

California Influenza Surveillance Project

Viral and Rickettsial Disease Laboratory

2008-2009

Influenza Update – Week 17 (April 26 – May 2, 2009)

Enhanced Surveillance for Swine Influenza A (H1)

The CDPH Viral and Rickettsial Disease Laboratory (VRDL) serves as a statewide reference laboratory offering diagnostic testing for influenza and a broad array of other respiratory pathogens. VRDL routinely performs diagnostic testing in a variety of situations, including institutional or community respiratory outbreaks, individual cases of severe respiratory illness, and outpatient cases of influenza-like illness submitted by Centers for Disease Control and Prevention (CDC) Influenza Sentinel Providers. The VRDL testing capabilities include viral culture, polymerase chain reaction (PCR), serologic testing, subtyping, strain characterization and antiviral resistance testing.

In the current swine influenza (H1N1) epidemic, the VRDL continues to serve as the state reference laboratory by providing PCR testing for influenza, confirmatory testing for swine influenza (H1N1), and guidance and assistance to our local public health laboratory partners. Antiviral resistance testing will be performed on a subset of specimens tested to monitor for changing resistance patterns. VRDL is also working on development of new techniques and assays (e.g., neutralization assays to test for immunity) in order to enhance our repertoire of diagnostic testing that may be available in the current swine influenza (H1N1) epidemic.

VRDL Influenza PCR Surveillance Results (Updated 5/7/09)

• PCR	• Number of Specimens Tested	• Detected (%)
Influenza A	878	298 (34%)
H1 Subtyping	311	81 (26%)
H3 Subtyping	311	94 (30%)
Unable to subtype	--	136 (44%)
Swine Flu Confirmed	164	160 (98%)

Respiratory Laboratory Network (RLN) Influenza PCR Surveillance Results (Updated 5/7/09)

	Total Tested	Flu A (% of Total)	H1 (% of Flu A)	H3 (% of Flu A)	Untypeable (% of Flu A)
All RLN *	4969	424 (9%)	107 (25%)	130 (31%)	151 (36%)
Northern	1807	102 (6%)	24 (24%)	37 (36%)	40 (39%)
Central	1392	88 (6%)	44 (50%)	31 (35%)	13 (15%)
Southern	1770	234 (13%)	39 (17%)	62 (26%)	98 (42%)

* 16 of 23 RLN laboratories reporting, including:

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

Central CA: Stanislaus, San Joaquin, Tulare

Southern CA: Orange, San Bernardino, San Diego, Santa Barbara, Ventura

California Influenza Activity

This week flu activity in California was upgraded to “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 throughout the state. As noted in the RLN graphs above, approximately 10% of specimens received by the public health laboratory network statewide have been positive by influenza A. Of these, approximately one-quarter are subtype H1, one third are subtype H3 and more than one-third are untypeable. Untypeable specimens are referred to VRDL for confirmatory testing as noted above.

National Influenza Activity

During week 17 (April 26 - May 2, 2009), influenza activity increased in the United States. One thousand eight hundred ninety-two (13.2%) 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. No influenza-associated pediatric deaths were reported. The proportion of outpatient visits for influenza-like illness (ILI) was 2.6% which is above the national baseline.

Kaiser Permanente inpatient, sentinel providers’ outpatient influenza-like illnesses, and Kaiser Permanente antiviral data:

