



CALIFORNIA CD BRIEF

This weekly report of surveillance and laboratory activities from the Division of Communicable Disease Control of the California Department of Public Health contains information on investigations in progress and/or diagnoses that may not yet be confirmed. **CD Brief** is intended primarily for the use of local health departments and infectious disease professionals, should be considered privileged, and should **NOT be distributed** further.

Report of meeting of 7/29/2009 (Week 30)

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PANDEMIC (H1N1) 2009 SURVEILLANCE UPDATE FOR JULY 24 – JULY 30, 2009

As the current H1N1 pandemic unfolds, CDPH continues to perform surveillance and provide PCR testing for influenza, confirmatory testing for pandemic (H1N1) 2009, and guidance and assistance to our local public health partners. Effective July 15, 2009, local health departments are no longer asked to report outpatient cases.

1. Epi- Surveillance Update (Updated 7/30/2009)

Highlights:

- CDPH received 117 reports of hospitalized pandemic (H1N1) 2009 cases this week; for a total to date of 699 hospitalizations with 213 cases requiring intensive care.
- CDPH received 19 reports of fatal pandemic (H1N1) 2009 cases this week; a total of 80 pandemic (H1N1) 2009 deaths have been reported to CDPH to date.
- 169 hospitalized and fatal cases are female and of childbearing age; 58 (34%) were pregnant.
- In recent weeks, all influenza A-positive specimens tested by PCR at VRDL and by the Respiratory Laboratory Network have been subsequently confirmed as pandemic (H1N1) 2009, reflecting that the predominant circulating influenza strain in California at present is pandemic (H1N1) 2009.
- Surveillance for the detection of antiviral resistance in pandemic (H1N1) 2009 influenza is ongoing. To date, 251 specimens have tested negative for the resistance mutation at VRDL. VRDL and CDC will continue prospective antiviral resistance testing from a sampling of pandemic (H1N1) 2009 influenza viruses through the summer and the 2009-10 influenza season.
- At this time, the data indicate that the prevalence of oseltamivir-resistant pandemic (H1N1) 2009 is quite limited. CDPH released a *Summary of Interim Guidance on Antiviral Recommendations for Pandemic (H1N1) 2009 Virus Infection in the July 22, 2009 Health Alert*, that can be found on CAHAN at:
https://cahan.ca.gov/cahan/Portal%20Content/Alert%20Details/CDPH%20Health%20Alert%2007_22_09.pdf
- Nine (9) new cases meeting the case definition for severe pediatric influenza were reported, including one fatality; 8 (89%) are confirmed/probable pandemic (H1N1) 2009 (test results are pending for the remaining specimen).

a. California case counts for pandemic (H1N1) 2009 hospitalizations and fatalities in humans:

Table 1. Provisional number of pandemic (H1N1) 2009 hospitalizations and fatal cases in California, by local health jurisdiction, as of 07/30/09.

Jurisdiction	Total Hospitalizations^a	Incidence of Hospitalizations per 100,000 pop.^b	Deaths
CALIFORNIA	699	1.87	80
County Undetermined	0	0.00	0
Alameda	56	3.64	7
Berkeley City	1	0.93	0
Butte	10	4.41	0
Contra Costa	66	6.20	5
Fresno	9	0.93	0
Humboldt	3	2.24	0
Imperial	6	3.25	0
Inyo	1	5.24	0
Kern	3	0.35	0
Long Beach City	7	1.42	0
Los Angeles	74	0.71	14
Madera	2	1.26	0
Marin	15	5.92	2
Mendocino	1	12.91	0
Merced	4	1.49	0
Monterey	8	1.86	1
Napa	3	2.13	0
Orange	82	2.57	10
Pasadena City	2	1.33	0
Placer	1	0.29	1
Riverside	12	0.55	1
Sacramento	49	3.41	5
San Benito	2	3.20	0
San Bernardino	21	0.98	1
San Diego	110	3.47	11
San Francisco	34	4.18	6
San Joaquin	13	1.80	0
San Luis Obispo	1	0.37	0
San Mateo	22	3.00	7
Santa Barbara	4	0.93	0
Santa Clara	45	2.47	2
Santa Cruz	1	0.37	1
Shasta	1	0.53	0
Solano	9	2.06	2
Sonoma	7	1.42	3
Stanislaus	11	2.00	1
Tulare	1	0.22	0
Yolo	2	0.99	0

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

Bold indicates the first (ever) report of hospitalized or fatal cases by the county

b. Characteristics of pandemic (H1N1) 2009 hospitalized/fatal cases in California

Case report forms and medical records are reviewed for accuracy. The number of hospitalized/fatal cases may be an underestimate, as some cases may not be identified.

