

California Influenza Surveillance Project

Viral and Rickettsial Disease Laboratory

2008-2009

Influenza Update – Week 19 (May 10 – 16, 2009)

California Influenza Activity

This week, influenza activity in California remained “widespread” (defined by CDC as outbreaks of influenza or increases in ILI cases and recent laboratory confirmed influenza in at least half of the regions in the state) based on the increased level of laboratory detections of influenza A [both seasonal human subtypes H1 and H3 and novel swine influenza A (H1N1)] throughout the state.

National Influenza Activity

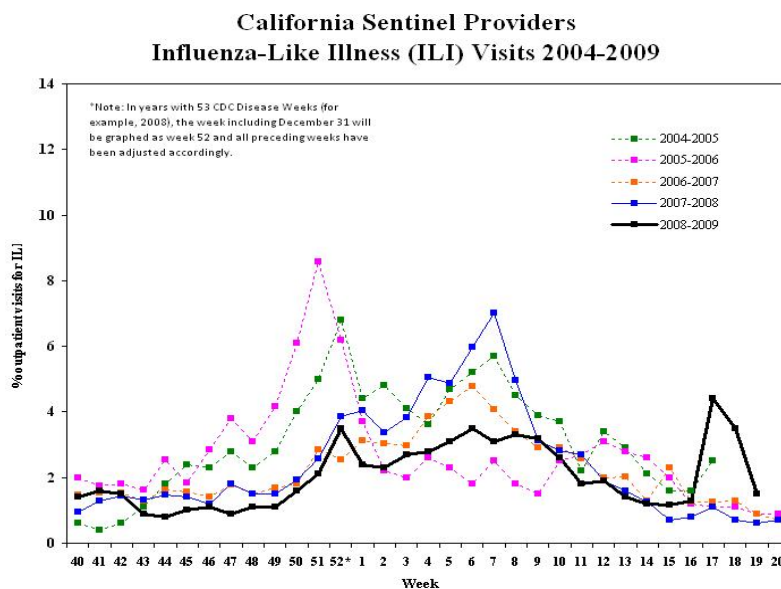
During week 19 (May 10 - 16, 2009), influenza activity decreased in the United States, however there are still higher levels of influenza-like illness than is normal for this time of year. One thousand seventy-four (15.1%) specimens tested by U.S. World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating laboratories and reported to CDC/Influenza Division were positive for influenza. Two influenza-associated pediatric deaths were reported. The proportion of outpatient visits for influenza-like illness (ILI) was below the national baseline.

Seasonal Influenza A Surveillance

1. CDC Influenza Sentinel Providers

Sentinel providers report the number of outpatient visits for influenza-like illness and the total number of visits per week. This data is reported weekly as a percentage of total visits. A total of 68 sentinel providers reported during Week 19.

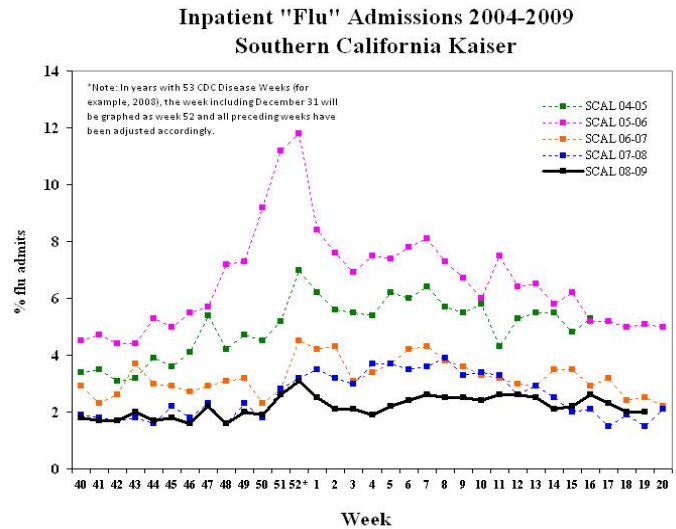
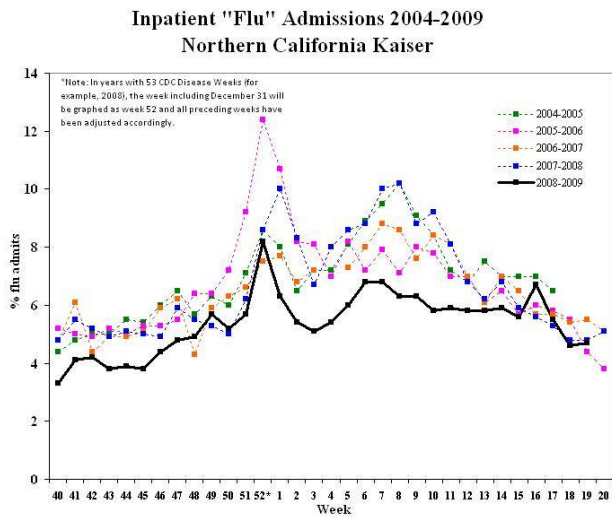
Figure 1. California Sentinel Providers – Influenza-Like Visits, 2004-2009.



