



## Public Health Division Influenza Report

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### 2009-2010 Weekly Influenza Surveillance Report

Updated: Tuesday, 4/20/2010

Weekly updates will resume on Tuesday, April 27, 2010



#### Weekly Snapshot

A total of 501 hospitalized persons or persons in intensive care units (ICU) with laboratory-confirmed H1N1 were reported from week 17 (ending 5/2/09) to week 15 (ending 4/17/10) in Sacramento County. During week 12 through 15 no reports of hospitalized persons or persons in intensive care units were reported. During week 15, three schools reported exceeding absenteeism rates greater than 10%. From week 14 to week 15, the pneumonia and influenza death threshold reported increased from 11.1% to 14.9%. The week with the highest threshold reported however was during week 9 (16.5%). During week 15, the proportion of residents who died of pneumonia and influenza over the age of 75 years declined from 74% during week 14 to 66.7%. It is not known at this time if countermeasures will prevent a third wave of H1N1 from occurring.

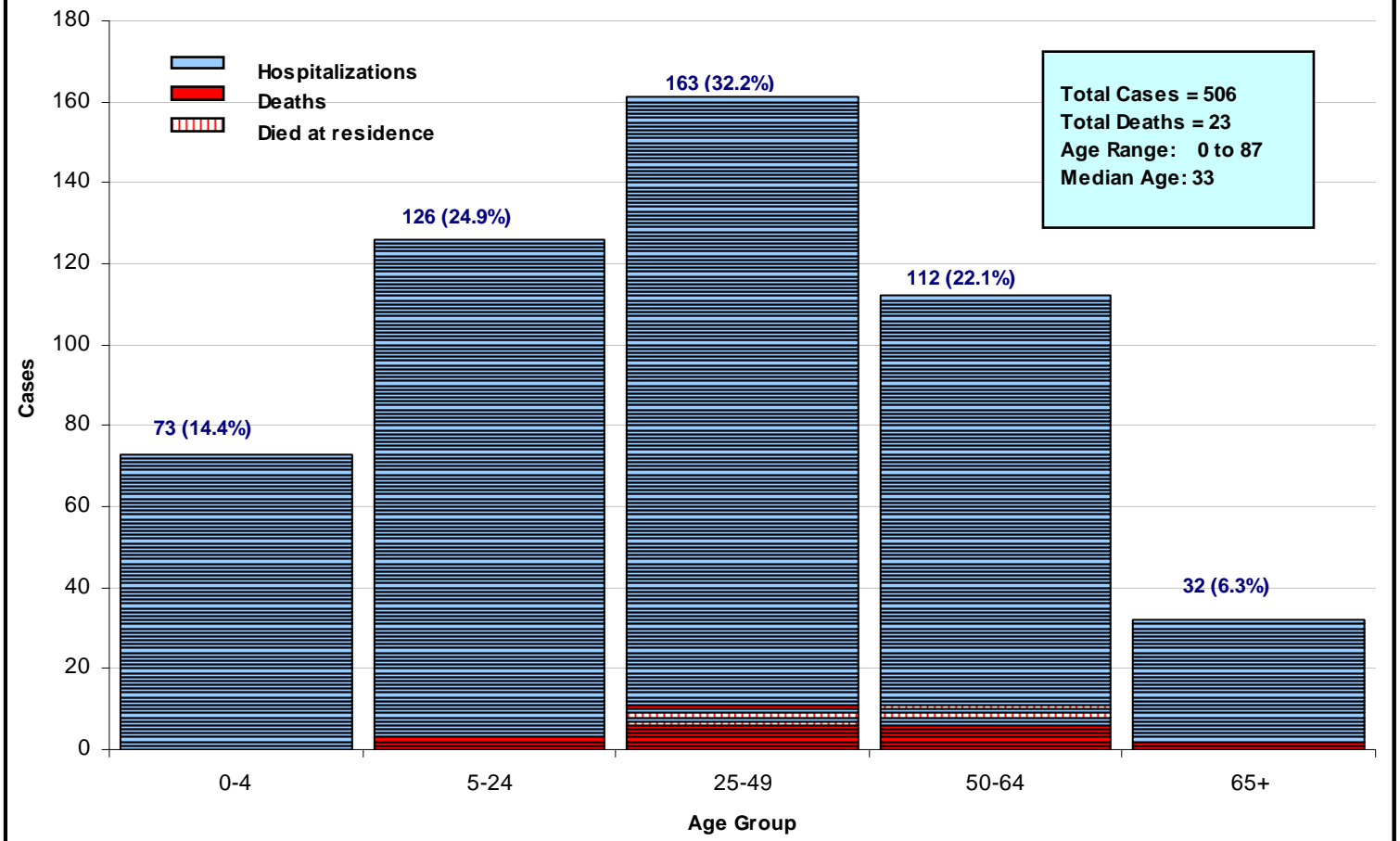
As of April 17, 2010 the majority of laboratory confirmed H1N1 hospitalized persons or persons in intensive care units were between the ages of 25 to 49 years (32.2%), followed by persons ages 5 to 24 years (24.9%). A total of 71.5% (nearly 3 out of 4) H1N1 hospitalized persons or persons in intensive care units were less than 50 years of age. As of April 17, 2010 twenty three Sacramento County residents with H1N1 influenza have died. Of the 23 H1N1 deaths, 5 were not hospitalized. During week 12 through 14, no H1N1 hospitalized persons or persons in intensive care units or deaths were reported.

