed reports from prior to the reporting week; a total of 578 deaths associated with 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 (10.6%, a decrease of 0.2% from the previous report) and second-highest among individuals aged 36-49 years (10.1%, a decrease of 0.3% from the previous report). The case-fatality ratio among hospitalized and/or fatal cases for all ages combined is 6.1%.
- A total of 3,084 hospitalized and/or fatal 2009 H1N1 influenza cases in pediatric patients 18 years or younger, including 54 deaths, have been reported to CDPH to date.
- 19 new cases meeting the case definition for severe pediatric influenza were reported since the last update; no fatalities were reported. 14 of these cases are confirmed/probable 2009 H1N1 influenza.
- From February 28 – March 3, 2010, 12 pregnant 2009 H1N1 influenza cases were reported to CDPH as aggregate numbers, one of which was a delayed report from prior to the current reporting period. A total of 585 pregnant hospitalized and/or fatal cases, including 17 deaths (case-fatality proportion 2.9%), 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 (1/54) of specimens received by the Respiratory Laboratory Network (RLN) were positive for influenza, representing an increase from 1% in the previous reporting week.
- Of 2,260 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.
- Influenza detections by sentinel labs have remained low for the last several reporting periods.

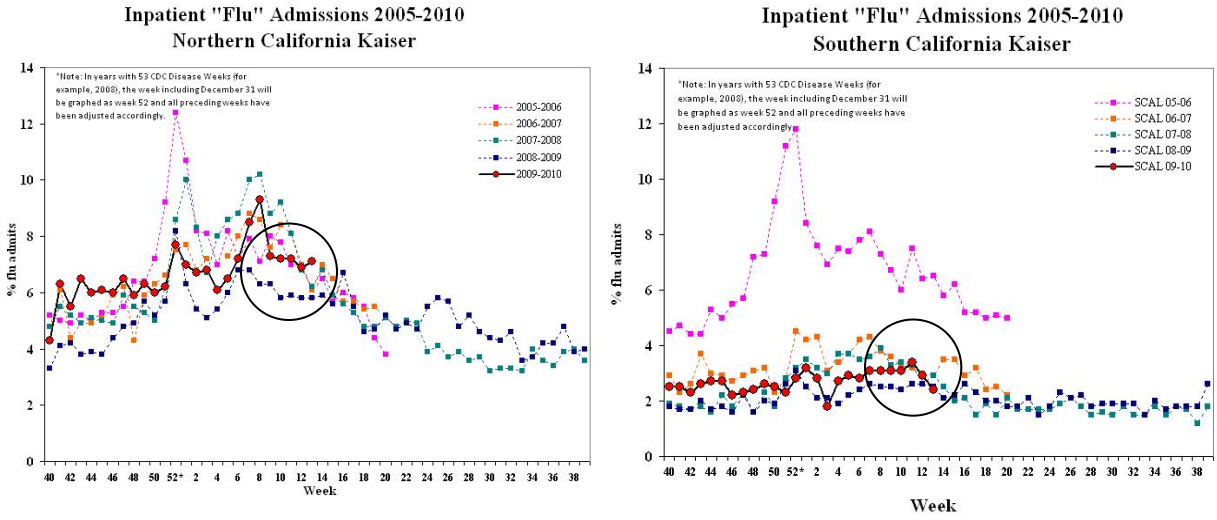
Other Respiratory Disease Highlights:

- This week, 13% of specimens submitted to sentinel laboratories/RLN were positive for RSV; 19% were positive during the previous week.
- This week, 11% of specimens tested for other respiratory viruses were positive, which is a decrease from 19% last week. Of those that tested positive for other respiratory viruses, 3% were human metapneumovirus and 5% were rhinovirus.
- For the period of October 1, 2009 to April 3, 2010, rates of Guillain-Barre Syndrome (GBS) and non-GBS adverse events occurring after H1N1 vaccination in California do not appear to exceed expected rates in unvaccinated persons or persons receiving seasonal influenza vaccine in past influenza seasons.