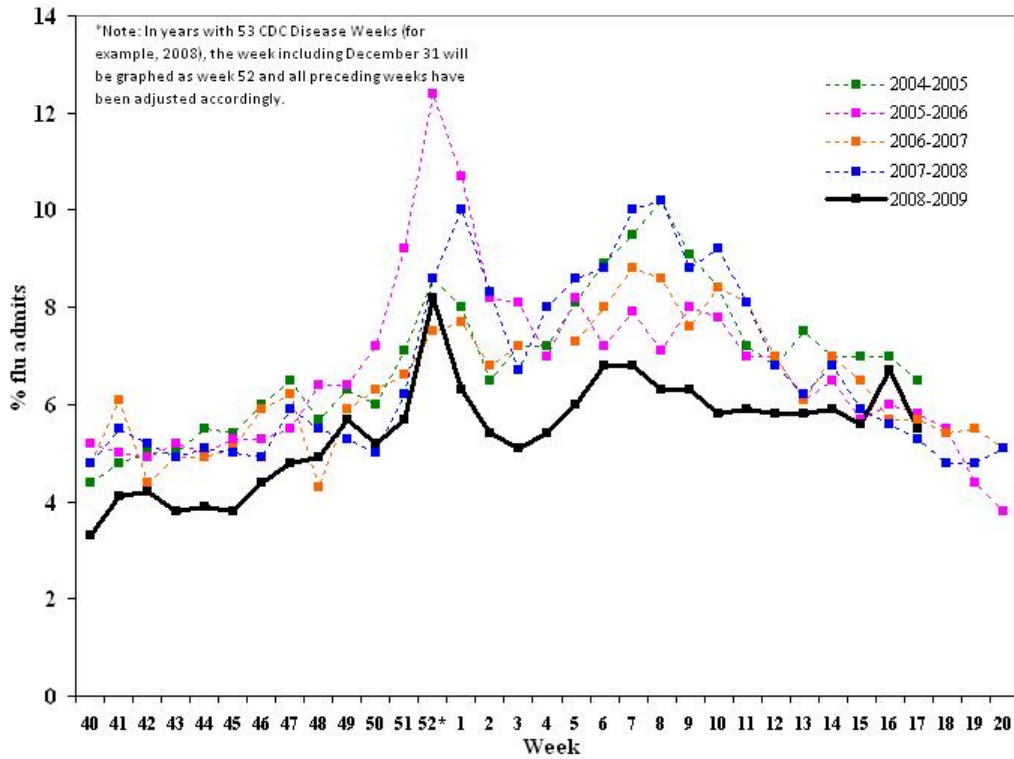
Week	Kaiser Inpatient Data % (range)*		Outpatient ILI Data %(# reported)‡	Kaiser Antiviral Data§	
	Northern CA	Southern CA		Northern CA	Southern CA
17	5.5 (0.1–22.4)	2.3 (0.7–4.5)	4.3 (79 reported)	343	288
Previous week	6.7 (0.1–11.6)	2.6 (0.3–3.9)	1.2 (89 reported)	107	92

* “Flu admissions” are present year-round. During the off-season, these consist chiefly of pneumonia, which represents approximately 3–5% of all admissions

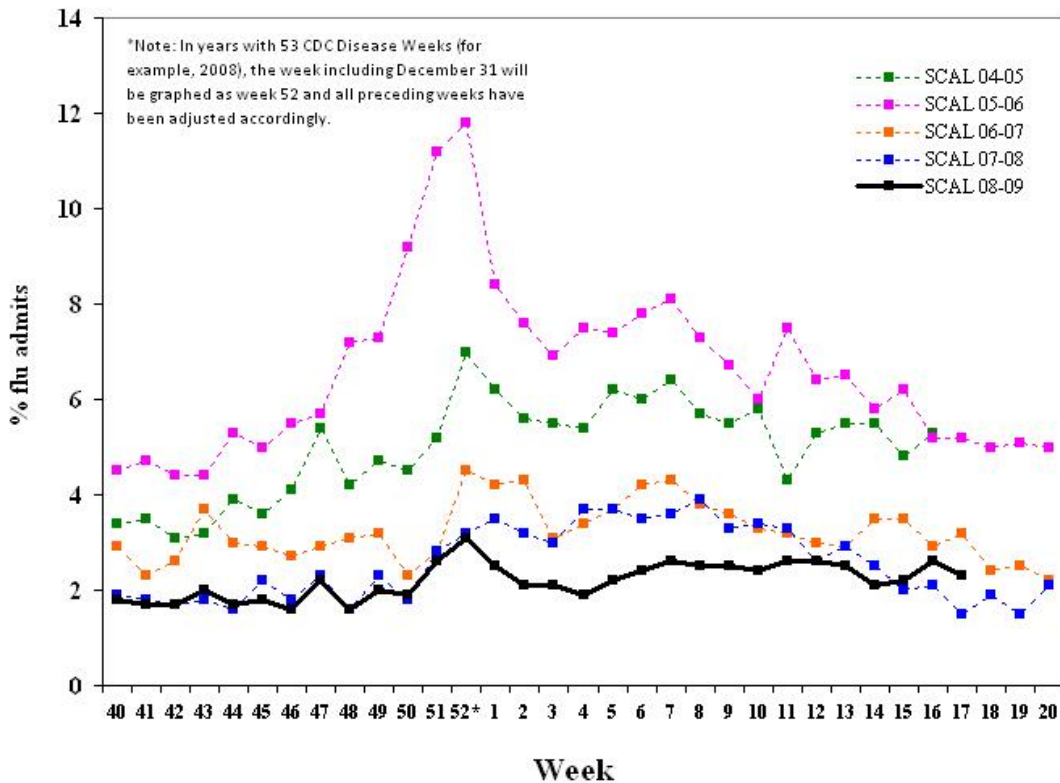
‡ The percentage of outpatient visits for influenza-like illness (ILI) is calculated by dividing the number of ILI visits by the total number of outpatient visits per week

