

# California Influenza Surveillance Project

## Viral and Rickettsial Disease Laboratory

2008-2009

### Influenza Update – Week 20 (May 17 – 23, 2009)

#### Overall California Influenza Activity for Week 20

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 influenza A (H1N1)] throughout the state.

#### National Influenza Activity for Week 20

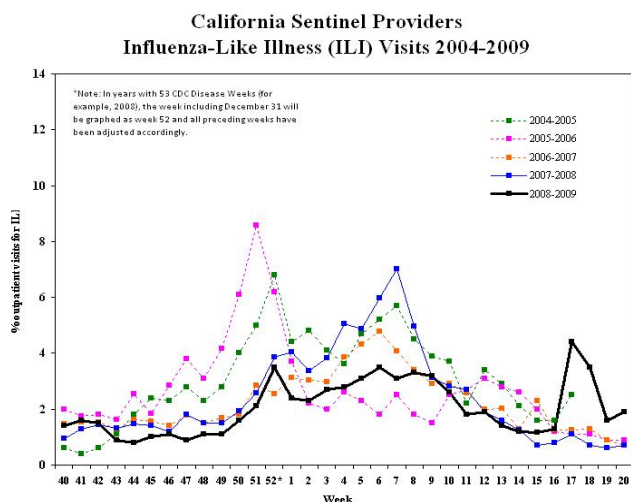
During week 20, influenza activity decreased in the United States, however there are still higher levels of influenza-like illness than is normal for this time of year. One thousand four hundred fifty (22.4%) specimens tested by U.S. World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating laboratories and reported to CDC/Influenza Division were positive for influenza. One influenza-associated pediatric death was reported. The proportion of outpatient visits for influenza-like illness (ILI) was below the national baseline. Two of the 10 surveillance regions reported ILI above their region-specific 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 61 sentinel providers reported during Week 20.

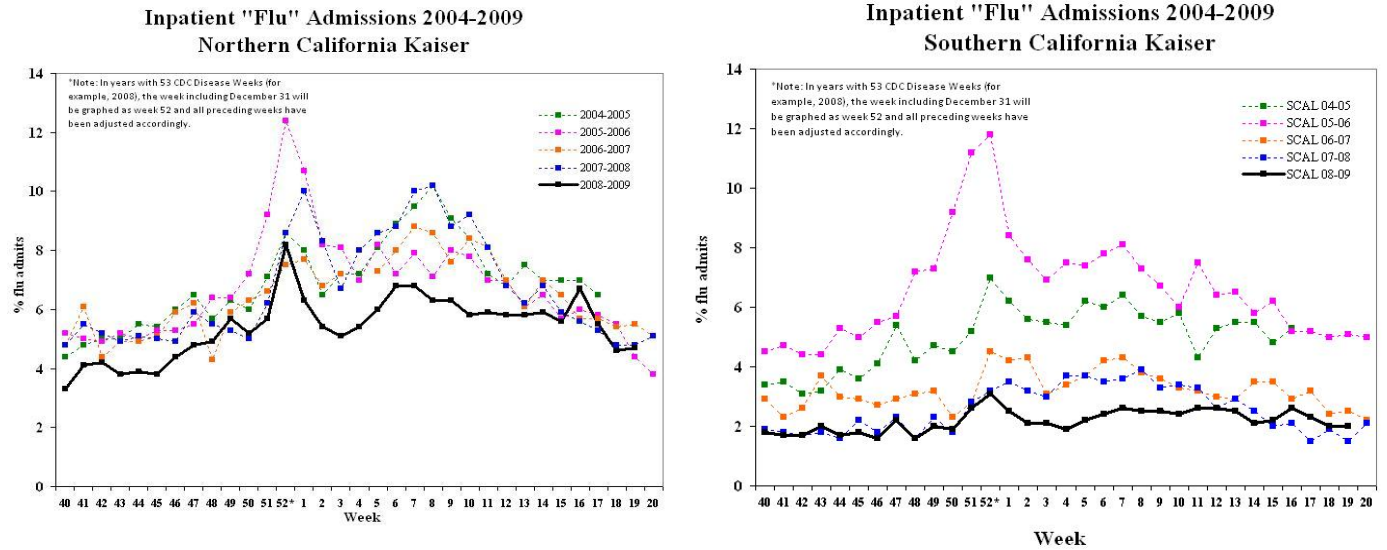
**Figure 1.** California Sentinel Providers – Influenza-Like Visits, 2004-2009. This figure shows that the percentage of outpatient ILI visits peaked during Week 17 and has since declined. This was an unusual peak of activity at this time of year compared to previous years.



## 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. This figure shows that in Northern and Southern California the percentage of Kaiser hospitalizations for P&I (pneumonia and influenza) peaked during Week 17 and has since declined. This was an unusual peak of activity at this time of year compared to previous years. The peak is higher for northern California than southern California, but this is likely due to poor specificity of the syndromic surveillance (since we know that most novel influenza A (H1N1) hospitalized cases have been concentrated in southern CA).



