



California Department of Public Health Influenza Surveillance Program

California Influenza and Other Respiratory Disease Surveillance for Week 4 (January 20–26, 2013)

Note: This report includes information from many different data sources, including syndromic surveillance, laboratory surveillance, and mandatory reporting of influenza deaths for cases ages 0-64 years. The information contained in this report should be viewed as a “snapshot” of influenza activity for each surveillance week, and should not be considered as population-based data or representative of all California public health jurisdictions. Additionally, it is important to keep in mind that the data included in this report represent a sampling of various influenza indicators and are not meant to capture all influenza cases in the state. The trends of these influenza indicators, however, are useful for monitoring influenza activity. Data in previous weeks may be revised as additional information becomes available.

Overall influenza activity in California during Week 4 remained “widespread*.”

During Week 4, increases in influenza-like illness, laboratory detections of influenza, and influenza-associated outbreaks were reported in multiple regions statewide. Current trends in influenza activity are comparable to the range of patterns seen at this time in California during the 2007–2008 influenza season, which was considered moderately severe. Most influenza-positive specimens identified in California during the 2012–2013 influenza season are influenza A; of the influenza A viruses subtyped, most are influenza A (H3) viruses. Of the specimens strain-typed this season nationwide, 90% match the 2012–2013 influenza vaccine.

Influenza Report Highlights

- Outpatient influenza-like illness (ILI) increased 1.5% in Week 4 (6.2%) compared to Week 3 (4.7%).
- Of 4087 specimens tested during Week 4,
 - 1536 (37.6%) were positive for influenza virus; of these
 - 234 (15.2%) were influenza B and
 - 1302 (84.8%) were influenza A
 - 376 (28.9%) were subtyped as seasonal A (H3)
 - 34 (2.6%) was subtyped as 2009 A (H1)
 - 892 (68.5%) were not subtyped
- The California Department of Public Health Viral and Rickettsial Disease Laboratory (CDPH-VRDL) has tested 23 influenza isolates for antiviral resistance to date; none has been resistant to neuraminidase inhibitors.
- Three specimens from California residents have been strain-typed this season; all strains match the components of the 2012–2013 influenza vaccine.
- Five influenza-associated deaths in persons less than 65 years of age, including the first report of a pediatric death, were reported during Week 4.
- No cases of novel influenza have been detected in California to date.

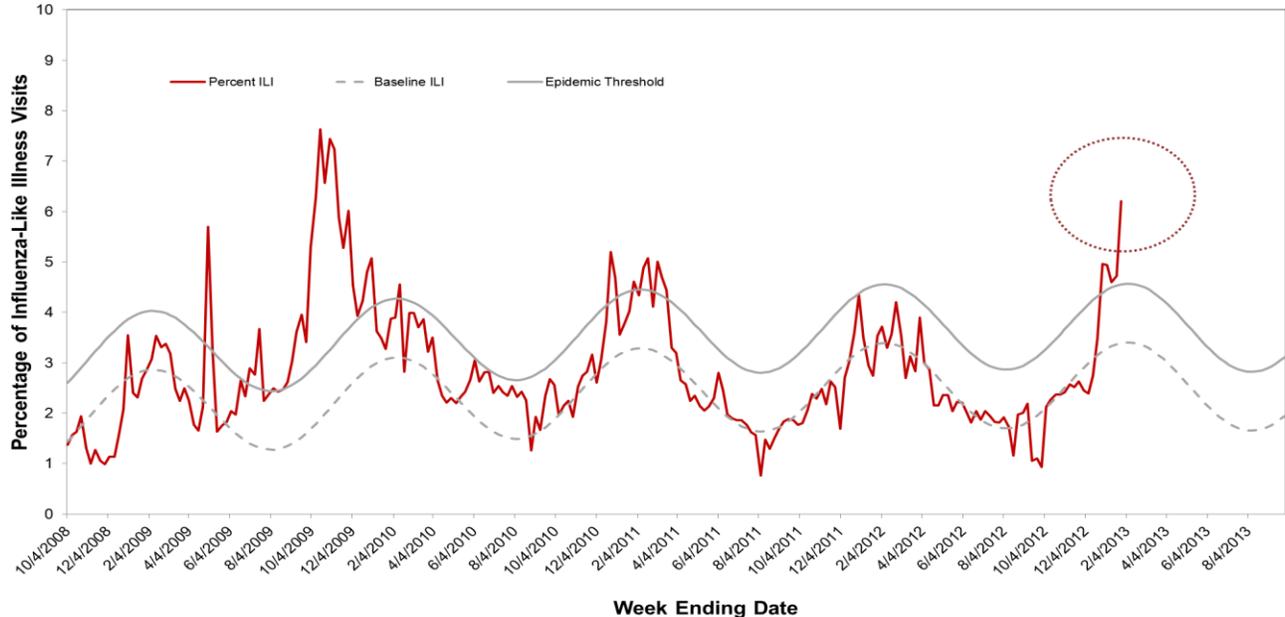
*For the Centers for Disease Control and Prevention (CDC) definitions of influenza geographic distribution, please go to <http://www.cdc.gov/flu/weekly/overview.htm>.