§ The number of prescriptions filled for the antiviral drugs used for influenza (amantadine, rimantadine, zanamivir, and oseltamivir) by Kaiser outpatient pharmacies in California

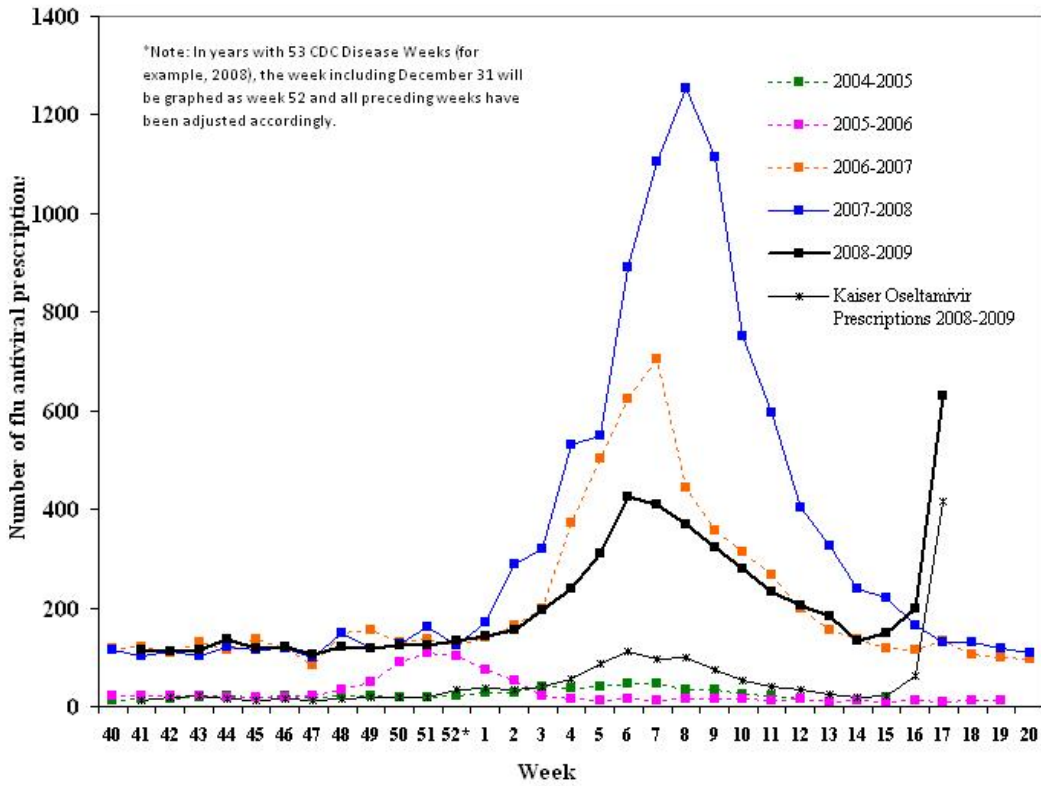
Inpatient "Flu" Admissions 2004-2009 Northern California Kaiser