The cumulative incidence of hospitalizations is depicted in Figure 1. There were 117 new hospitalized cases reported to CDPH in the past week. The incidence of hospitalized and fatal cases is highest among children, especially infants (Figure 2).

To date, CDPH has received 708 reports of hospitalized and fatal cases (Table 2). The median age is 28 years (range: <1 – 92 years). Chronic co-morbid illness is present in 76% of cases, with chronic obesity (38%) and lung disease (37%) being the most common. Seventy eight percent received antivirals. Among women of childbearing age (15 – 44 years), 34% were pregnant.

Figure 1. Hospitalized and fatal cases of pandemic (H1N1) 2009 in California, by date of onset.

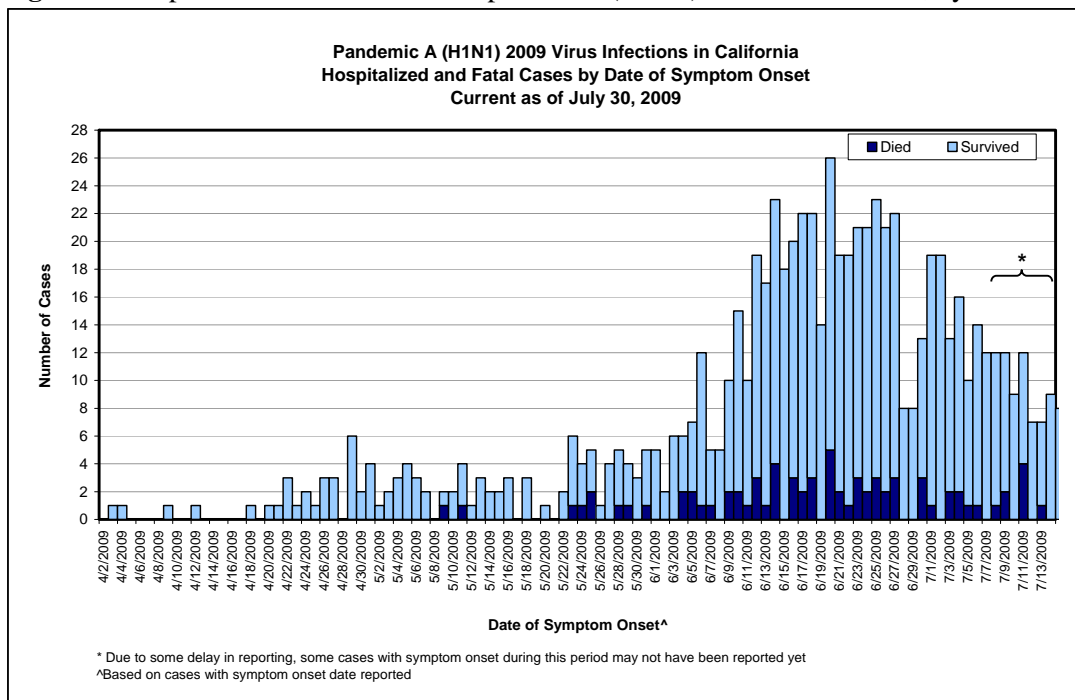


Figure 2. Cumulative incidence of pandemic (H1N1) 2009 virus hospitalizations and fatalities, by age.