#### Human Cases of H1N1 Influenza

Updated April 20, 2010

| H1N1 Influenza                | Confirmed |
|-------------------------------|-----------|
| Total H1N1 Cases since 5/6/09 | 506       |
| Hospitalizations              | 501       |
| Non-Hospitalized Deaths       | 5         |
| Hospitalized Deaths           | 18        |

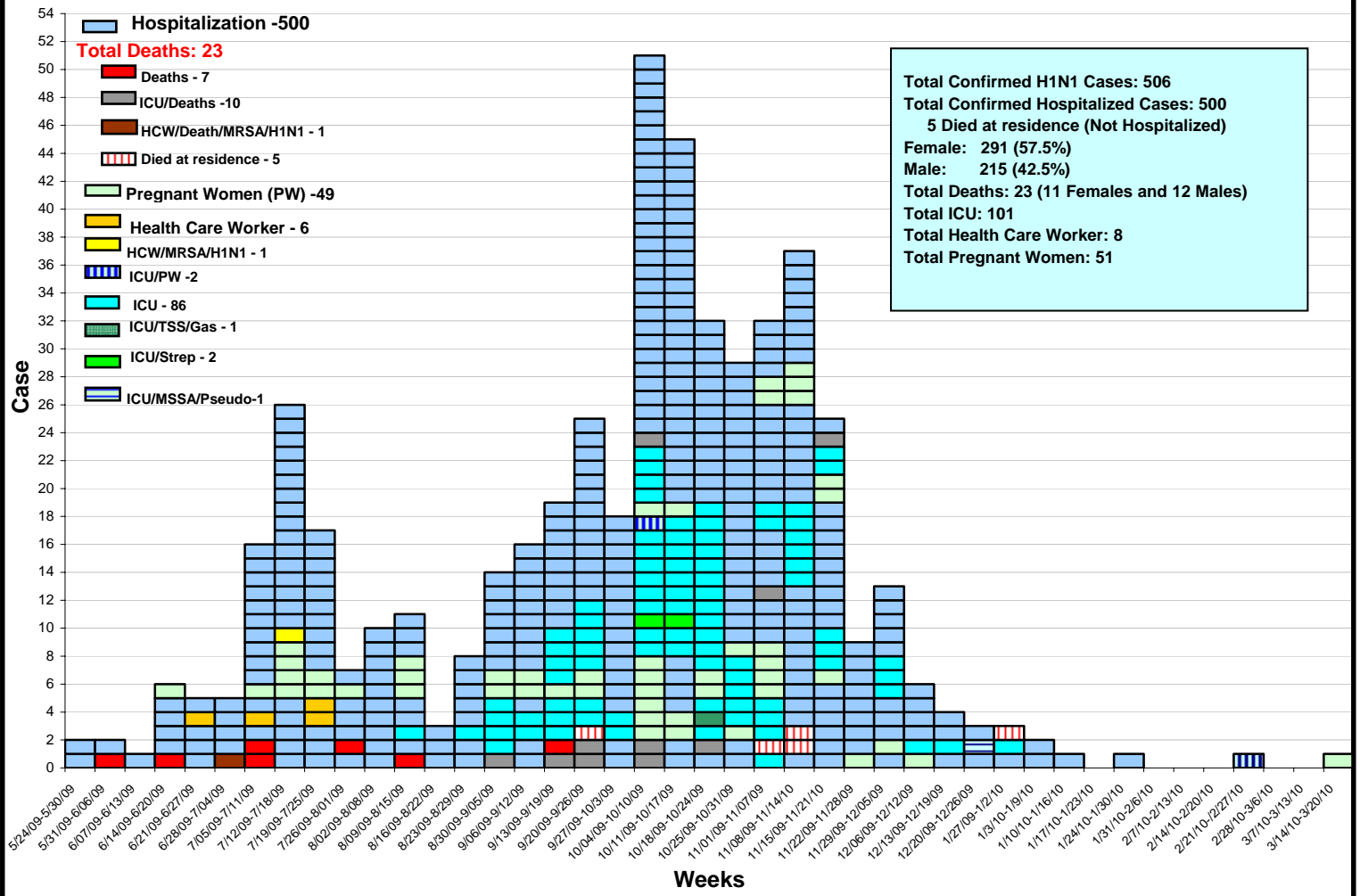
## H1N1 Hospitalizations by Age Group, Sacramento County Updated April 20, 2010