2. 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.

Figures 2-3. Inpatient “Flu” Admissions at Kaiser Facilities, 2004-2009.



5. Laboratory Positive Results Data

Positive influenza and other virus results from sentinel laboratories, local public health laboratories and VRDL.

Table 1. Influenza and other respiratory virus detections, May 10 – May 16, 2009.

		Sentinel Laboratories/Respiratory Laboratory Network [‡]	Sentinel Providers
Week 19	Number of Sites Reporting	29	797 specimens submitted (12 pending, 260 positive by PCR)
	Influenza A	263 ^a Total tested week 19: 3063 Total detections to date: 5913	6 ^e Total tested week 19: 48 Total detections to date: 156
	Influenza B	66 ^b Total tested week 19: 1258 Total detections to date: 3141	0 Total tested week 19: 0 Total detections to date: 104
	RSV	3 ^c Total tested week 19: 1132 Total detections to date: 7389	N/A
	Other Respiratory Viruses	33 ^d Total tested week 19: 376 Total detections to date: 343	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 (10); Contra Costa (24); Fresno (13); Humboldt (1); Long Beach (3); Los Angeles (15); Madera (2); Marin (7); Monterey (5); Napa (1); Orange (17); Placer (1); Riverside (17); Sacramento (16); San Bernardino (18); San Diego (14); San Francisco (2); San Joaquin (8); San Mateo (7); Santa Barbara (4); Santa Clara (61); Solano (1); Sonoma (5); Stanislaus (2); Tulare (1); Ventura (8)
- ^b Alameda (5); Contra Costa (7); Fresno (5); Long Beach (1); Los Angeles (12); Orange (9); Riverside (2); San Bernardino (4); San Diego (1); San Joaquin (4); San Mateo (3); Santa Clara (9); Solano (2); Sonoma (1); Stanislaus (1)
- ^c Alameda (1); Fresno (1); Orange (1)
- ^d parainfluenza type 3 (27); adenovirus (4); human metapneumovirus (2)
- ^e Fresno (1); Los Angeles (1); Placer (1); Santa Clara (1); Tulare (1); Yolo (1)

Novel Influenza A (H1N1) Surveillance

Since April 15 and 17, 2009 when the first two cases of novel influenza A (H1N1) infection were identified from two southern California counties, novel influenza A (H1N1) cases have been documented throughout California and the world, with most cases occurring in the United States and Mexico. As the epidemic unfolds, CDPH continues to perform surveillance and provide PCR testing for influenza, confirmatory testing for swine influenza (H1N1), and guidance and assistance to our local public health partners.