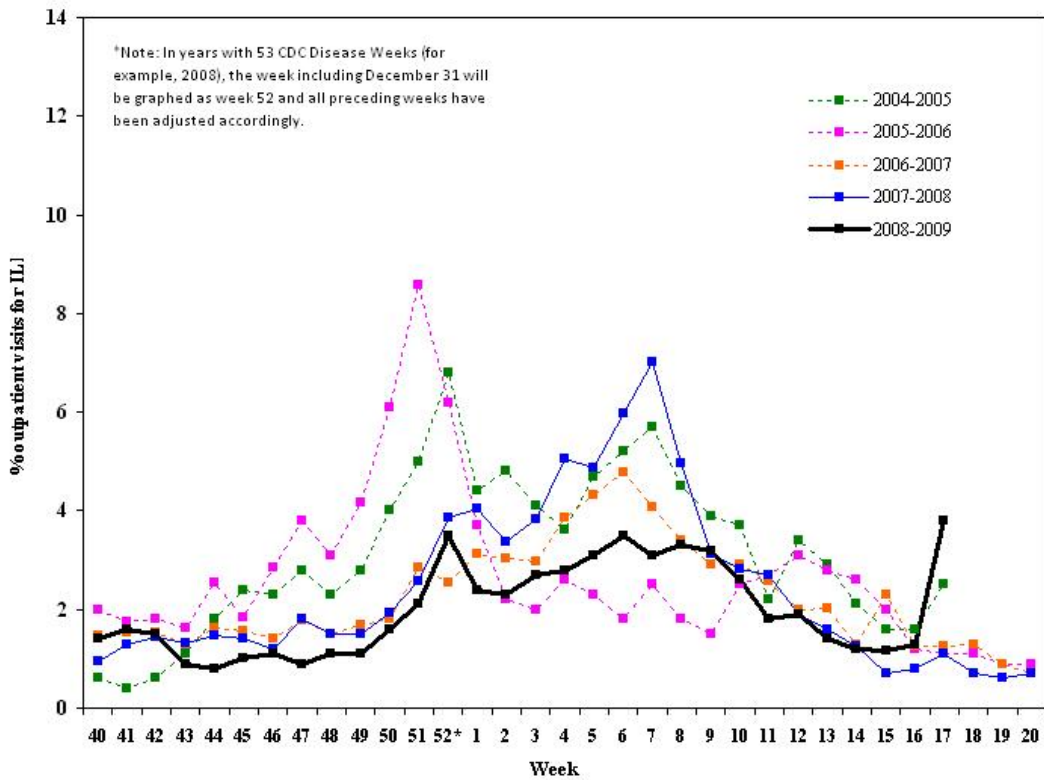
Inpatient "Flu" Admissions 2004-2009 Southern California Kaiser



Kaiser Pharmacy Data Influenza Antiviral Usage 2004-2009



California Sentinel Providers Influenza-Like Illness (ILI) Visits 2004-2009



Laboratory Data (Positive influenza and other virus results from sentinel laboratories, local public health laboratories and VRDL)

		Sentinel Laboratories/Respiratory Laboratory Network [‡]	Sentinel Providers
Week 17	Number of Sites Reporting	31	547 specimens submitted (19 pending, 241 positive by PCR)
	Influenza A	488 ^a Total to date: 4978	137 ^e
	Influenza B	279 ^b Total to date: 2775	104 ^f
	Influenza A/B	0 Total to date: 3	N/A
	RSV	26 ^c Total to date: 7334	N/A
	Other Respiratory Viruses	29 ^d Total to date: 267	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 (23); Contra Costa (26); El Dorado (2); Fresno (9); Long Beach (1); Los Angeles (51); Marin (18); Monterey (6); Napa (3); Orange (26); Placer (9); Riverside (12); Sacramento (41); San Bernardino (15); San Diego (42); San Francisco (20); San Joaquin (27); San Mateo (21); Santa Barbara (4); Santa Clara (54); Shasta (1); Solano (9); Sonoma (8); Stanislaus (13); Tulare (24); Ventura (22); Unknown (1)