### Epidemiological Curve of Hospitalizations & Deaths by Week of Onset:

The epidemic curve below for laboratory confirmed H1N1 hospitalized persons or persons in intensive care units suggest person to person transmission. The epidemic curve below shows dates of onsets for hospitalized persons or persons in intensive care units with H1N1 influenza occurring from May 27, 2009 to April 17, 2010. This curve shows the initial increase in the number of hospitalized persons or persons in intensive care units occurred the week of July 12, 2009 to July 18, 2009 (n=26). Of the 26 hospitalized or ICU H1N1 cases reported during this week, 4 were pregnant women and 1 case was a health care worker co-infected with Methicillin Resistant Staphylococcus Aureus (MRSA). To date we have 6 H1N1 hospitalized cases with co-infections. The epidemic curve also shows the peak number of cases (n=96) occurred during the weeks of October 4, 2009 to October 17, 2009. Of the 96 hospitalized or ICU H1N1 influenza cases during the peak, 11 were pregnant women, 24 cases were in ICU and 3 ICU cases died. Of the hospitalized residents and residents who died, 52.2% were male and 47.8% were female.

## Epidemiological Curve of H1N1 Hospitalizations and Deaths Sacramento County, Updated April 20, 2010

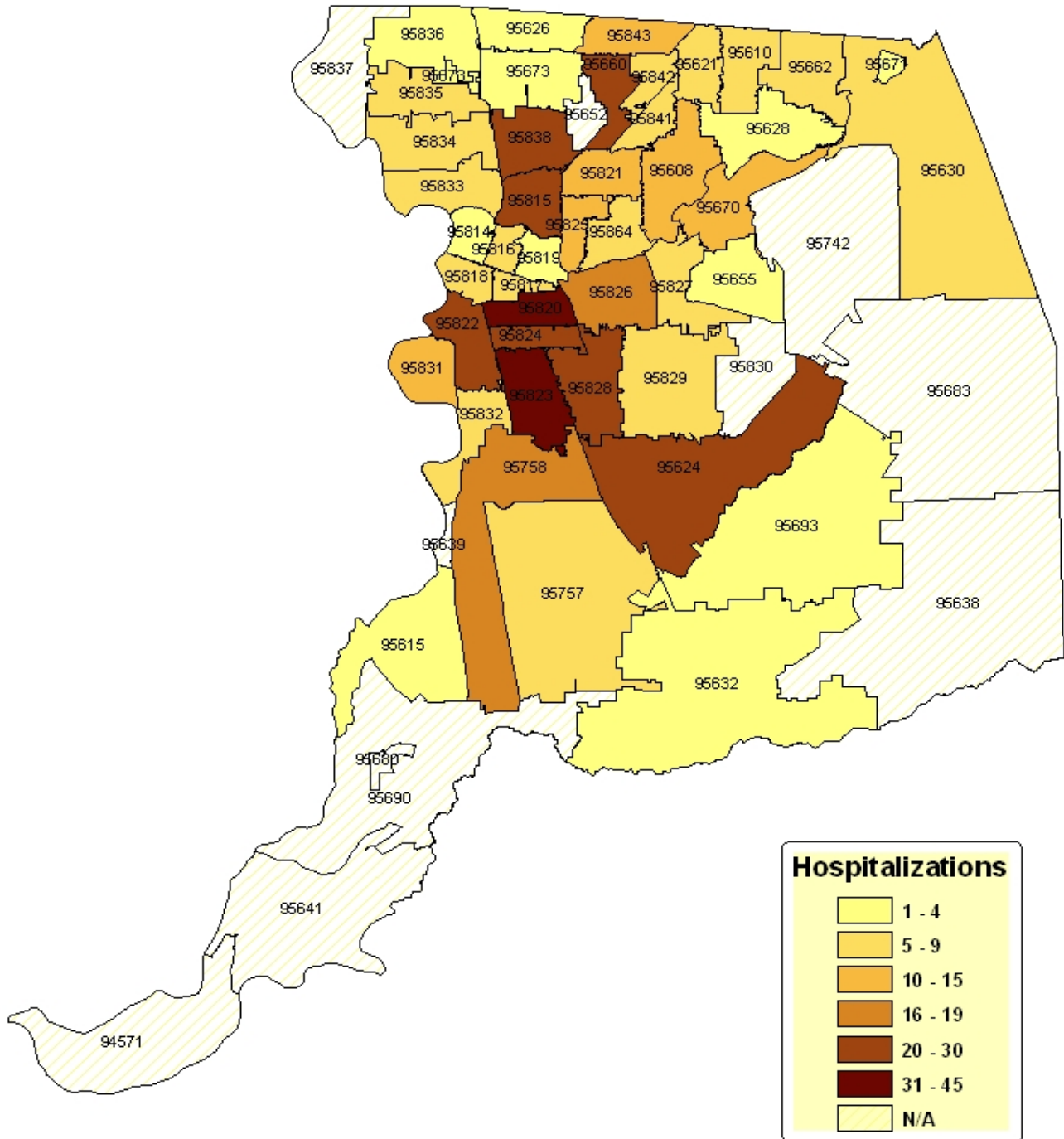


### Map of H1N1 Influenza Hospitalizations:

Of the laboratory confirmed H1N1 hospitalizations and ICU cases the majority occurred among residents who lived in zip codes 95823 (Florin/Sacramento), 95820 (Oak Park), 95838 (Del Paso Heights), 95828 (Florin), 95824 (Fruitridge), 95660 (North Highlands), 95822 (Sacramento) 95815 (Downtown), and 95624 (Sheldon/Elk Grove). Although some communities clearly show higher numbers