

# The California Influenza Surveillance Project

## 2003-2004 Season Summary

The California Influenza Surveillance Project conducts statewide influenza surveillance year-round. Weekly updates of the website occur during influenza season. Please see the [overview page](#) for general descriptions of each of the surveillance methods. The data described below is for the 2003-2004 season and includes data through week 15.

Overall, influenza activity in the 2003-2004 influenza season peaked earlier than in previous years and became widespread rapidly. The overall magnitude of influenza activity in California as described by percentages of inpatient admissions for influenza and pneumonia and of outpatient visits for influenza-like illnesses was higher than that of recent previous seasons, but not as high as that seen in the 1997-1998 and 1999-2000 influenza seasons. However, the number of laboratory detections positive for influenza and the number of prescriptions for antivirals used to treat influenza were much higher this season than in previous seasons, although these may be influenced to some degree by physician bias in ordering and prescribing, respectively. It is important to note that our surveillance system does not receive data from ALL labs, physicians, hospitals, or pharmacies in California and the numbers reported do not represent all cases of influenza but are intended to demonstrate trends in influenza activity.

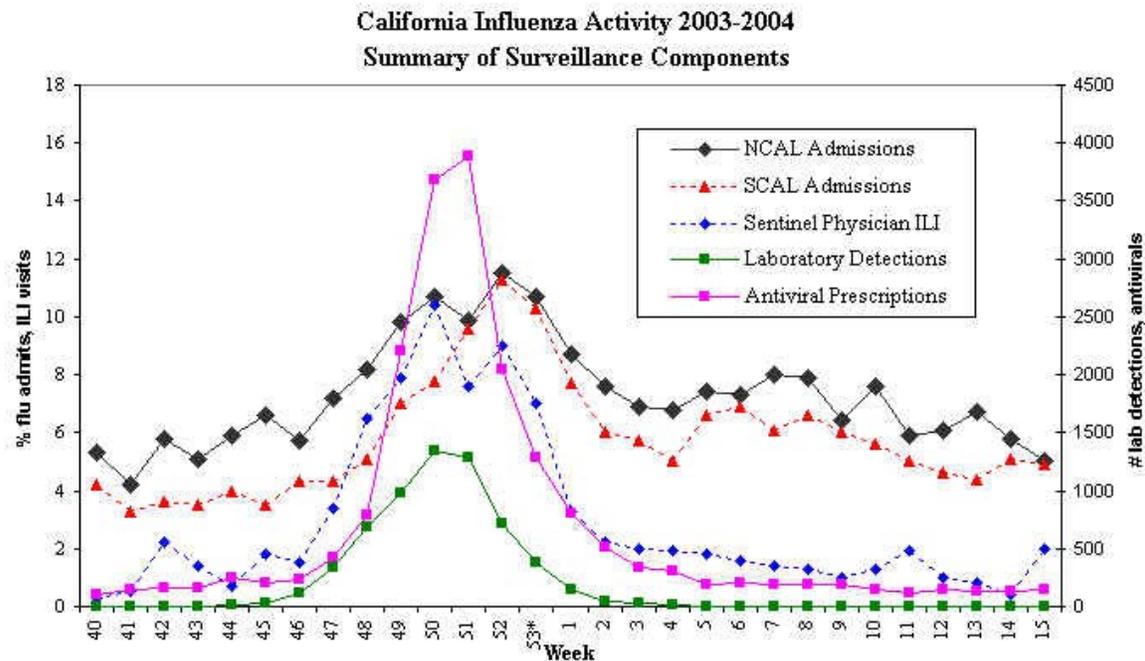
This season was characterized by the predominance of a drifted influenza A strain, A/Fujian/411/2002-like (H3N2), that was not included in the 2003-2004 influenza vaccine. Nationally, ~88% of influenza A (H3N2) strains tested were A/Fujian, and, in California, 95% of our influenza A (H3N2) strains tested were A/Fujian. Although it was initially expected that the influenza A (H3N2) component of the vaccine (A/Panama/2007/99) would provide some cross-protection against A/Fujian, studies are currently underway to determine the efficacy of the 2003-2004 vaccine against A/Fujian.