### 3. 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 17 – May 23, 2009.

		Sentinel Laboratories/Respiratory Laboratory Network <sup>‡</sup>	Sentinel Providers
<b>Week 20</b>	<b>Number of Sites Reporting</b>	21	604 specimens submitted (4 pending, 263 positive by PCR)
	<b>Influenza A</b>	239 <sup>a</sup> Total tested week 20: 2081 Total detections to date: 6152	3 <sup>e</sup> Total tested week 20: 15 Total detections to date: 159
	<b>Influenza B</b>	31 <sup>b</sup> Total tested week 20: 832 Total detections to date: 3172	0 Total tested week 20: 0 Total detections to date: 104
	<b>RSV</b>	5 <sup>c</sup> Total tested week 20: 753 Total detections to date: 7394	N/A
	<b>Other Respiratory Viruses</b>	24 <sup>d</sup> Total tested week 20: 288 Total detections to date: 367	N/A

<sup>‡</sup>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.

<sup>a</sup> Alameda (22); Contra Costa (25); Fresno (9); Long Beach (35); Marin (4); Orange (15); Placer (2); Riverside (10); Sacramento (2); San Francisco (1); San Joaquin (3); San Mateo (12); Santa Barbara (6); Santa Clara (74); Shasta (1); Solano (6); Sonoma (3); Tulare (6); Ventura (3)

<sup>b</sup> Alameda (5); Contra Costa (3); Fresno (3); Orange (3); Placer (2); San Diego (2); San Francisco (2); San Joaquin (1); San Mateo (4); Santa Clara (4); Sonoma (1); Stanislaus (1)

<sup>c</sup> Alameda (1); Contra Costa (1); San Francisco (2); Santa Clara (1)

<sup>d</sup> parainfluenza type 3 (20); human metapneumovirus (3); parainfluenza type 1 (1)

<sup>e</sup> Alameda (1); San Francisco (1); Santa Barbara (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 novel influenza A (H1N1), and guidance and assistance to our local public health partners.

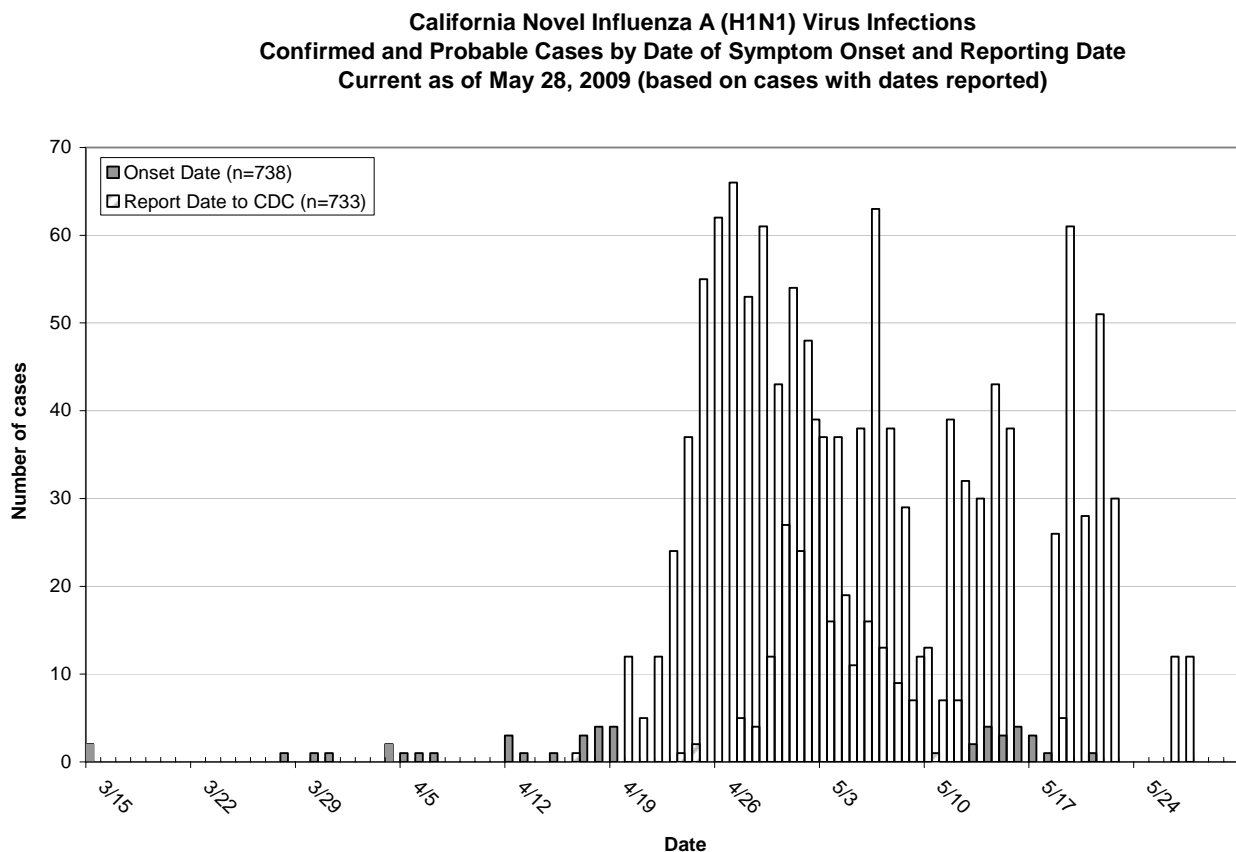
### 1. Epi- Surveillance Update (Updated 5/28/2009)