^b Alameda (42); Contra Costa (35); Fresno (13); Long Beach (2); Los Angeles (16); Marin (5); Napa (3); Orange (12); Placer (10); Riverside (2); Sacramento (12); San Diego (11); San Francisco (15); San Joaquin (8); San Mateo (10); Santa Clara (58); Solano (11); Sonoma (5); Stanislaus (7); Yolo (2)

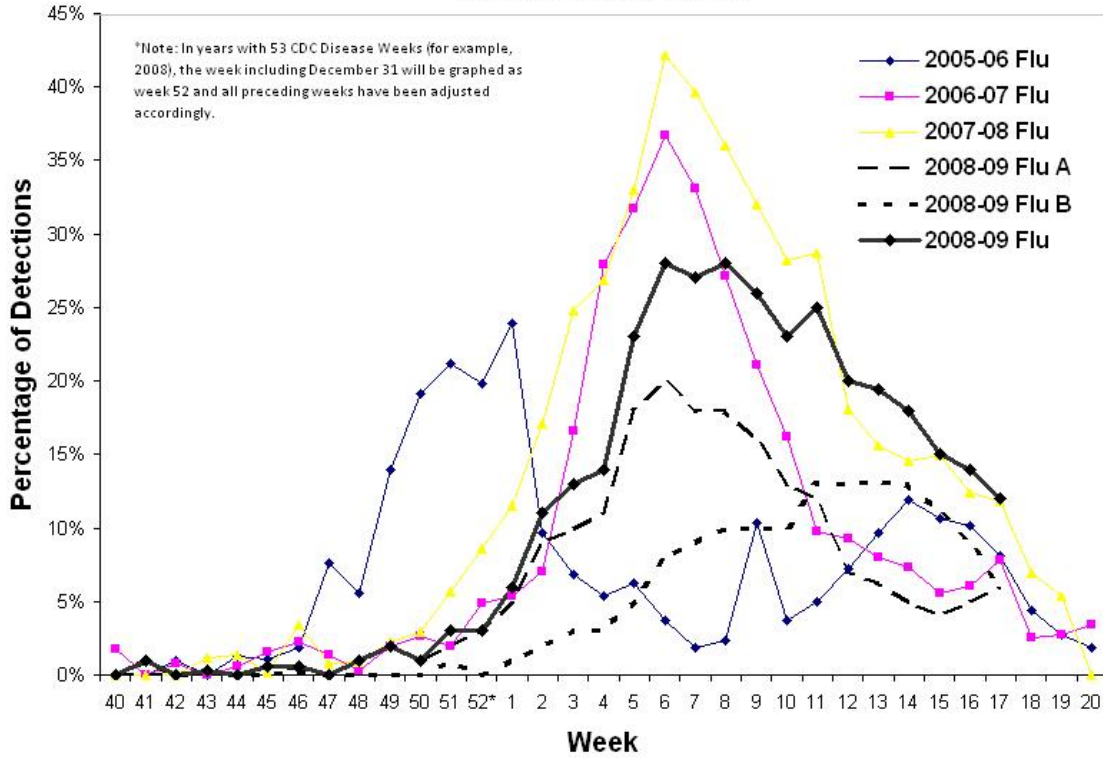
^c Alameda (3); Contra Costa (3); Long Beach (1); Los Angeles (2); Marin (1); Placer (2); Sacramento (3); San Diego (1); San Francisco (2); San Joaquin (1); San Mateo (1); Santa Clara (2); Solano (1); Sonoma (3)

^d parainfluenza type 1 (1); parainfluenza type 2 (1); parainfluenza type 3 (23); human metapneumovirus (3); adenovirus (1)