During this season, much attention was drawn to pediatric deaths from influenza. As of March 27, 2004, the CDC has received reports of 142 influenza-associated deaths in U.S. residents aged < 18 years for the 2003-2004 influenza season; baseline numbers have not been well-established. In California, CDHS initiated surveillance for pediatric influenza-related deaths and inpatient intensive care unit admissions for severe influenza and, to date, we have received reports of 128 admissions for severe influenza and 7 laboratory-confirmed deaths in children. Nationally, the overall percentage of deaths for pneumonia and influenza (P & I) exceeded the epidemic threshold for 9 consecutive weeks (weeks 51 through 6, 12/14/03-2/14/04) and peaked at 10.3% during week 1 (1/04/04-1/10/04).

Finally, this season was also characterized by many outbreaks of avian influenza. In Asia, highly pathogenic avian influenza A (H5N1) outbreaks in poultry resulted in the deaths of over 100 million chickens and laboratory confirmed cases in 34 humans (22 in Vietnam, 12 in Thailand) in Asia, of whom 23 have died (as of March 24, 2004). At present, no evidence of efficient person-to-person transmission of the H5N1 virus has been documented. Please see the WHO webpage ([http://www.who.int/csr/disease/avian\\_influenza/updates/en/](http://www.who.int/csr/disease/avian_influenza/updates/en/)) for more information on avian influenza in Asia. Since early February 2004, avian influenza outbreaks in poultry have been reported from multiple locations in North America, including British Columbia, Delaware, Maryland, New Jersey, Pennsylvania, and Texas. The strains of avian influenza involved in these outbreaks are NOT the same as the avian influenza H5N1 strain causing severe influenza and deaths in Asia. Although no confirmed cases of human infection with avian influenza viruses have occurred to date in relation to these outbreaks in the United States, Canadian health authorities have reported two laboratory-confirmed cases of human

influenza A (H7) infection (resulting in conjunctivitis and/or upper respiratory symptoms) in British Columbia associated with an H7N3 outbreak in poultry. To date, no person-to-person transmission of H7

influenza A has occurred in Canada. For management of people exposed to avian influenza in the United States, please see [Interim Recommendations for Persons with Possible Exposure to Avian Influenza During Outbreaks Among Poultry in the United States](http://www.cdc.gov/flu/han022404.htm) (<http://www.cdc.gov/flu/han022404.htm>).



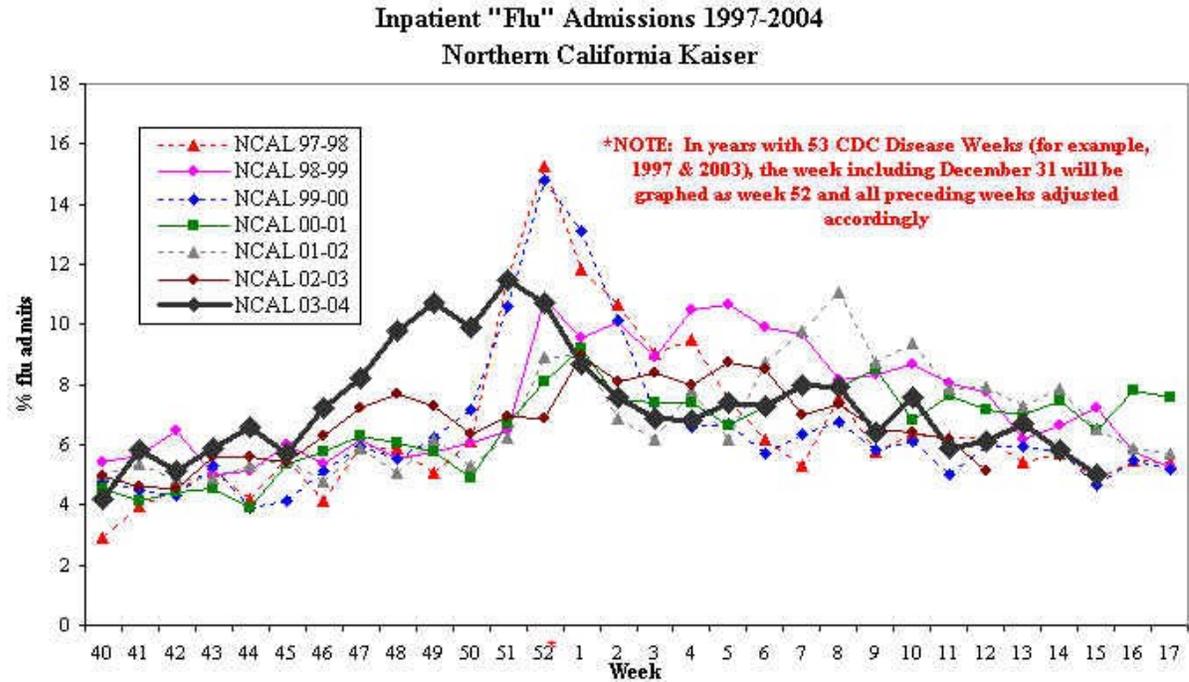
*Please note: the years 2003 and 1997 have 53 CDC disease weeks and therefore graphing influenza activity in these years in comparison to other years with only 52 disease weeks presents a challenge. Since the last week of the calendar year is epidemiologically important for influenza transmission, with schools being closed and multiple family gatherings and parties, we have graphed these weeks together, i.e. week 53 of 2003 is graphed against week 52 of previous years in the following graphs. Therefore, data points for weeks before week 53 in 2003 will be plotted as one week earlier on the graphs than described in the text below; however data for weeks 1 onward correspond to the actual week on the graph.*