of H1N1 cases it is important to highlight that numbers displayed in the map may be an underestimate of the true number of H1N1 hospitalizations in Sacramento County. Zip code areas with higher numbers of H1N1 cases may reflect higher levels of poverty, higher levels of high density housing or higher concentrations of sub-populations disproportionately impacted by higher levels of chronic disease including diabetes, asthma and lung disease. Further, the H1N1 influenza virus can penetrate deep into the lungs and cause viral pneumonia. Communities with surges in viral pneumonia cases may be challenged to test for H1N1. In communities with these characteristics the size of the outbreak can quickly exceed the capacity to ascertain and conduct testing of patients. As a result the map below should be interpreted with caution. Regarding poverty, in six of the zip code areas with high H1N1 numbers (95820, 95823, 95660, 95838, 95815 and 95824) 16% to 50% of families live at or below the poverty level and 8% to 53% of individuals are unemployed.

# H1N1 Hospitalizations by Zip Code, Sacramento County

Updated April 20, 2010



## Weekly School Absenteeism Reporting Results:

In Sacramento County 100% of the school districts report weekly to the Public Health Division excused absences at the school and district level. Epidemiology services staff calculate the median and range for each school weekly. Schools are asked to report daily if their absenteeism rate exceeds 10% on any given day, to date; schools have reported exceeding 10% absenteeism 98 times and on 29 occasions schools have reported greater than 20% absenteeism. There is variation in the number of schools reporting due to observed holidays and different tracking schedules.