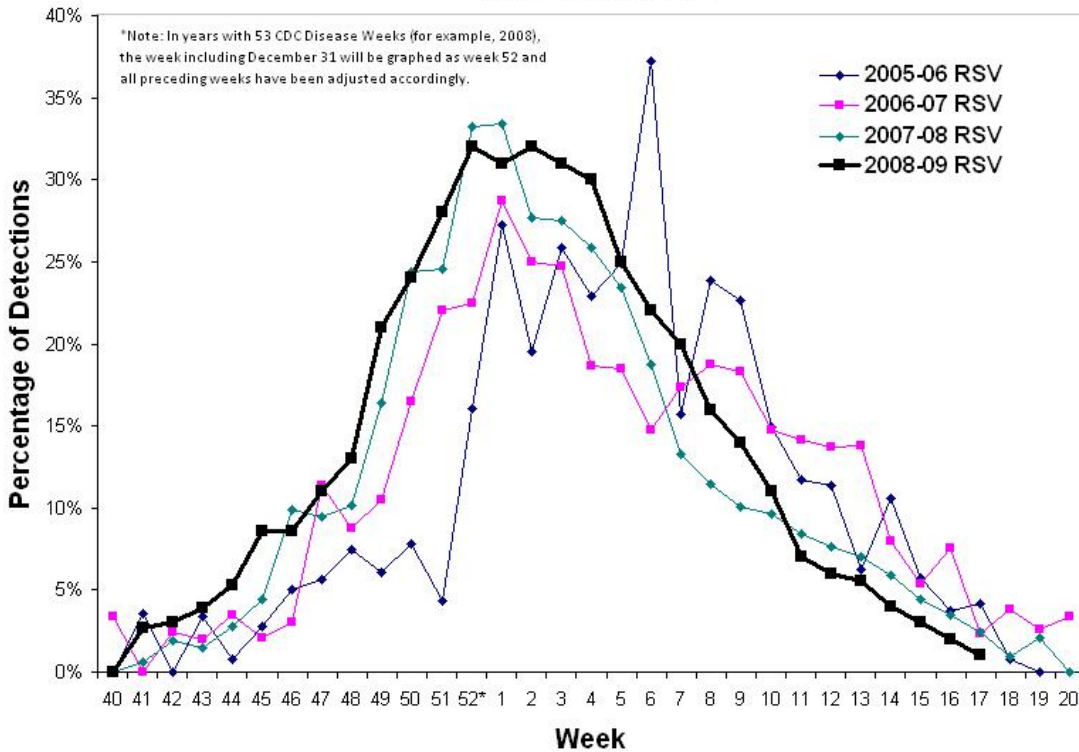
^e Santa Barbara (36); Santa Clara (14); Butte (11); Los Angeles (10); Alameda (8); Fresno (8); San Diego (7); Kern (6); San Francisco (5); Stanislaus (6); Riverside (4); Sacramento (3); San Bernardino (3); Tulare (3); El Dorado (2); San Benito (2); Contra Costa (1); Humboldt (1); Inyo (1); Madera (1); Marin (1); Merced (1); Santa Cruz (1); Ventura (1); Yolo (1)

^f Santa Barbara (45); Santa Clara (15); San Joaquin (6); Alameda (5); Butte (4); Fresno (4); Los Angeles (4); Marin (4); Riverside (3); Sacramento (3); Contra Costa (2); San Francisco (2); El Dorado (1); Placer (1); San Diego (1); San Mateo (1); Solano (1); Stanislaus (1); Ventura (1)

Sentinel Laboratories/Respiratory Laboratory Network Influenza Detections



Sentinel Laboratories/Respiratory Laboratory Network RSV Detections



Respiratory Laboratory Network:

County Name	Rmix	PCR
Alameda		
El Dorado	X	X
Contra Costa		X
Fresno	X	X
Humboldt		X
Imperial	X	
Long Beach	X	X
Los Angeles	X	X
Monterey		X
Orange	X	X
Placer	X	X
Riverside		X
Sacramento	X	
San Bernardino	X	X
San Diego	X	X
San Francisco	X	X
San Joaquin	X	X
Santa Clara	X	X
Shasta	X	X
Solano	X	X
Sonoma	X	
Stanislaus	X	
Tulare	X	X
Ventura	X	X
VRDL	X	X

Please continue to assist us in recruiting primary care providers (physicians, nurse practitioners, and physician assistants) to be sentinel physicians in your area. For more information, contact Melissa Dahlke at flu@cdph.ca.gov or 510-620-3494.

For questions about the California Influenza Surveillance Project, please contact Erica Boston (erica.boston@cdph.ca.gov) or Janice Louie (janice.louie@cdph.ca.gov).