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 Figure 1, during the past month, the percentage of Kaiser hospitalizations for pneumonia and influenza (P&I) remained steady in northern California. Figure 2 shows that the percentage of ILI visits in southern California decreased for the past two weeks. The trend data for both regions remain within the range seen for seasonal influenza in previous years.

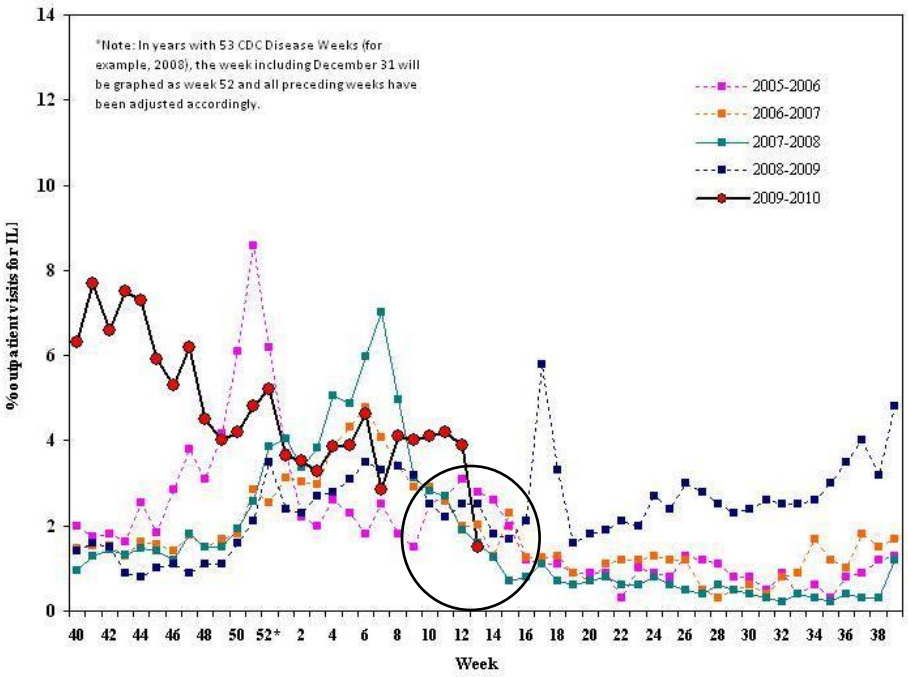
Figures 1.2. Inpatient "Flu" Admissions at Kaiser Facilities, 2005-2010.



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. During the past month, ILI remained steady until week 13 (March 28 – April 3, 2010) when there was a sharp decline. As a result of a delay in reporting, the actual percentage for recent weeks may be higher than the reported value.

Figure 3. California Sentinel Providers – Influenza-Like Visits, 2005-2010.



Laboratory Update

Respiratory Laboratory Network (RLN) Influenza PCR Surveillance Results

As noted in Table 1, during Week 13 (March 28 – April 3, 2010), 2% of the specimens received by the Respiratory Laboratory Network were positive for influenza A. This is similar to what has been reported in previous weeks.

Table 1. Respiratory Laboratory Network (RLN) Influenza PCR Surveillance Results from Selected Laboratories*, Week 13 (March 28 April 3, 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*	**52**	**1 (2%)**	**0 (0%)**	**0 (0%)**	**1 (100%)**	**52**	**0 (0%)**	**3**	**0 (0%)**
Northern	22	1 (5%)	0 (0%)	0 (0%)	1 (100%)	22	0 (0%)	0 (0%)	0 (0%)
Central	11	0 (0%)	0 (0%)	0 (0%)	0 (0%)	11	0 (0%)	0 (0%))	0 (0%)
Southern	21	0 (0%)	0 (0%)	0 (0%)	0 (0%)	21	0 (0%)	0 (0%)	0 (0%)

* 17 RLN laboratories reporting, including:
Northern CA: Contra Costa, El Dorado, Placer, Sacramento, San Francisco, San Mateo, Santa Clara, Shasta, Sonoma
Central CA: Fresno, Monterey, San Joaquin, Tulare
Southern CA: Long Beach, Orange, San Luis Obispo, Santa Barbara

Laboratory Positive Results Data

Table 2 includes positive influenza and other virus results from sentinel laboratories, local public health laboratories and VRDL. Reports of influenza were low during Week 13 (March 28 – April 3, 2010) and reports of RSV continued to declined. This is similar to what has been reported in previous weeks.