### **Kaiser Inpatient Data (Figures 1 and 2)**

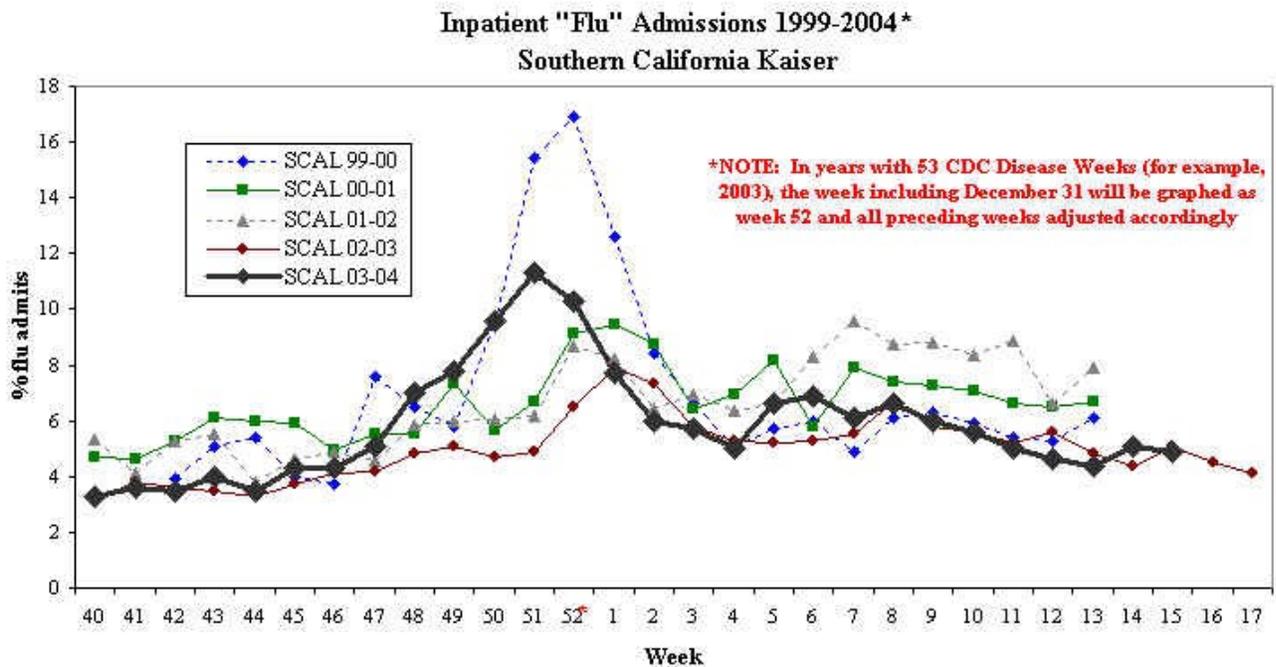
The percent of Northern California (NCAL) inpatient admissions for flu (“influenza”, “pneumonia”, and “flu”) began to increase in week 47 (11/16/03-11/22/03) and continued to increase over the next several weeks until the peak of 11.5% in week 52 (12/21/03-12/27/03). NCAL admissions decreased to 6.8% in week 4 (1/25/04-1/31/04) then fluctuated within 1-2% over the next several weeks and are now near baseline levels at 5.0% for week 15 (4/11/04-4/17/04). *Note: The NCAL inpatient admissions data from week 14 has been corrected (5.8%, previously reported as 8.1%). In addition, we have reanalyzed all the previous years’ NCAL inpatient admissions data to account for misspellings and abbreviations of “pneumonia” and “influenza” in the admissions text string entry and this new data is now represented on our summary graphs.*