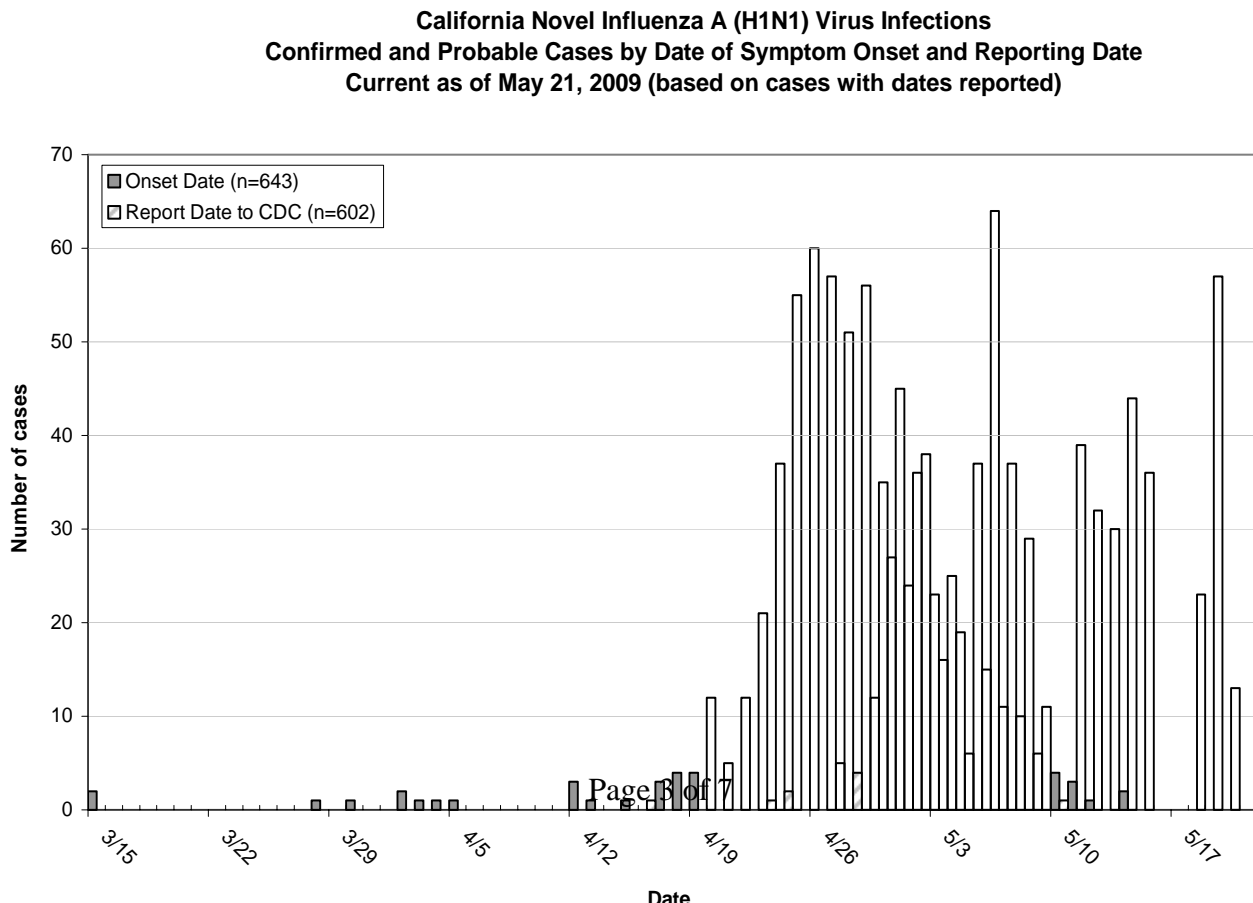
1. Epi- Surveillance Update (Updated 5/20/2009)

Highlights:

- CDPH has received reports of 672 cases (445 confirmed, 227 probable) from 37 local health jurisdictions.
- 38 cases have been hospitalized, with 9 (out of 31 with data) requiring intensive care. No fatal cases have been reported.
- Of all cases reported, 14 (9 confirmed, 5 probable) have been in pregnant women.
- Of all cases reported, 29 (22 confirmed, 7 probable) have occurred in health care workers.
- 5 local health jurisdictions reported first (ever) cases this week.

a. Daily epi curve:

Figure 1. Novel Influenza A (H1N1) Cases, by Onset and Report Date, California, 2009.



b. Current California case counts for Novel Influenza A (H1N1) infection in humans:

Table 1. Provisional Number of Cases of Novel Influenza A (H1N1) in California by Local Health Jurisdiction as of 05/21/09