#### Highlights:

- CDPH has received reports of 802 cases (576 confirmed, 226 probable) from 38 local health jurisdictions.
- 47 cases have been hospitalized, with 9 (out of 44 with data) requiring intensive care. No fatal cases have been reported.
- Of all cases reported, 17 (11 confirmed, 6 probable) have been in pregnant women.
- Of all cases reported, 33 (24 confirmed, 9 probable) have occurred in health care workers.
- Santa Cruz County reported its 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 novel influenza A (H1N1) cases by local health jurisdiction, as of 05/28/09.

Jurisdiction	Total Cases	Confirmed	Probable	Hospitalizations <sup>a</sup>	Deaths
CALIFORNIA	802	576	226	47	0
County Undetermined	0	0	n.a.	1	n.a.
Alameda	39	34	5	0	0
Amador	1	1	0	0	0
Berkeley City	1	0	1	0	0
Butte	1	1	0	0	0
Calaveras	1	1	0	0	0
Contra Costa	66	50	16	1	0
El Dorado	7	6	1	0	0
Imperial	75	58	17	6	0
Kings	1	1	0	0	0
Long Beach	14	10	4	1	0
Los Angeles	101	62	39	10	0
Madera	3	3	0	0	0
Marin	13	13	0	1	0
Monterey	15	12	3	1	0
Orange	30	22	8	1	0
Pasadena	1	1	0	0	0
Placer	1	1	0	0	0
Riverside	44	24	20	3	0
Sacramento	10	7	3	0	0
San Benito	3	1	2	1	0
San Bernardino	94	74	20	3	0
San Diego	152	119	33	12	0
San Francisco	9	9	0	0	0
San Joaquin	9	8	1	2	0
San Luis Obispo	17	17	0	0	0
San Mateo	8	5	3	0	0
Santa Barbara	2	0	2	0	0
Santa Clara	45	14	31	3	0
<b>Santa Cruz</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>
Shasta	2	1	1	0	0
Solano	3	0	3	0	0
Sonoma	4	2	2	0	0
Stanislaus	1	0	1	0	0
Sutter	1	1	0	0	0
Tehama	2	2	0	0	0
Tulare <sup>b</sup>	6	6	0	1	0
Ventura	17	10	7	0	0
Yolo	1	0	1	0	0

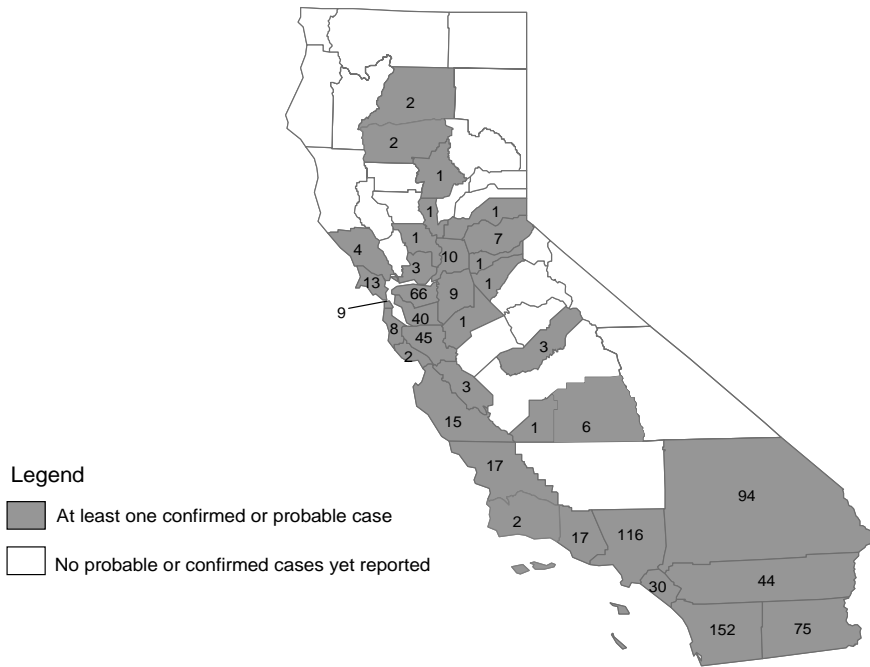
a. This number does not include reports of hospitalized cases not yet validated by LHJ, represents cases ever hospitalized

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.