The percent of Southern California (SCAL) inpatient admissions for flu began to increase in week 48 (11/23/03-11/29-03) and then peaked at 11.3% in week 52 (12/21/03-12/27/03). SCAL admissions decreased to 5% by week 4 (1/25/04-1/31/04) then increased again to 6.9% in week 6 (2/08/04-2/14/04), then decreased again and have been at baseline levels of 5% since week 11 (3/14/04-3/20/04).

**Figure 1**



**Figure 2**

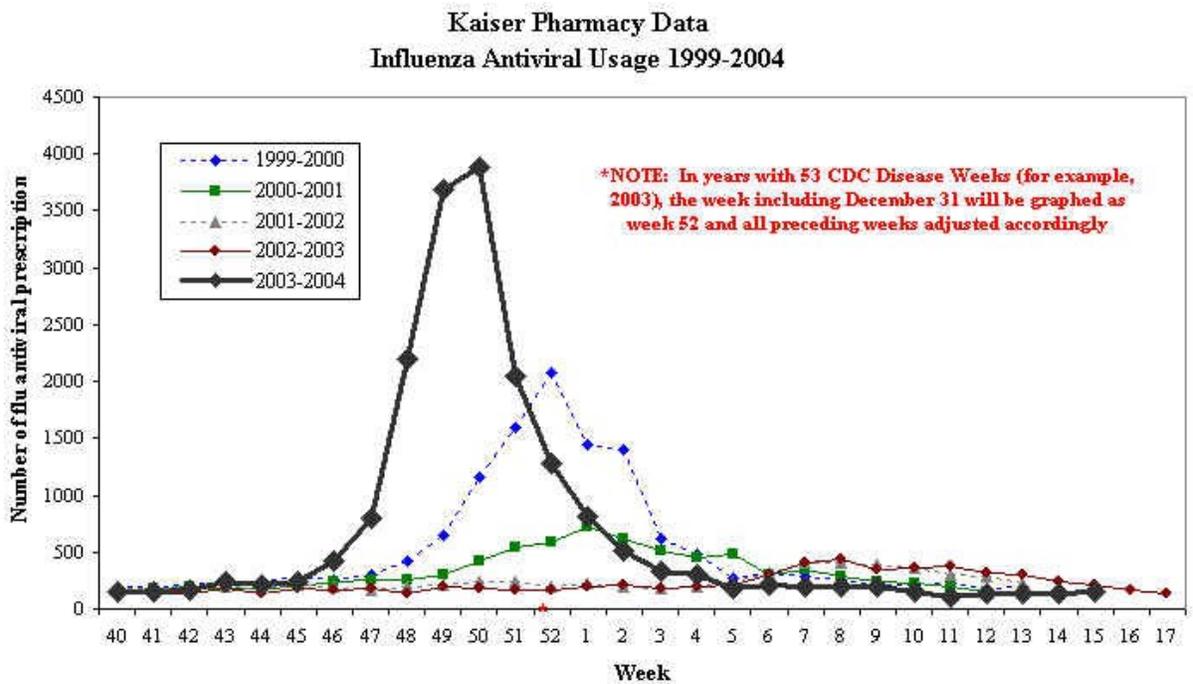


\*\*Note: data from SCAL 03-04 and 02-03 includes data from 11 sites, compared to 4 sites in 00-01 and 01-02, and 3 sites in 99-00