Table 2. Influenza and other respiratory virus detections, March 28 – April 3, 2010.

		Sentinel Laboratories/Respiratory Laboratory Network‡	**Sentinel Providers**
Week 13	**Number**	26 sites reporting	571 specimens submitted (266 positive by PCR, 8 pending)
	Influenza A	3[a] Total tested week 13: 838	0
	Influenza B	0 Total tested week 13: 838	0
	RSV	104[b] Total tested week 13: 785	N/A
	Other Respiratory Viruses	39[d] Total tested week 13: 352	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] Los Angeles (1); San Francisco (1); Sonoma (1)

[b] Alameda (21); Contra Costa (9); Fresno (5); Kern (1); Long Beach (8); Los Angeles (6); Madera (2); Merced (3); Monterey (1); Orange (1); Placer (5); Sacramento (8); San Diego (5); San Francisco (5); San Joaquin (6); San Mateo (3); Santa Clara (5); Santa Cruz (1); Solano (1); Sonoma (5); Stanislaus (1); Tulare (1); Unkown (1)

[c] rhinovirus (18); human metapneumovirus (11); adenovirus (5); parainfluenza type 3 (5)

Figure 4 shows that laboratory detections for influenza peaked in Week 27 (July 5 - 11, 2009). Influenza detections remained low during the past month. Figure 5 shows that RSV detections decreased during the past month.

Figure 11. Influenza detections at sentinel laboratories/Respiratory Laboratory Network (RLN), 2006-2010.

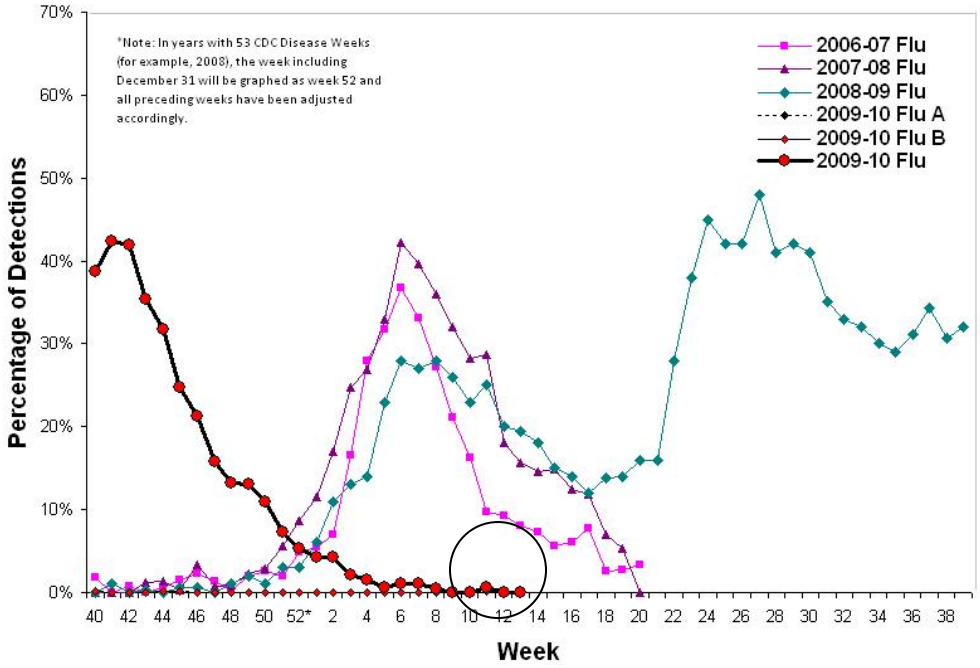


Figure 12. RSV detections at sentinel laboratories, 2005-2010.