### Average Daily Absenteeism\* for Schools with Enrollments of >= 100 Students

Updated April 20, 2010

| Median | Range        | No. of Schools Reporting >10% Absenteeism | No. Schools Reporting | Week Ending |
|--------|--------------|---|-----------------------|-------------|
| 2.0%   | 0.1%-9.0%    | N/A                                       | 131                   | 9/12/2009   |
| 1.6%   | 0.2%-5.8%    | 0   | 100                   | 9/19/2009   |
| 1.8%   | 0.0% - 9.5%  | 0   | 125                   | 9/26/2009   |
| 1.8%   | 0.0% - 6.1%  | 0   | 119                   | 10/03/2009  |
| 2.6%   | 0.0% - 12.2% | 2   | 157                   | 10/10/2009  |
| 2.9%   | 0.3% - 14.6% | 4   | 207                   | 10/17/2009  |
| 2.9%   | 0.5%-36.2%   | 13  | 161                   | 10/24/2009  |
| 2.5%   | 0.4%-37.0%   | 11  | 197                   | 10/31/2009  |
| 2.7%   | 0.3%-40.9%   | 13  | 184                   | 11/07/2009  |
| 2.5%   | 0.4% - 41.5% | 14  | 203                   | 11/14/2009  |
| 2.5%   | 0.6% - 21.7% | 3   | 131                   | 11/21/2009  |
| 2.6%   | 0.2% - 22.5% | 3   | 113                   | 12/5/2009   |
| 2.5%   | 0.4% - 23.6% | 3   | 205                   | 12/12/2009  |
| 2.6%   | 0.0% - 16.2% | 3   | 94                    | 12/19/2009  |
| --     | --           | --  | --                    | 12/26/2009  |

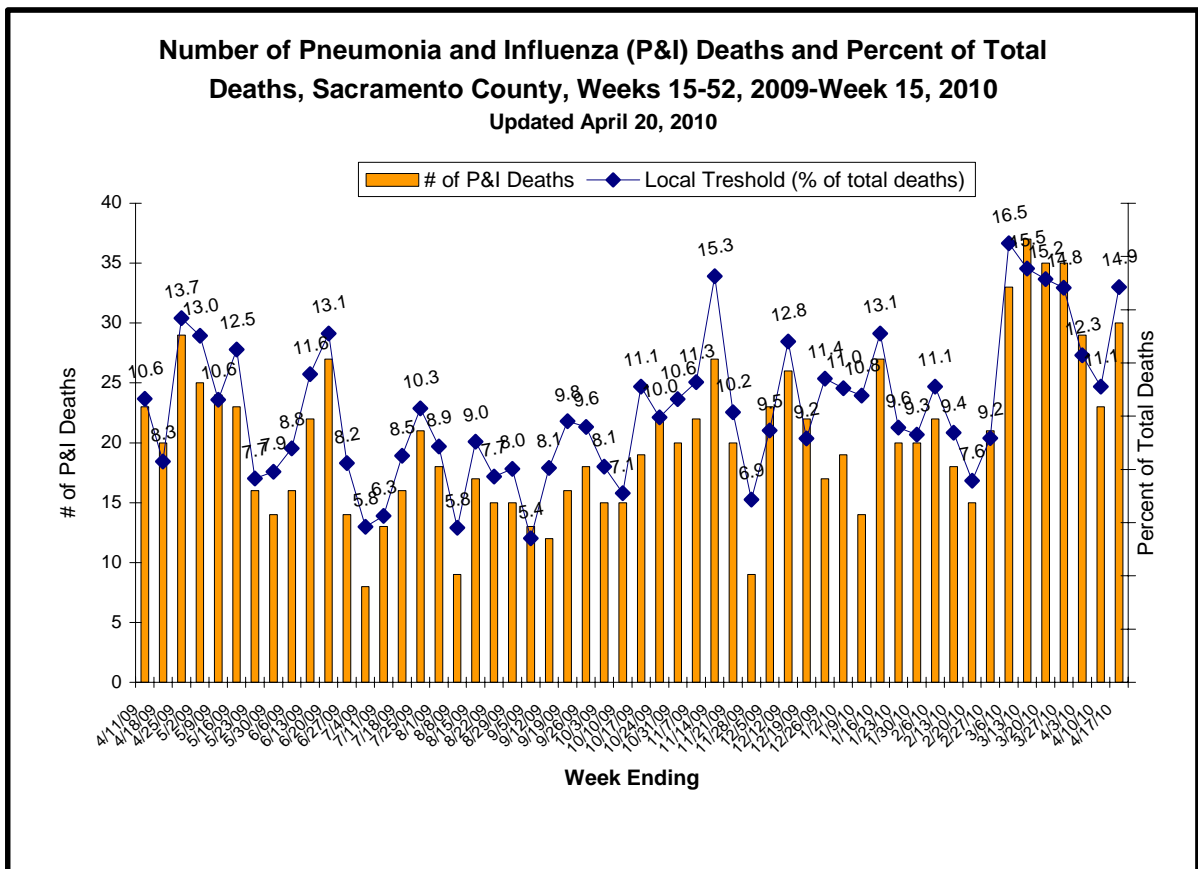
## Weekly School Absenteeism Reporting Results (Con't)