A. Syndromic Surveillance Update

1. CDC Influenza Sentinel Providers

A total of 87 enrolled sentinel providers have reported data for Week 4, compared to an average of 117 providers reporting for each of the previous weeks. Based on available data, the percentage of visits for ILI in Week 4 (6.2%) remained above the epidemic threshold (4.6%) (Figure 1).

Figure 1. Percentage of Influenza-like Illness Visits Among Patients Seen by California Sentinel Providers, 2008–2013

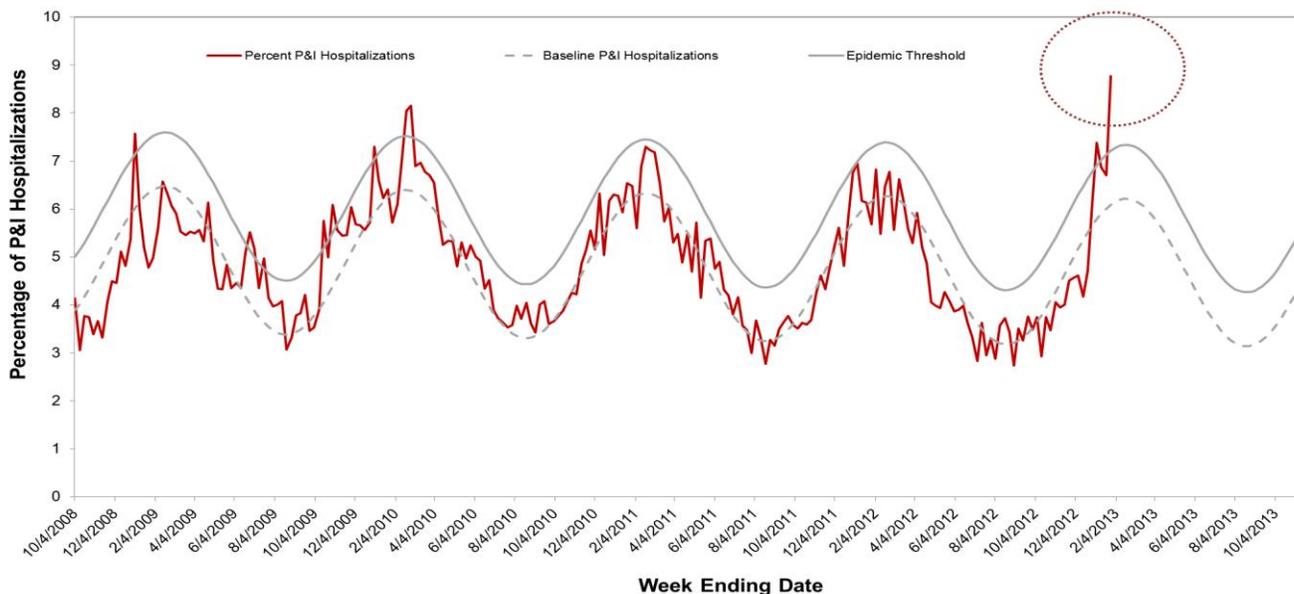


The seasonal baseline was calculated using a regression model applied to data from the previous seven years. The epidemic threshold is two standard deviations above the seasonal baseline and is the point at which the observed percentage of ILI is significantly higher than would be expected at that time of the year.

2. Kaiser Permanente Hospitalization Data

The percentage of hospitalizations for pneumonia and influenza (P&I) in Kaiser Permanente facilities in northern California increased during Week 4 (8.8%), compared to Week 3 (6.7%) (Figure 2). The percentage was above the epidemic threshold (7.2%) during Week 4.

