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 4 (January 24-30, 2010). Laboratory detections of influenza declined slightly while detections of respiratory syncytial virus (RSV) increased from 21% in week 3 (January 17-23, 2010) to 30% in week 4. Detections of human metapneumovirus and rhinovirus are also increasing. There were two detections of influenza B during week 4.

NATIONAL PERSPECTIVE

During the week January 17 - 23, 2010, CDC reported that overall flu activity continued to decrease in the United States. No states reported widespread flu activity and 5 states reported regional flu activity (a decrease of 2 states from last week).

The proportion of visits to doctors for influenza-like illness (ILI) decreased to 1.7%, below the national baseline level (2.3%). Nationally, 8.3% of deaths were attributed to pneumonia and influenza (P&I), just above the epidemic threshold (7.7%).

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, 54 cases of oseltamivir resistance have been found in the United States, with no new cases during the last week.

CALIFORNIA 2009 H1N1 INFLUENZA UPDATE

- 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 52 new cases (hospitalized and/or fatal) were reported to CDPH this week, 20 of which were from the current reporting period (January 24 - 30, 2010) and 32 of which were delayed reports from prior to January 24, 2010. Reported cases of new hospitalizations decreased slightly from 54 cases last week to 52 cases this week. As in previous weeks, the rate of hospitalizations remains highest among children under one year of age. A total of 8 fatalities were reported to CDPH this week, all of which were delayed reports from prior to this reporting week (January 24 – 30, 2010). Reports of ILI from sentinel providers decreased sharply this past week (January 24 -30, 2010). Detections of respiratory syncytial virus (RSV) continue to increase. Three percent of specimens tested by the Respiratory Laboratory Network (RLN) were influenza A, 100% of which were unsubtypeable.

H1N1 Highlights:

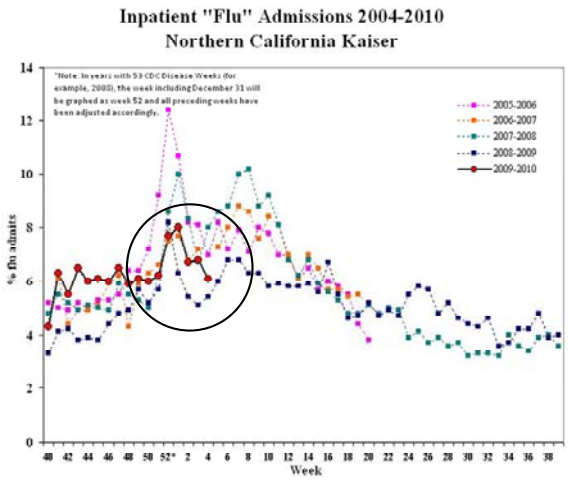
- Local health departments have been reporting hospitalized 2009 H1N1 influenza cases as weekly aggregate numbers since August 12, 2009. From January 24 - 30, 2010, 52 hospitalized and/or fatal cases were reported to CDPH, 20 of which were from the current reporting period (January 24 - 30, 2010) and 32 of which were delayed reports from prior to January 24, 2010.
- There have been 8,641 hospitalizations and/or fatalities reported to date since the beginning of the pandemic, of which 1,826 cases required intensive care.
- The statewide cumulative incidence rate of reported 2009 H1N1 influenza hospitalizations and/or fatalities is 22.3 per 100,000 population.
- CDPH received 8 reports of fatal 2009 H1N1 influenza cases for the week ending on January 30, 2010, all of which were delayed reports from prior to the reporting week (January 24 - 30, 2010); a total of 506 deaths caused by 2009 H1N1 influenza have been reported to CDPH to date.
- The hospitalized case-fatality ratio is highest among individuals aged 50-64 years (10.1%, an increase of 0.1% from the previous reporting week) and second-highest among individuals aged 36-49 years (10.0%, an increase of 0.1% from the previous reporting week). The hospitalized case-fatality ratio for all ages combined is 5.9%.
- A total of 3,025 hospitalized and/or fatal 2009 H1N1 influenza cases in pediatric patients 18 years or younger, including 51 deaths, have been reported to CDPH to date.
- Three new cases meeting the case definition for severe pediatric influenza were reported this week; no fatalities were reported. All of these cases are confirmed/probable 2009 H1N1 influenza.
- From January 24 – 30, 2010, two pregnant 2009 H1N1 influenza cases were reported to CDPH as aggregate numbers, both of which were delayed reports from prior to the current reporting period (January 24 - 30, 2010). A total of 559 pregnant hospitalized and/or fatal cases, including 17 deaths (case-fatality proportion 3.0%), have been reported to CDPH to date.
- In recent months, almost all influenza A-positive specimens tested by PCR at VRDL and by the RLN have been subsequently confirmed as 2009 H1N1 influenza, reflecting that the predominant circulating influenza strain in California remains 2009 H1N1 influenza.
- Three percent of specimens received by the Respiratory Laboratory Network (RLN) were positive for influenza, which is a decrease from four percent from the previous reporting week.
- This week, none of the specimens tested by the RLNs that were positive for influenza A was A/H1 or A/H3; 100% were unsubtypeable.
- Of 2,111 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 quite limited.