| Median | Range         | No. of Schools Reporting >10% Absenteeism | No. Schools Reporting | Week Ending |
|--------|---------------|---|-----------------------|-------------|
| --     | --            | --  | --                    | 1/02/2010   |
| 2.2%   | 0.0% - 11.1%  | 2   | 106                   | 1/09/2010   |
| 2.4%   | 0.0% - 25.9 % | 3   | 144                   | 1/16/2010   |
| 3.3%   | 0.0% - 23.8%  | 4   | 125                   | 1/23/2010   |
| 3.0%   | 0.3% - 21.7%  | 3   | 125                   | 1/30/2010   |
| 2.2%   | 0.7% - 4.7%   | 0   | 114                   | 2/6/2010    |
| 2.6%   | 0.0% - 13.7%  | 2   | 108                   | 2/13/2110   |
| 3.1%   | 0.7% - 18.9%  | 2   | 116                   | 2/27/2010   |
| 2.9%   | 0.0% - 20.5%  | 2   | 110                   | 3/6/2010    |
| 2.4%   | 0.0% - 15.9%  | 2   | 108                   | 3/13/2010   |
| 2.9%   | 0.0% - 25.5%  | 2   | 105                   | 3/20/2010   |
| 2.6%   | 0.3% - 19.2%  | 2   | 102                   | 3/27/2010   |
| -      | -             | -   | -                     | 4/3/2010    |
| 2.8%   | 0.0% - 21.3%  | 3   | 95                    | 4/10/2010   |
| 2.2%   | 0.0% - 18.7%  | 3   | 110                   | 4/17/2010   |

\*A school can file a waiver to recoup the average daily attendance (ADA) loss from an occurrence such as an epidemic (Education Code Section 46392[a] [4]).