Figure 2. Percentage of P&I Hospitalizations in Kaiser Permanente Northern California Hospitals, 2008–2013



The seasonal baseline was calculated using a regression model applied to data from the previous five years. The epidemic threshold is two standard deviations above the seasonal baseline and is the point at which the observed percentage of pneumonia and influenza hospitalizations in Kaiser Permanente hospitals in northern California is significantly higher than would be expected at that time of the year.

B. Laboratory Update

1. Respiratory Laboratory Network (RLN) and Sentinel Laboratory Surveillance Results

The percentage of influenza detections in the RLN and sentinel laboratories increased in Week 4 (37.6%, compared to 29.2% in Week 3) (Figure 3). In Week 4, of 4087 specimens tested by the RLN and sentinel laboratories, 234 (5.7%) were positive for influenza B and 1302 (31.9%) were positive for influenza A. Of the 1302 influenza A positive specimens, 410 (31.5%) were further subtyped; 376 (91.7%) were seasonal A (H3) and 34 (8.3%) were 2009 A (H1).

To date for the 2012–2013 season, of 27,676 specimens tested, 4306 (15.6%) were positive for influenza; of these, 649 (15.1%) were influenza B and 3657 (84.9%) were influenza A. Of the 3657 specimens that tested positive for influenza A, 1244 (34.0%) were further subtyped; 1157 (93.0%) were subtyped as seasonal A (H3) and 60 (7.0%) were subtyped as 2009 A (H1). Influenza detections have been reported in multiple regions statewide (Figure 4).

Neither the RLN nor CDPH-VRDL have identified any influenza viruses (by polymerase chain reaction (PCR) typing or subtyping) that are suggestive of a novel influenza virus.

Figure 3. Percentage of Influenza Detections in Respiratory Laboratory Network and Sentinel Laboratories, 2007–2013