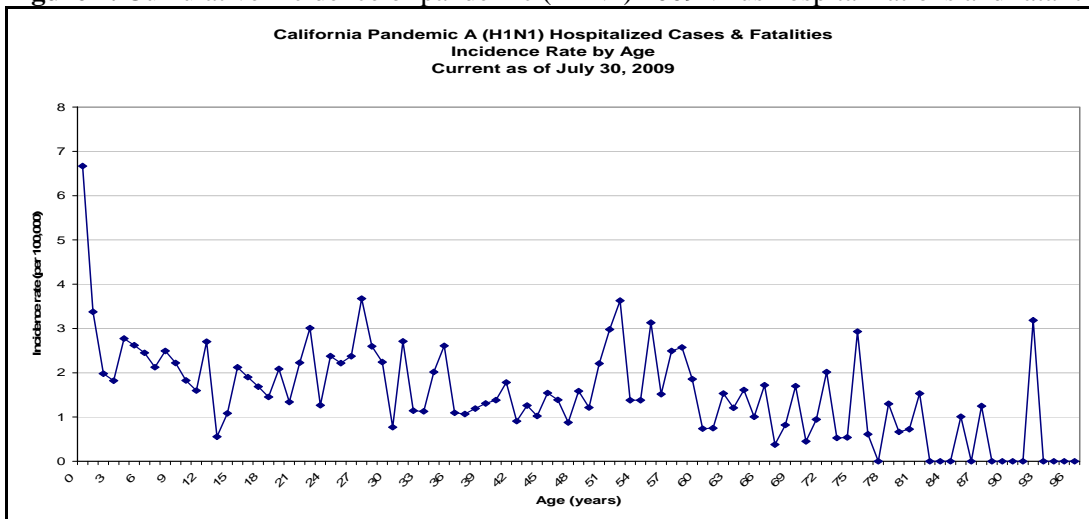


Table 2. Characteristics of hospitalized and fatal cases of pandemic (H1N1) in California. Current as of July 30, 2009.

ALL HOSPITALIZED and FATAL CASES		
Number		708
Sex	Male	49%
	Female	51%
Age	Median (years)	28
	Min - Max	<1 - 92 years
Symptoms	Fever	87%
	Cough	86%
	SOB	55%
	Sore Throat	30%
	Muscle Aches	33%
	NV	34%
	Rhinorrhea	19%
	Headache	19%
	Diarrhea	20%
	Chills	17%
	Conjunctivitis	3%
	Altered Mental Status	5%
Race/Ethnicity**	Hispanic	44%
	White	26%
	Asian/Pacific Islander	15%
	Black	11%
	Other	3%
	Native American	1%
Chronic co-morbid illness*		76%
	Chronic lung disease [†]	37%
	Obesity**	38%
	Chronic cardiac disease [§]	20%
	Metabolic disease	20%
	Other immunosuppression [¶]	16%
	Neuromuscular disorder	10%
Clinical Findings and Course		
	Infiltrates on chest radiograph	48%
	Mechanical Ventilation**	27%
	Antiviral treatment**	78%
Pregnancy***		34%

**Reflects data with known information only.

*Conditions listed are not mutually exclusive due to the presence in some patients of multiple underlying chronic diseases

[†]Includes asthma, chronic obstructive pulmonary disorder, bronchopulmonary dysplasia/respiratory distress syndrome, bronchiolitis obliterans organizing pneumonia, Sjogren's syndrome and obstructive sleep apnea

[§]Includes congenital heart disease, atrial fibrillation, status-post aortic valve replacement, congestive heart failure, hypertensive heart disease and coronary artery disease

[¶]Includes immunosuppressive drugs, cancer, congenital immunodeficiency, and HIV

***Includes female of childbearing age (15-44 years)

2. Laboratory Surveillance Update

VRDL Influenza PCR Results (Updated 7/30/09)

- VRDL performs PCR testing for influenza A, influenza A subtyping, and pandemic (H1N1) 2009. Some specimens are screened at local public health or reference laboratories before being submitted to VRDL for additional or confirmatory testing.
- VRDL has received 4,119 specimens for pandemic (H1N1) 2009-related testing.
- Of 3,555 specimens tested at VRDL for influenza A, 2,330 (66%) have been positive.
- A total of 1,001 influenza A-positive specimens have been subtyped at VRDL. All influenza A-positive specimens that have been referred to VRDL in recent weeks have been unsubtypeable, i.e. probable pandemic (H1N1) 2009.
- Of 1,583 unsubtypeable specimens tested at VRDL for pandemic (H1N1) 2009, 1,484 (94%) have been positive.

Respiratory Laboratory Network (RLN) Influenza PCR Surveillance Results (Updated 7/30/09)

As noted in the Table 5 below, during Week 29 (July 19 - July 25, 2009), approximately 36% of specimens received by the Respiratory Laboratory Network were positive for influenza A. This is a decrease from the previous week, when 41% of specimens were positive for influenza A. All of the influenza A-positive samples tested this week were unsubtypeable, indicating that pandemic (H1N1) 2009 is the predominant strain circulating in California at this time.

Table 5. Respiratory Laboratory Network (RLN) Influenza PCR Surveillance Results, Week 29 (July 19 -25, 2009).