## Weekly Pneumonia and Influenza Deaths:

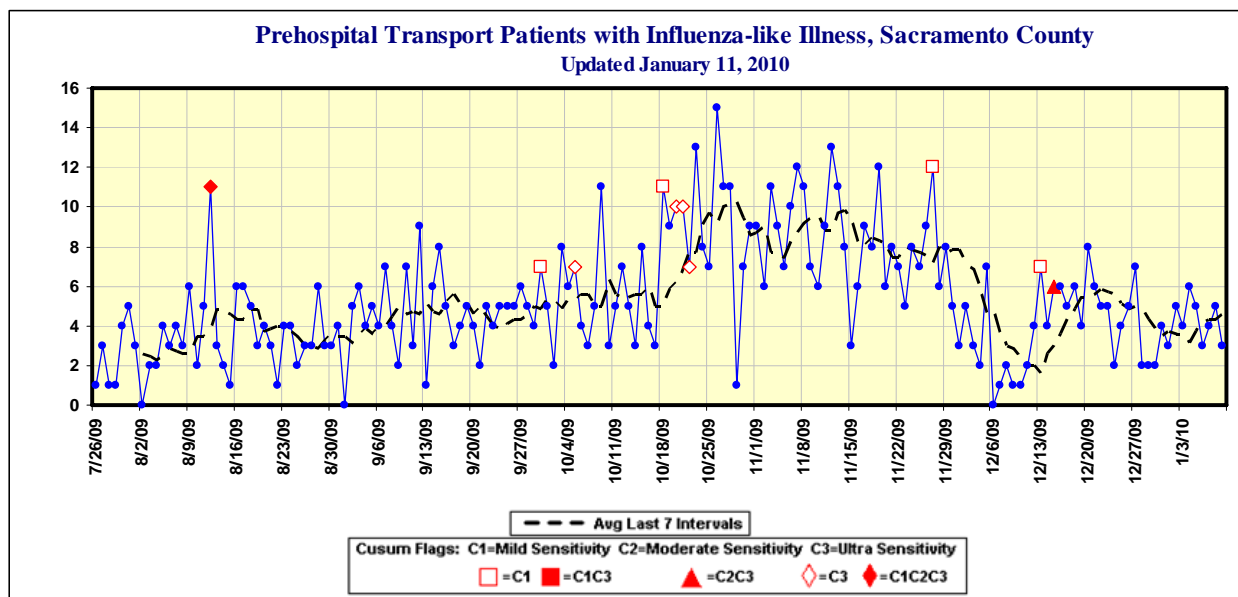
During week 15 the threshold for pneumonia and influenza cases increased significantly. The last reported significant increase was week 9. During week 15 (ending April 17, 2010), 14.9% of all deaths were attributed to pneumonia or influenza. Approximately 66.7% of the cases reported during week 15 are aged 75 years or older. At the national level the percent of all deaths attributable to pneumonia and influenza have not been reported yet. During week 14, 11.1% of Sacramento County deaths were attributed to pneumonia or influenza. The national epidemic threshold during week 14 was 7.0% for that week. During the peak of flu season, the national epidemic threshold typically ranges from 7.5 – 8.0%. The overall average epidemic threshold for the current year in Sacramento County is 12.8%.



## Weekly Counts: Pre-hospital Transport Patients with Influenza Like-Illness

Flu-Surge software estimates up to 4,950 pandemic influenza hospitalizations in Sacramento County (population=1,433,187). Emergency Medical Services (EMS) is critical to manage this volume. Due to the recent H1N1 influenza outbreak we used EMS data to monitor pre-hospital Influenza-like illness (ILI) activity to assist multiple agencies with predicting the spread of H1N1 influenza and to enforce the use of countermeasures. The graph below shows the daily counts of pre-hospital transport patients with ILI from the Sacramento Fire Department and Sacramento Metropolitan Fire Department. Together both agencies account for approximately 90% of all fire calls in Sacramento County.

Epidemiology Services used CuSum statistical methods to indicate recent changes or deviations in ILI counts by comparing daily ILI counts to a 7-day moving average. From July 26, 2009 to December 26, 2009 the Early Aberration Reporting System (EARS) was used to detect weekly increases in ILI pre-hospital transports. Aberrations (C1, C2, C3 flags) were detected in 29.2% (7/24) of the reporting weeks and 6.0% (10/168) of the reporting days. Of the significant increases 40.0% (4/10) occurred during the week of October 18, 2009. During the month of October the peak number of H1N1 hospitalizations also occurred. Further during the month of October 50% (5/10) of the significant increases in ILI pre-hospital transports occurred. The graph below shows statistically significant increases in ILI pre-hospital transportations on 8/12/09 (n=11), 9/30/09 (n=7), 10/5/09 (n=7), 10/18/09 (n=11), 10/20/2009 (n=10), 10/21/2009 (n=10), 10/22/09 (n=7), 11/27/09 (n=12), 12/13/09 (n=7) and 12/15/09 (n=6). The day with the highest number of pre-hospital patient transports with influenza like illness occurred on 10/26/2009 (n=15).



\*Data above generated using the Centers for Disease Control and Prevention Early Aberration Reporting System (EARS).

\*Last Updated on January 9, 2010. Complete Influenza Illness pre-hospital transport data was unavailable during the weeks of January 10, 2010 to April 20, 2010.