### **Pharmacy Data (Kaiser-specific) (Figure 3)**

The number of NCAL antiviral prescriptions for amantadine, rimantadine, oseltamivir and zanamivir began to increase in week 45 (11/02/03-11/08/03) and then peaked at 1792 in week 50 (12/07/03-12/13/03). NCAL antiviral prescriptions have returned to baseline levels of <90 since week 5 (2/01/04-2/07/04). The number of SCAL prescriptions began to increase in week 43 (10/19/03-10/25/03) then peaked at 2185 in week 51 (12/14/03-12/20/03). SCAL antiviral prescriptions have returned to baseline levels of <100 since week 10 (03/07/04-03/13/04).

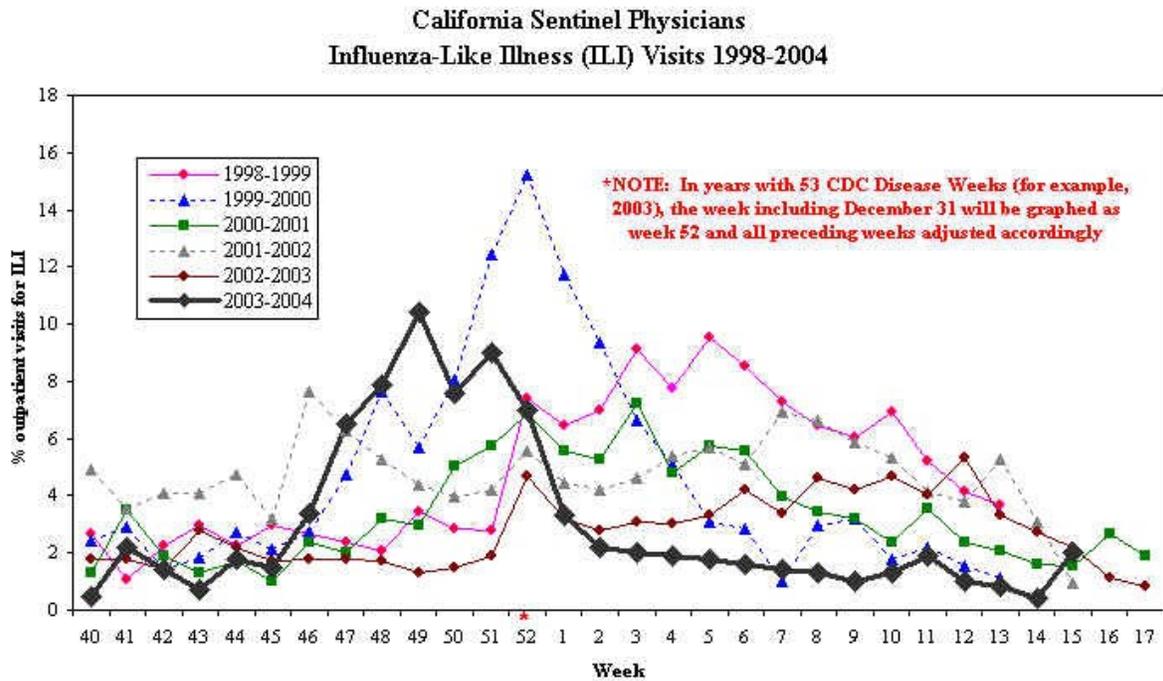
**Figure 3**



## Sentinel Physicians (Figure 4)

The percent of outpatient visits for influenza-like illnesses (ILI) began to increase in week 47 (11/16/03-11/22/03) and peaked at 10.4% in week 50 (12/07/03-12/13/03). ILI visits continued elevated until week 1 (1/04/04-1/10/04) and have been below the national baseline of 2.5% since week 2 (1/11/04-1/17/04).