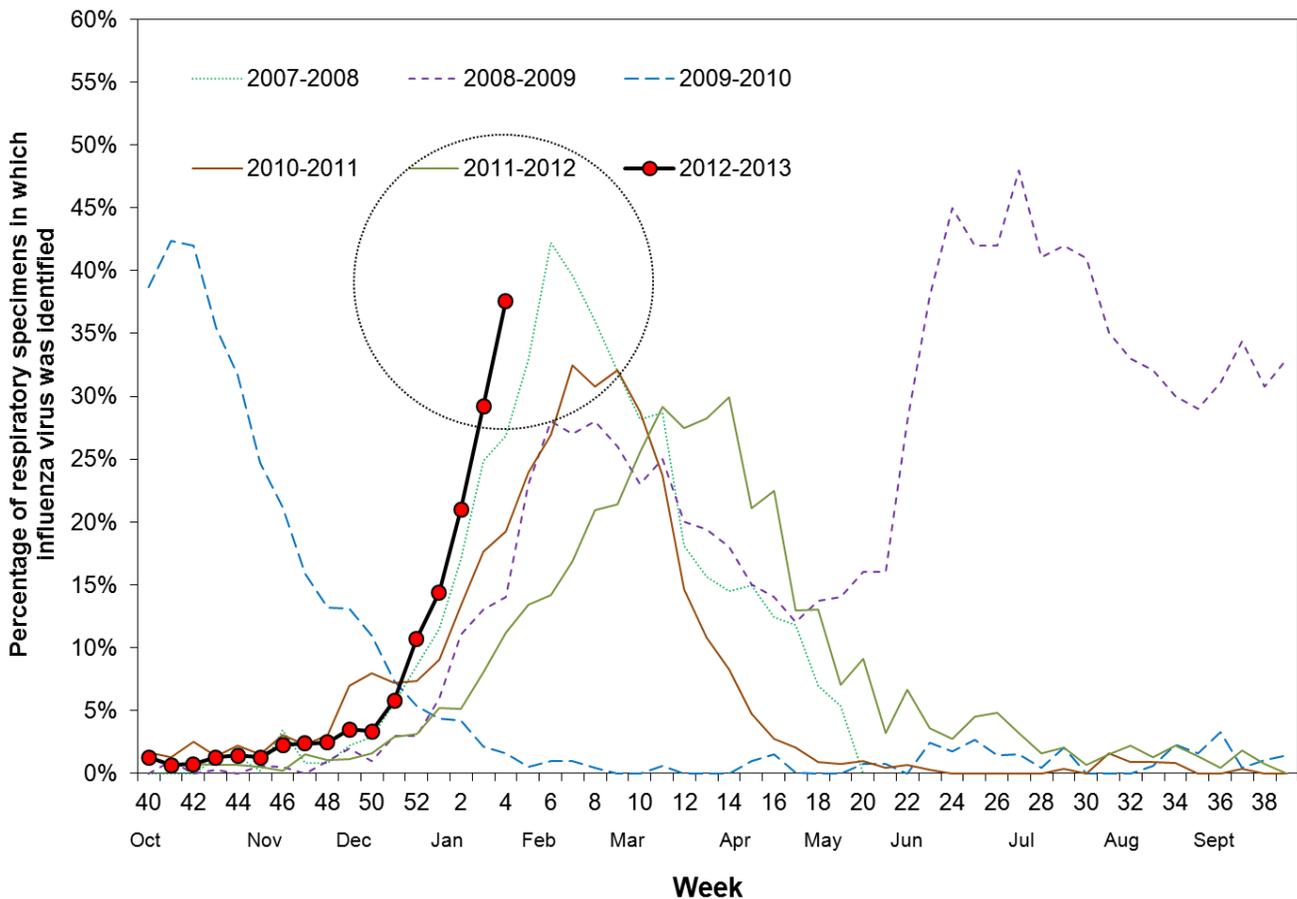
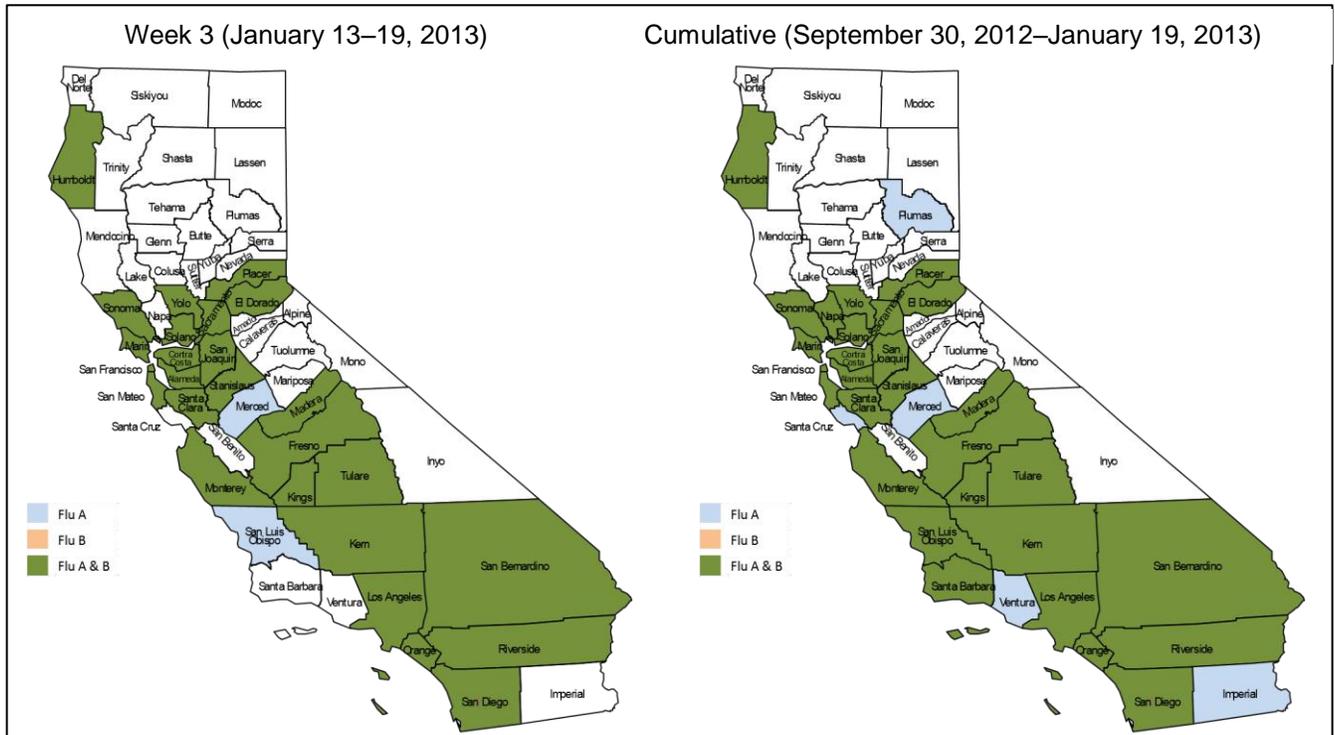