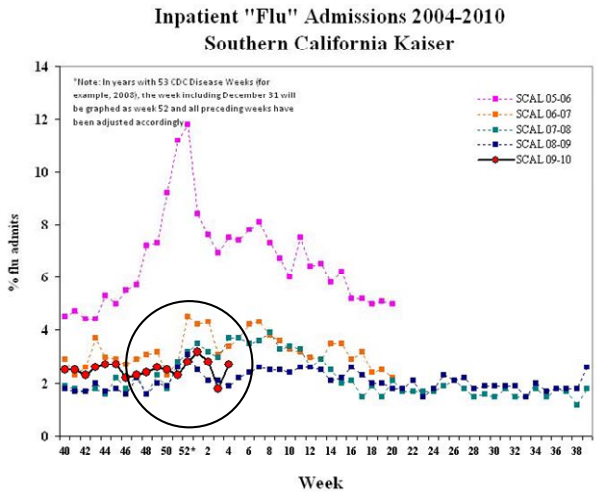
<u>Kaiser Permanente Hospitalization Data (“Flu Admits”)</u>

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 circle, Figure 1 shows that during week 4 (January 24-30, 2010), the percentage of Kaiser hospitalizations for pneumonia and influenza (P&I) in northern California decreased slightly.

The percentage in southern California increased during week 4 (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.

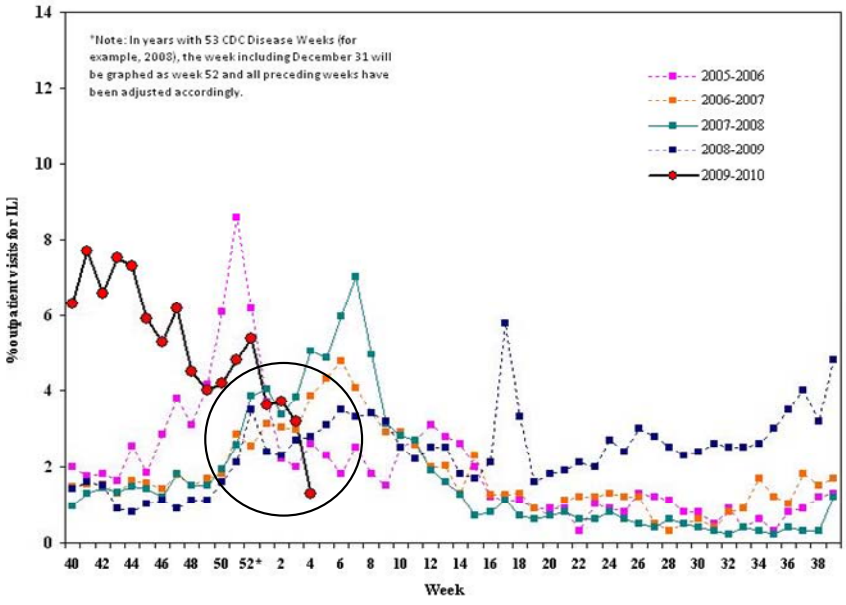




CDC Influenza Sentinel Providers

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 decreased during Week 4 (January 24-30, 2010). A total of 70 sentinel providers reported in Week 4.

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



Laboratory Update

Respiratory Laboratory Network (RLN) Influenza PCR Surveillance Results

As noted in Table 1, during Week 4 (January 24-30, 2010), 3% of specimens received by the Respiratory Laboratory Network were positive for influenza A. This is a decrease from 4% 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 4 (January 24-30, 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*	**250**	**8 (3%)**	**0 (0%)**	**0 (0%)**	**8 (100%)**	**158**	**1 (1%)****	**27**	**2 (7%)**
Northern	184	5 (3%)	0 (0%)	0 (0%)	5 (100%)	115	0 (0%)	5	1 (20%)
Central	25	1 (4%)	0 (0%)	0 (0%)	1 (100%)	4	0 (0%)	22	1 (5%)
Southern	41	2 (5%)	0 (0%)	0 (0%)	2 (100%)	39	1 (3%)	0	0

* 15 RLN laboratories reporting, including:
Northern CA: Contra Costa, El Dorado, Marin, Monterey, Sacramento, San Francisco, Santa Clara, Shasta, Sonoma
Central CA: Fresno, San Joaquin
Southern CA: Los Angeles, Long Beach, San Luis Obispo, Santa Barbara
** A second isolate of Flu B was reported from Merced County in the preceding week and is not included in the table

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, January 24-30, 2010.