**Figure 4**



## Respiratory Virus Isolation/Detection Data (Figure 5 and Figure 6)

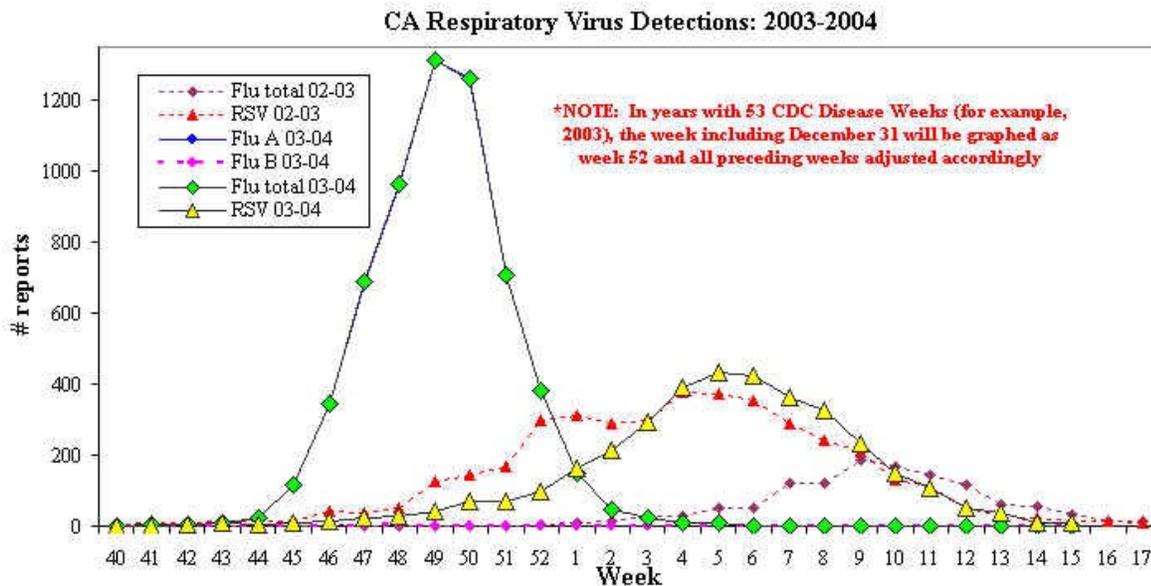
During the 2003-2004 influenza season, CISP received weekly reports of laboratory detections and isolations of influenza and other respiratory viruses (predominantly RSV) from 18 participating sites, including hospital, academic, public health, and private laboratories, situated throughout California. In addition, influenza clinical specimens/isolates were requested from participating sites for detailed antigenic characterization. Selected isolates were forwarded to CDC for confirmation and further analysis.

The number of total influenza (A, B, and A/B) detections began to increase in week 44 (10/26/03-11/01/03), peaked at 1,338 during week 50 (12/07/03-12/13/03), and then decreased steadily to baseline levels of <5 during week 6 (2/8/04-2/14/04). The number of influenza A detections peaked at 1,314 during week 50 (12/07-12/13/04) while influenza B peaked at 3 during week 49 (11/30/03-12/06/03). Of the cumulative total influenza detections (6,152) reported through week 15 (4/11/04-4/17/04), 6,051 (98.4%) were type A, 10 (0.2%) were type B, and 91 (1.5%) were unspecified A/B rapid tests.