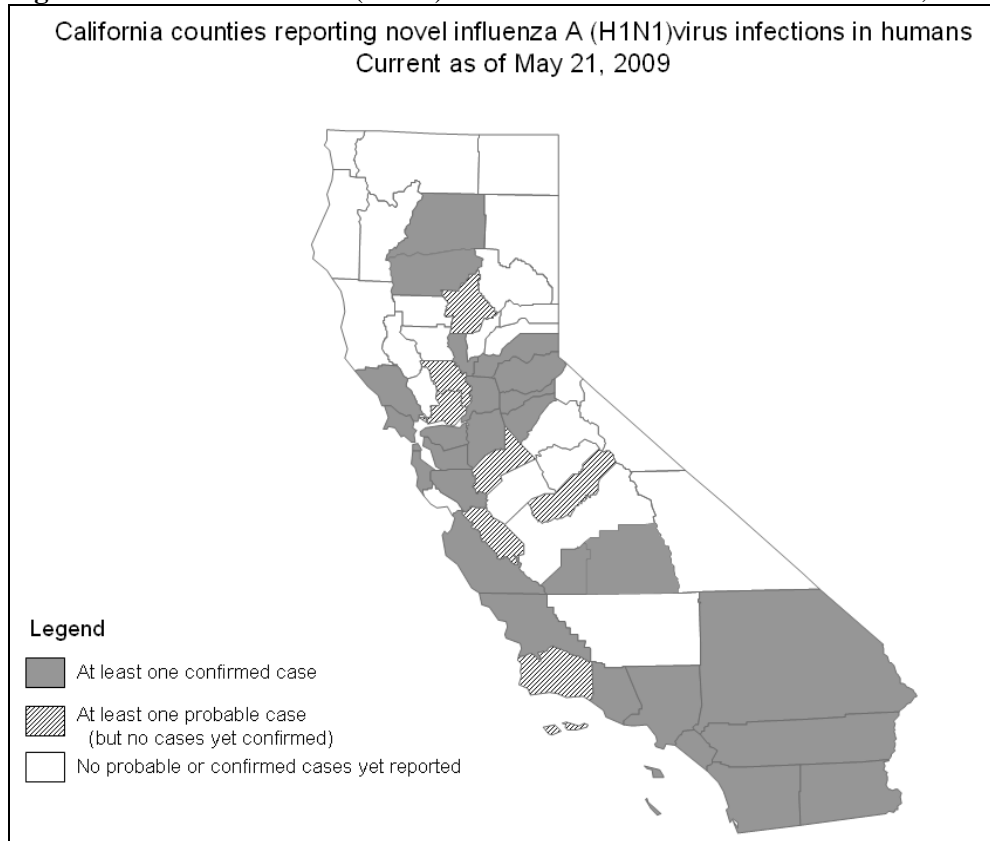
Jurisdiction	Total Cases	Confirmed	Probable	Hospitalizations ^a	Deaths
CALIFORNIA	672	445	227	40	0
County Undetermined	0	0	n.a.	n.a.	n.a.
Alameda	31	29	2	0	0
Amador	1	1	0	0	0
Berkeley City	1	0	1	0	0
Butte	1	0	1	0	0
Calaveras	1	1	0	0	0
Contra Costa	46	24	22	2	0
El Dorado	7	6	1	0	0
Imperial	73	56	17	6	0
Kings	1	1	0	0	0
Long Beach	14	10	4	1	0
Los Angeles	72	32	40	7	0
Madera	3	0	3	0	0
Marin	13	12	1	1	0
Monterey	12	5	7	1	0
Orange	27	19	8	1	0
Pasadena	1	1	0	0	0
Placer	1	1	0	0	0
Riverside	38	15	23	4	0
Sacramento	10	7	3	0	0
San Benito	1	0	1	0	0
San Bernardino	82	61	21	2	0
San Diego	127	92	35	7	0
San Francisco	9	9	0	0	0
San Joaquin	9	8	1	1	0
San Luis Obispo	17	17	0	0	0
San Mateo	4	4	0	0	0
Santa Barbara	1	0	1	0	0
Santa Clara	35	14	21	3	0
Shasta	1	1	0	0	0
Solano	3	0	3	0	0
Sonoma	3	2	1	0	0
Stanislaus	1	0	1	0	0
Sutter	1	1	0	0	0
Tehama	1	1	0	0	0
Tulare ^b	5	5	0	1	0
Ventura	18	10	8	1	0
Yolo	1	0	1	0	0

a. This number does not include reports of hospitalized cases not yet validated by LHJ, represents cases ever hospitalized

b. Includes one patient diagnosed out of county

Bold indicates the first (ever) report of probable or confirmed cases by the county

Figure 2. Novel Influenza A (H1N1) Virus Infections in Humans - California, 2009.