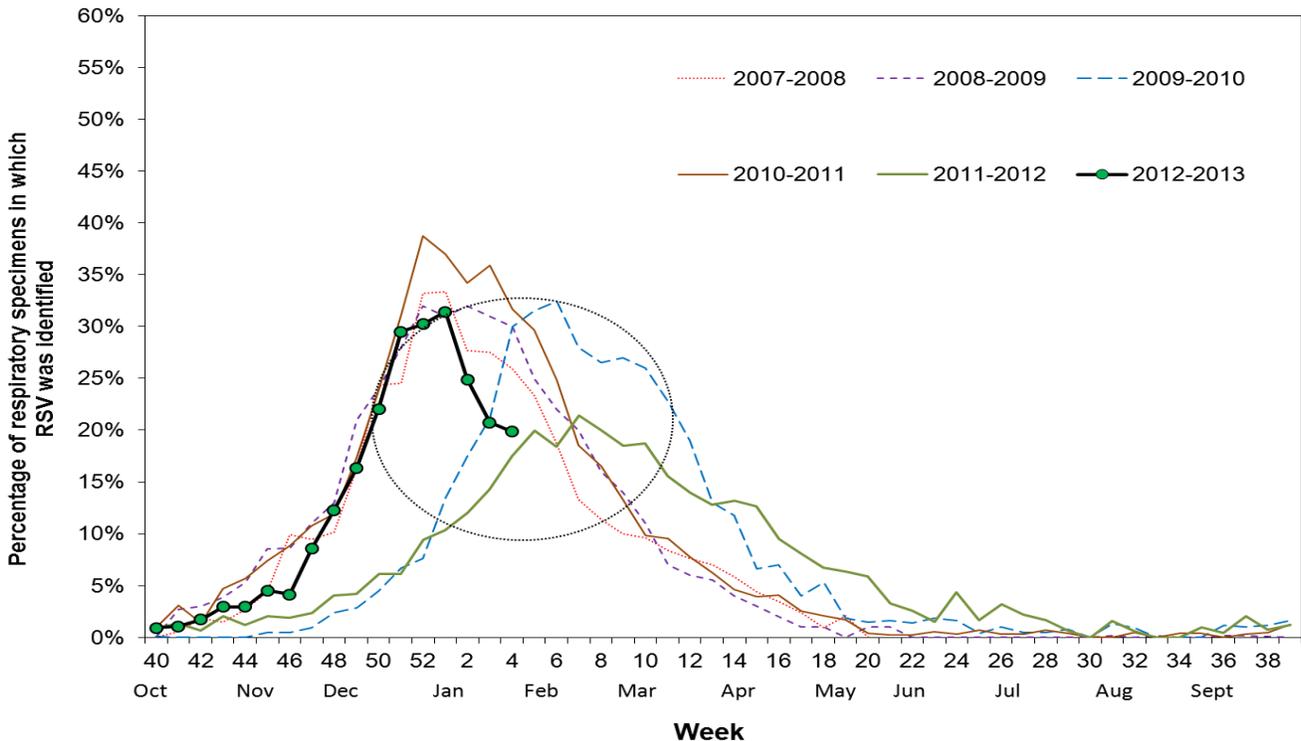
Figure 4. Influenza Detections in Respiratory Laboratory Network and Sentinel Laboratories, by County*



*Laboratory detections reported by county of patient's residence or laboratory location. Influenza activity in regions without participating laboratories may be underrepresented in this figure.

Respiratory syncytial virus (RSV) detections decreased in Week 4 (19.9%, compared to 20.7% in Week 3) (Figure 5).