	Total tested	Flu A (% of total)	H1 (% of Flu A)	H3 (% of Flu A)	Unsubtypeable (% of Flu A)
All RLN*	382	136 (36%)	0 (0%)	0 (0%)	136 (100%)
Northern	142	57 (40%)	0 (0%)	0 (0%)	57 (100%)
Central	63	29 (46%)	0 (0%)	0 (0%)	29 (100%)
Southern	177	50 (28)	0 (0%)	0 (0%)	50 (100%)

Table 6. Cumulative Respiratory Laboratory Network (RLN) Influenza PCR Surveillance Results, April 27 – July 25, 2009.

	Total tested	Flu A (% of total)	H1 (% of Flu A)	H3 (% of Flu A)	Unsubtypeable (% of Flu A)
All RLN*	15864	2935 (19%)	296 (10%)	355 (12%)	2182 (74%)
Northern	6466	1236 (19%)	101 (8%)	130 (11%)	904 (73%)
Central	3960	439 (11%)	97 (22%)	59 (13%)	283 (64%)
Southern	5438	1261 (23%)	98 (8%)	166 (13%)	1005 (80%)

* 22 of 23 RLN laboratories reporting, including:

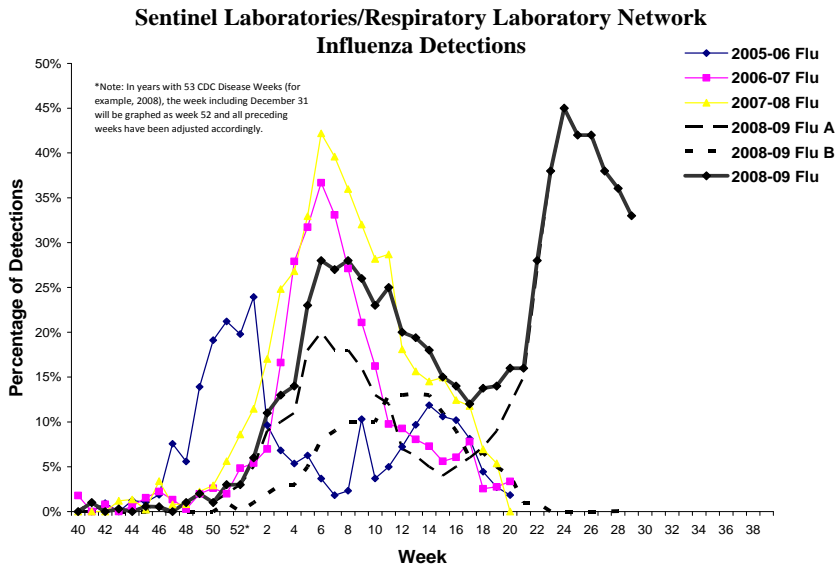
Northern CA: Contra Costa, El Dorado, Marin, Monterey, Sacramento, San Francisco, San Mateo, Santa Clara, Shasta, Sonoma

Central CA: Fresno, Stanislaus, San Joaquin, Tulare

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

Figure 5 shows that laboratory detections have been declining in recent weeks. This is consistent with other influenza surveillance parameters.

Figure 5. Influenza Detections at Sentinel Laboratories/Respiratory Laboratory Network (RLN).



Antiviral Resistance for Pandemic (H1N1) 2009

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

Table 6. Antiviral resistance testing at VRDL, 2009.*

Pandemic (H1N1)	Oseltamivir Resistant	Adamantanes Resistant
VRDL	0/251	59/59

* One oseltamivir-resistant virus was identified by an outside laboratory in a San Francisco resident who traveled to Hong Kong.

An updated version of the pandemic (H1N1) 2009 case report form is available at:

<http://www.cdph.ca.gov/HealthInfo/discond/Pages/SwineInfluenzaLHD.aspx>

<http://www.cdph.ca.gov/pubsforms/forms/Documents/Novel-Influenza-A-H1N1-Virus-Case-Report-Form.doc>