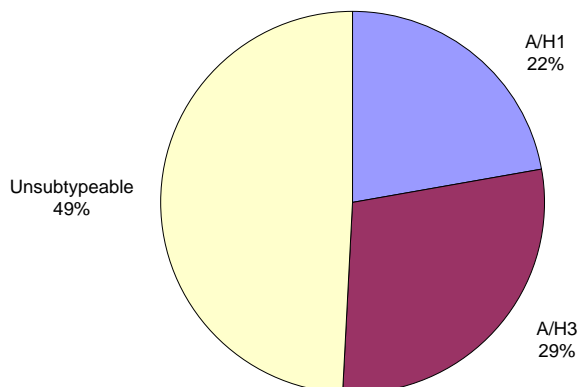


2. Laboratory Surveillance Update

VRDL Influenza PCR Results (Updated 5/21/09)

- VRDL performs PCR testing for influenza A, influenza A subtyping, and Novel Influenza A (H1N1). Some specimens are screened at local public health or reference laboratories before being submitted to VRDL for additional or confirmatory testing.
- VRDL has received 2,330 specimens for Novel Influenza A (H1N1)-related testing.
- Of 2,011 specimens tested at VRDL for influenza A, 1,023 (51%) have been positive.
- A total of 722 influenza A-positive specimens have been subtyped at VRDL (Figure 1).
- Of 524 specimens tested at VRDL for novel influenza A (H1N1), 501 (96%) have been positive.

Figure 3. VRDL Influenza A Subtyping Results, as of 5/20/09



Respiratory Laboratory Network (RLN) Influenza PCR Surveillance Results (Updated 5/21/09)

As noted in the RLN tables below, approximately 10% of specimens received by the public health laboratory network statewide have been positive by influenza A. Of these, 22% are subtype H1, 28% are subtype H3 and over 40% are unsubtypeable. In addition, Los Angeles, Orange, San Bernardino and Tulare County Public Health Laboratories are now also performing confirmatory swine flu testing.

Table 2. Respiratory Laboratory Network (RLN) Influenza PCR Surveillance Results, April 27-May 21, 2009.

	Total tested	Flu A (% of total)	H1 (% of Flu A)	H3 (% of Flu A)	Unsubtypeable (% of Flu A)
All RLN*	10853	1077 (10%)	241 (22%)	304 (28%)	471 (44%)
Northern	4548	380 (8%)	93 (24%)	114 (30%)	158 (42%)
Central	2723	162 (6%)	76 (47%)	52 (32%)	31 (19%)
Southern	3582	535 (15%)	72 (13%)	138 (26%)	282 (53%)

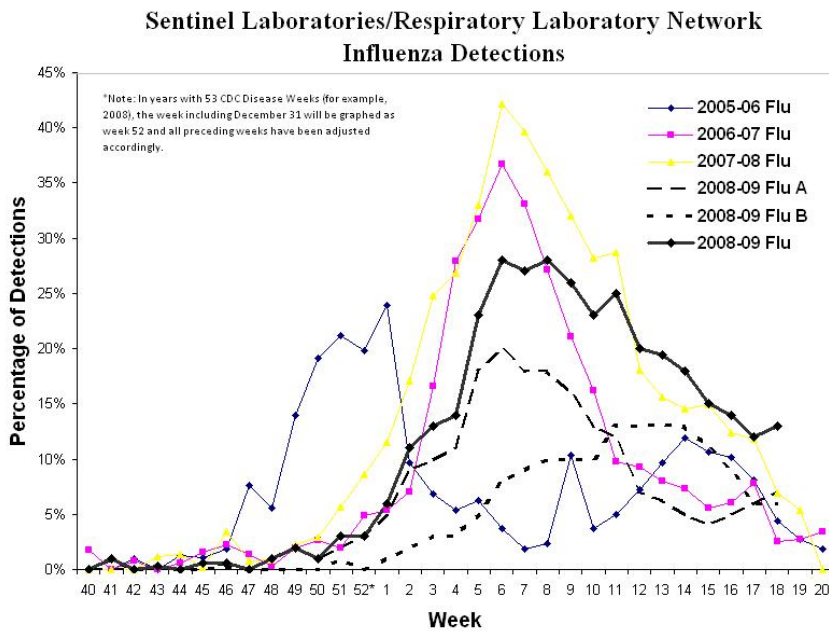
* 22 of 23 RLN laboratories reporting, including:

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

Central CA: Fresno, Stanislaus, San Joaquin, Tulare

Southern CA: Long Beach, Los Angeles, Orange, Riverside, San Bernardino, San Diego, Santa Barbara, Ventura

Figure 4. Influenza Detections at Sentinal Laboratories/Respiratory Laboratory Network (RLN)



Antiviral Resistance for Novel Influenza A (H1N1)

At VRDL, antiviral resistance testing is being performed on a subset of specimens tested to monitor for changing resistance patterns.

Table 3. Antiviral resistance testing at VRDL, 2009.

	Oseltamivir Resistant	Adamantanes Resistant
Novel influenza virus (H1N1)	0/13	13/13