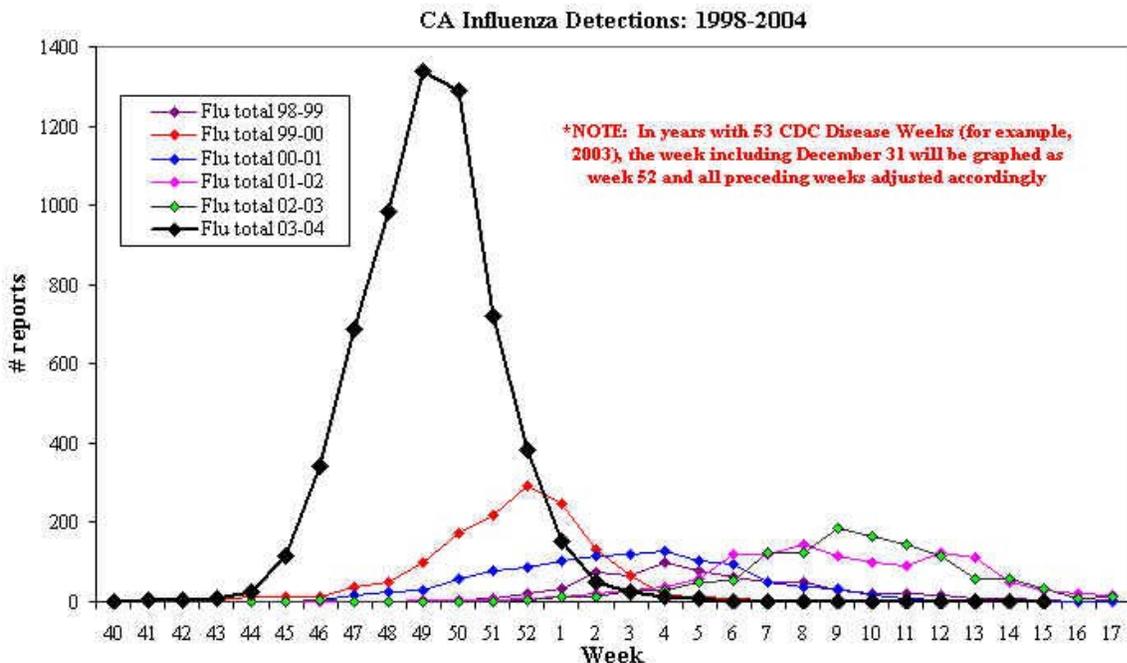
The cumulative total number of influenza A and B detections (6,061) reported through week 15 (4/11/04-4/17/04) was 493% of the total reported (1,230) during the same period last season (2002-2003). Of these, 6,051 (99.8%) were type A and 10 (0.2%) were type B, compared with 80.3% type A and 19.7% type B during the 2002-03 season.

The number of RSV detections began to increase slowly in week 43 (10/19/03-10/25/03), increased more rapidly after week 50 (12/07/03-12/13/03), and peaked at 432 in week 5 (2/01/04-2/07/04). RSV detections have decreased steadily since week 6 (2/08/04-2/14/04) and remain slightly above baseline at 9 in week 15 (4/11/04-4/17/04). The cumulative total of RSV detections (3,585) reported through week 15 (4/11/04-4/17/04) is 88.9% of the total reported (4,034) during the same period last season.

**Figure 5**



**Figure 6**



### **Antigenic Characterization of Influenza Isolates (Table 1)**

To date, 167 influenza isolates have been characterized antigenically by hemagglutination inhibition assay (HIA) at CDHS VRDL. Of the 165 influenza A isolates, 157 (95%) were characterized as A/Fujian/411/2002-like (H3N2) and 8 (5%) were characterized as A/Panama/2007/99-like (H3N2). Two influenza B isolates were characterized as B/Sichuan/379-99-like. The B/Sichuan/379-99-like strain does not correlate with the B component (B/Hong Kong /330/2001-like) of the 2003-04 season's influenza vaccine, but it did account for 16% of the total B strains characterized during 2001-02 and was the predominant strain during 2000-01.

**Table 1** (\* =strains included in the 2003-2004 influenza vaccine)

<b>Influenza Virus</b>	<b>Number Typed</b>	<b>Subtype</b>		<b>Strain type</b>
Influenza A Isolates for 2003-2004	165	Total		
		H3N	157 8	A/Fujian/411/2002 A/Panama/2007/99*
		H1		A/Bayern/7/95 A/New Caledonia/20/99*
Influenza B Isolates for 2003-2004	2	Total	2	B/Sichuan/379/99 B/Hong Kong/330/2001*