OVERALL CALIFORNIA INFLUENZA ACTIVITY UPDATE FOR JULY 24 – JULY 30, 2009

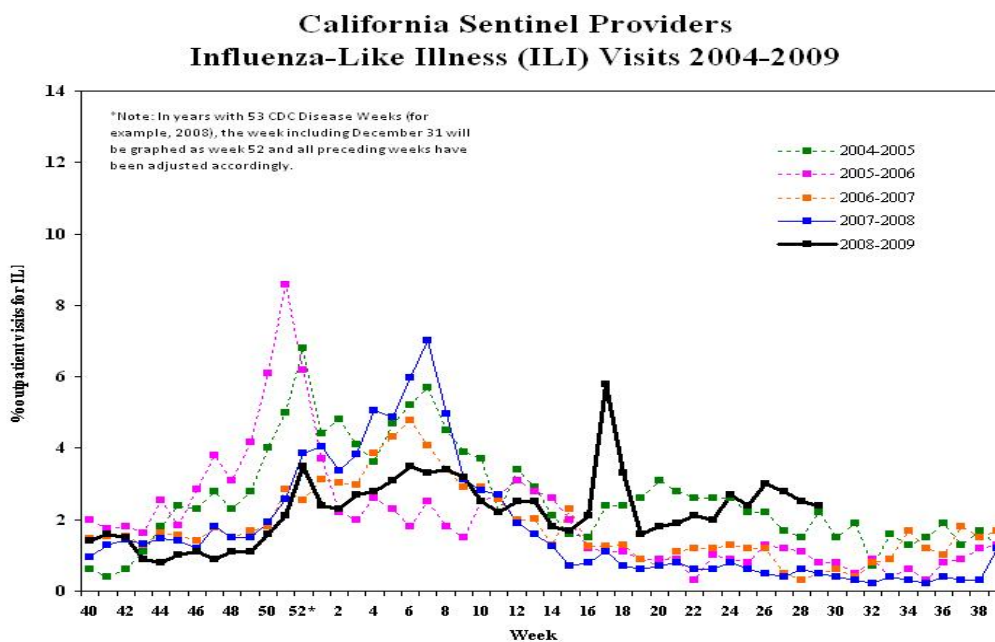
This week, influenza activity in California remained “widespread” (defined by CDC as outbreaks of influenza or increases in ILI cases and recent laboratory confirmed influenza in at least half of the regions in the state). CDPH continues to receive reports of hospitalizations and fatalities associated with pandemic (H1N1) 2009. Pandemic (H1N1) 2009 accounted for 100% of circulating influenza viruses in week 29.

Seasonal Influenza A Surveillance

1. 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. This data is reported weekly as a percentage of total visits. Figure 1 shows a peak in Weeks 17-18 (April 26 – May 9, 2009) when pandemic (H1N1) 2009 was first identified. After a sharp decline, the number of reported outpatient visits for ILI increased steadily until Week 26 (June 28 - July 4, 2009). Outpatient visits for ILI have been declining since Week 26. A total of 49 sentinel providers reported during Week 29.

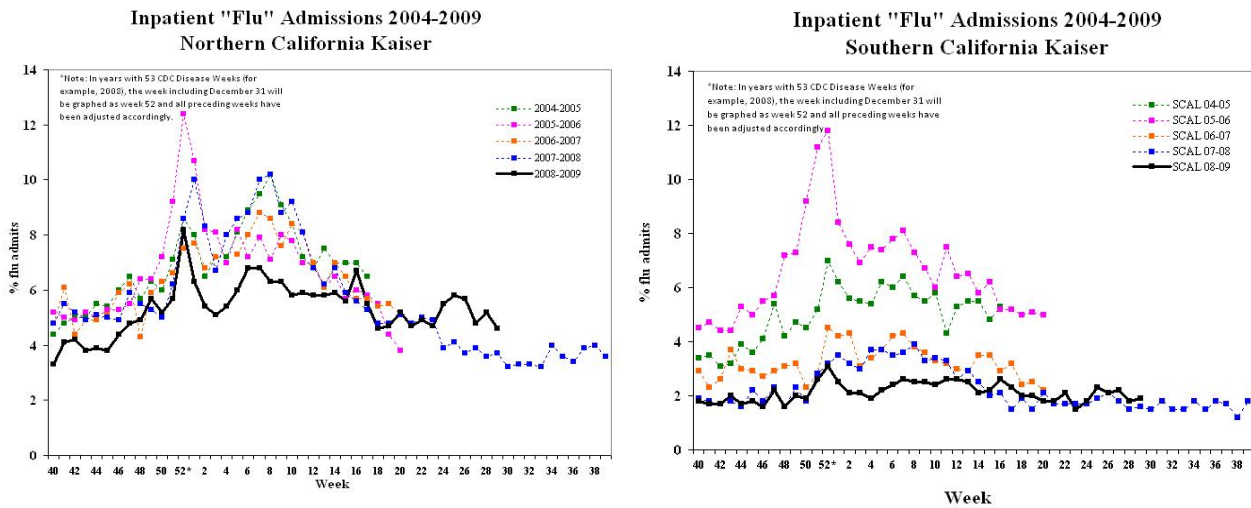
Figure 1. California Sentinel Providers – Influenza-Like Visits, 2004-2009.