		Sentinel Laboratories/Respiratory Laboratory Network‡	**Sentinel Providers**
Week 4	**Number**	23 sites reporting	479 specimens submitted (248 positive by PCR, 31 pending)
	Influenza A	26[a] Total tested week 4: 1737	0
	Influenza B	2[b] Total tested week 4: 1644	0
	RSV	425[c] Total tested week 4: 1417	N/A
	Other Respiratory Viruses	44[d] Total tested week 4: 295	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] Contra Costa (3); El Dorado (1); Fresno (2); Los Angeles (5); Placer (1); Sacramento (3); San Diego (4); San Francisco (2); Santa Clara (1); Solano (1); Sonoma (1); Tulare (2)

[b] Los Angeles (1); Merced (1)

[c] Alameda (66); Contra Costa (28); Fresno (41); Kern (2); Kings (5); Long Beach (38); Los Angeles (21); Madera (3); Marin (14); Merced (3); Napa (1); Orange (2); Placer (15); Riverside (4); Sacramento (32); San Bernardino (1); San Diego (30); San Francisco (17); San Joaquin (10) San Mateo (23); Santa Clara (37); Solano (9); Sonoma (15); Stanislaus (3); Tulare (3); Yolo (2)

[d] human metapneumovirus (34); rhinovirus (9); parainfluenza type 3 (1);

Figure 4 shows that laboratory detections for influenza peaked in week 27 (July 5 - 11, 2009). Influenza A detections decreased slightly during week 4 (January 24-30, 2010). Figure 5 shows that RSV detections increased from 21% in week 3 (January 17-23, 2010) to 30% in week 4. This is within the range seen in previous years.

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

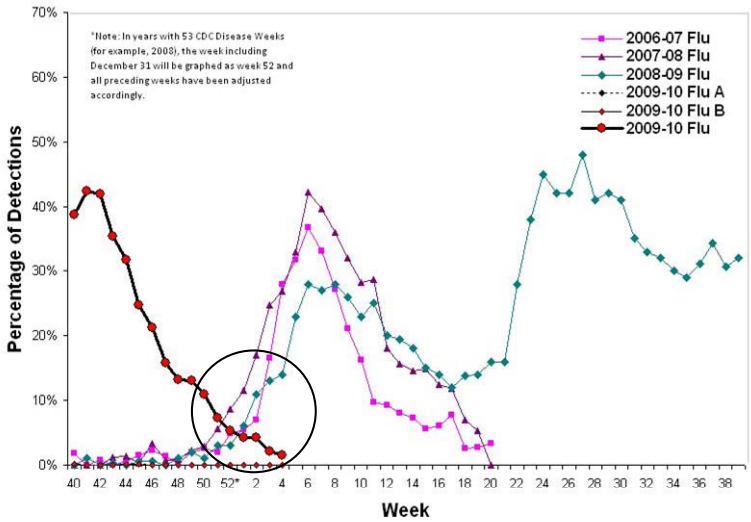
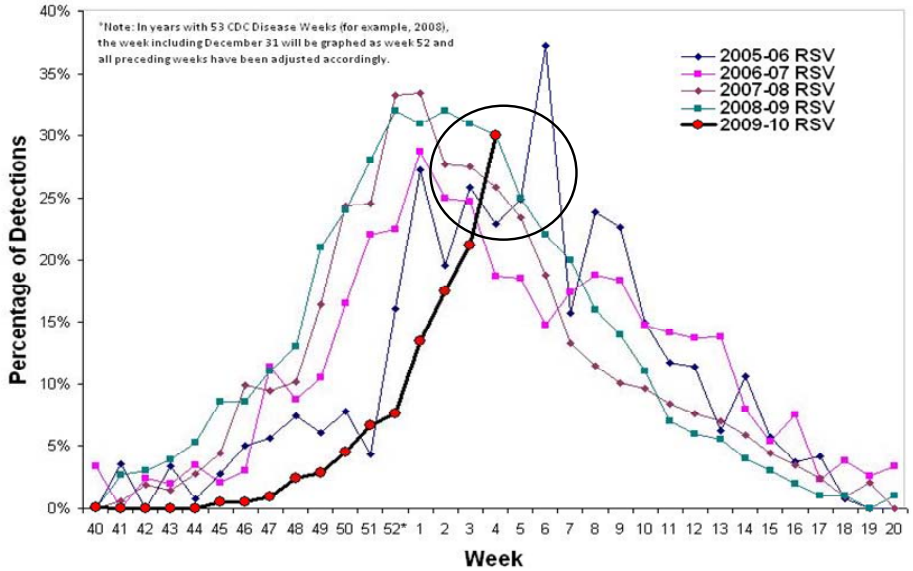



Figure 5. RSV detections at sentinel laboratories, 2005-2010.