California counties reporting novel influenza A (H1N1)virus infections in humans  
Current as of May 28, 2009

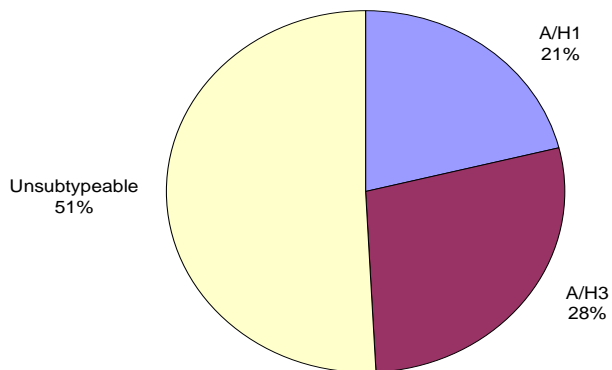


**2. Laboratory Surveillance Update**

**VRDL Influenza PCR Results (Updated 5/28/09)**

- 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 2,529 specimens for Novel Influenza A (H1N1)-related testing.
- Of 2,165 specimens tested at VRDL for influenza A, 1,125 (52%) have been positive.
- A total of 767 influenza A-positive specimens have been subtyped at VRDL (Figure 5).
- Of 602 specimens tested at VRDL for novel influenza A (H1N1), 576 (96%) have been positive.

**Figure 3.** VRDL Influenza A Subtyping Results, as of 5/28/09



## Respiratory Laboratory Network (RLN) Influenza PCR Surveillance Results (Updated 5/28/09)

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, 23% are subtype H1, 27% are subtype H3 and 45% are unsubtypeable. In addition, Los Angeles, Orange, San Bernardino and Tulare County Public Health Laboratories are now also performing confirmatory novel influenza A (H1N1) testing.

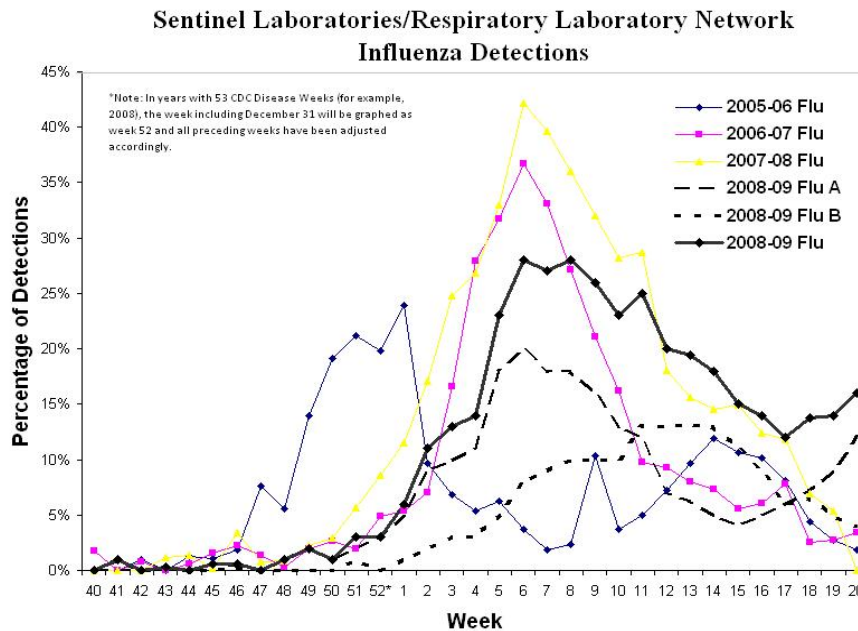
**Table 2.** Respiratory Laboratory Network (RLN) Influenza PCR Surveillance Results, April 27-May 28, 2009.

	Total tested	Flu A (% of total)	H1 (% of Flu A)	H3 (% of Flu A)	Unsubtypeable (% of Flu A)
<b>All RLN*</b>	<b>11462</b>	<b>1177 (10%)</b>	<b>269 (23%)</b>	<b>320 (27%)</b>	<b>531 (45%)</b>
Northern	4798	420 (9%)	96 (23%)	118 (28%)	199 (47%)
Central	2946	170 (6%)	78 (46%)	55 (32%)	34 (20%)
Southern	3718	587 (16%)	95 (16%)	147 (25%)	298 (51%)

\* 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 Sentinel 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.

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