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 and 3 show that in both Northern and Southern California, the percentage of Kaiser hospitalizations for pneumonia and influenza (P&I) peaked during Week 17 (April 26 – May 2, 2009), with a smaller peak occurring in Week 24 (June 14 – June 20, 2009).

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

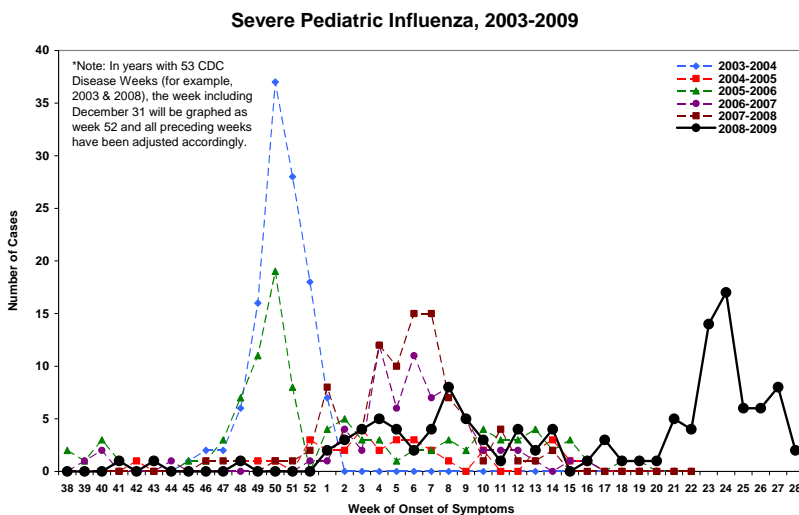


3. Surveillance for Severe Pediatric Influenza

During this week, 9 new cases meeting the case definition for severe pediatric influenza* were reported, including one fatality. The symptom onset dates for these 9 cases range from June 13 – July 14, 2009. Of the 9 cases, 8 (89%) are confirmed/probable pandemic (H1N1) 2009 (test results are pending for the remaining specimen).

As of July 30, 2009, a total of 123 cases have been reported in California. Figure 4 shows an increase in reported cases with symptom onset during Weeks 23 and 24 (June 7 – 20, 2009). No data from this time period are available for previous years for comparison, but the majority of these cases were reported from pediatric intensive care units in Northern California, which is consistent with reports of increased ILI activity in Northern California/the San Francisco Bay Area during this time. Activity appears to have been declining since Week 25 (June 21 – June 27, 2009). Of the 123 severe pediatric influenza cases reported during the 2008-2009 season, 56 (46%) have been confirmed/probable pandemic (H1N1) 2009.

Figure 4. Severe influenza-associated illness in children, 2003-2009.



*Case definition: age 0-17 years; a clinical syndrome consistent with influenza or complications of influenza; confirmation by laboratory testing; and have been hospitalized in the ICU or died (with no period of complete recovery between the illness and death)

5. Laboratory Positive Results Data

The table below shows positive influenza and other virus results from sentinel laboratories, local public health laboratories and VRDL. The percentage of total detections continues to decline.

Table 1. Influenza and other respiratory virus detections, July 19– 25, 2009.

		Sentinel Laboratories/Respiratory Laboratory Network [‡]	Sentinel Providers
Week 29	Number of Sites Reporting	18	878 specimens submitted (371 positive by PCR)
	Influenza A	658 ^a Total tested week 29: 1932 Total detections to date: 12260	0 Total tested week 29: 0 Total detections to date: 267
	Influenza B	0 Total tested week 29: 1550 Total detections to date: 4811	0 Total tested week 29: 0 Total detections to date: 104
	RSV	0 Total tested week 29: 1225 Total detections to date: 8818	N/A
	Other Respiratory Viruses	3 ^b Total tested week 29: 188 Total detections to date: 212	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 (80); Contra Costa (59); Fresno (64); Kings (1); Long Beach (42); Madera (4); Marin (17); Merced (1), Placer (19); Sacramento (72); San Diego (46); San Francisco (37); San Joaquin (28); San Mateo (29); Santa Barbara (2), Santa Clara (75); Shasta (5); Solano (24); Sonoma (33); Stanislaus (12); Ventura (4); Yolo (1); Unknown (3)

^b parainfluenza type 1 (1); parainfluenza type 2 (1); parainfluenza type 3 (1)

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