Figure 5. Percentage of RSV Detections in Respiratory Laboratory Network and Sentinel Laboratories, 2007–2013



2. Antiviral Resistance Testing

The CDPH-VRDL performs surveillance for antiviral resistance (AVR) testing on a limited basis and on individual cases upon special request. During the 2012–2013 influenza season, as part of a CDC national surveillance effort, the VRDL implemented a functional assay to survey circulating influenza strains for resistance to neuraminidase inhibitors. In addition, selected seasonal A (H3) and 2009 A (H1) clinical specimens are tested using pyrosequencing for a single known mutation that confers oseltamivir resistance (H275Y). Since high levels of resistance to adamantanes (amantadine and rimantadine) are observed among circulating influenza A viruses [2009 A (H1) and seasonal A (H3)], adamantane resistance testing will not be performed at the VRDL on a routine basis.

The combined AVR data is summarized below and should be considered for epidemiological purposes only.

CDPH-VRDL has tested 18 influenza A (H3) and 5 influenza 2009 A(H1) specimens to date during the 2012–2013 influenza season (Table 1), all of which have been sensitive to neuraminidase inhibitors.

Table 1. Number of specimens tested for antiviral resistance

	Neuraminidase Inhibitors Resistance
Influenza 2009 A (H1)	0/5
Influenza A (H3)	0/18

3. Influenza Virus Strain Characterization

Three California specimens have been strain-typed to date during the 2012–2013 influenza season; all matched with components of the 2012–2013 vaccine for the Northern Hemisphere (Table 2).

Table 2. Influenza Virus Antigenic Characterization for the 2012–2013 Season

	Total (N=3)
Influenza A	2
A/Victoria/361/2011-like (H3N2)*	1
A/California/07/2009-like (H1N1)*	1
Influenza B	1
B/Wisconsin/01/2010-like *	1

*Matches components of the 2012-13 Northern Hemisphere influenza vaccine

C. Laboratory-confirmed Fatal Case Reports

Currently, as mandated under Section 2500 of the California Code of Regulations, deaths among patients aged 0-64 years with laboratory-confirmed influenza are reportable to CDPH.

During Week 4, CDPH received five reports of influenza-associated deaths in persons less than 65 years of age, including the first report of a pediatric influenza-associated fatality in a child in the 5-9 year age group. The deaths were reported from the San Francisco Bay Area, the Central Valley, the Greater Los Angeles area, and the San Diego metropolitan area, with deaths occurring from January 11, 2013 to January 24, 2013.

A total of 14 influenza-associated deaths among individuals less than 65 years of age, including one pediatric death, have been reported to CDPH to date during the 2012–2013 influenza season. The deaths were reported from the Central Valley (1), the Sacramento metropolitan area (1), the Visalia-Porterville metropolitan area in the Central Valley (1), the Metropolitan Fresno or Greater Fresno area (1), the Greater Los Angeles Area (4), the San Diego metropolitan area (4), and the San Francisco Bay Area (2).

D. Influenza-associated Outbreaks

CDPH received 13 reports of laboratory-confirmed influenza outbreaks during Week 4. Of the 13 outbreaks, 11 occurred in institutions or congregate living facilities, 1 occurred in a school, and 1 occurred in a community setting. All 13 outbreaks were associated with influenza A; subtyping performed on specimens from 5 of the outbreaks identified influenza A (H3). In two of the outbreaks, influenza B was also identified.

CDPH has received a total of 29 reports of laboratory-confirmed influenza outbreaks to date during the 2012–2013 influenza season. All 29 outbreaks have been associated with influenza A. Influenza B was also identified in two of the outbreaks.

For questions regarding influenza surveillance and reporting in California, please email InfluenzaSurveillance@cdph.ca.gov. This account is monitored daily by several epidemiologists.

For more information regarding the different influenza surveillance data sources, please visit the CDPH Influenza Surveillance Program at <http://www.cdph.ca.gov/programs/dcdc/Pages/CaliforniaInfluenzaSurveillanceProject.aspx>.

To obtain additional information regarding influenza, please visit the CDPH influenza website at [http://www.cdph.ca.gov/HealthInfo/discond/Pages/Influenza\(Flu\).aspx](http://www.cdph.ca.gov/HealthInfo/discond/Pages/Influenza(Flu).aspx).

A copy of the case report form for reporting any laboratory-confirmed influenza case that was either admitted to the ICU or died can be downloaded from [http://www.cdph.ca.gov/HealthInfo/discond/Pages/Influenza\(Flu\).aspx](http://www.cdph.ca.gov/HealthInfo/discond/Pages/Influenza(Flu).aspx).