



I INFLUENZA SURVEILLANCE PROGRAM
2006-07 INFLUENZA SURVEILLANCE SEASON
WASHOE COUNTY DISTRICT HEALTH DEPARTMENT

Date: August 6, 2007

To: Mary Anderson, District Health Officer
 Randy Todd, Epi Center Director
 Participating Health Care Providers
 Ihsan Azaam, Nevada State Health Division
 L. D. Brown, Medical Director, Nevada State Public Health Laboratory

From: Sharon Clodfelter, Statistician

Subject: Summary of 2006-07 Influenza Surveillance Program

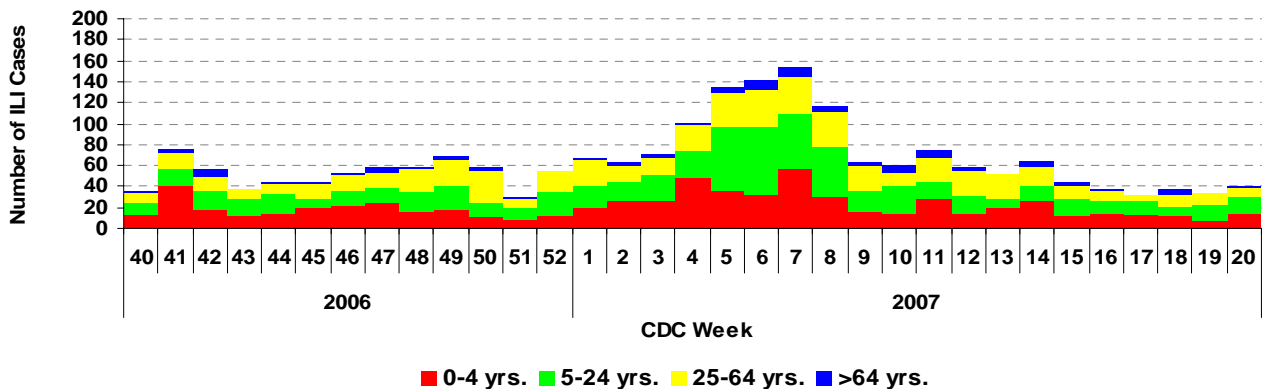
The Program: The 2006-07 influenza surveillance program was conducted between October 1, 2006 and May 19, 2007. Six local health care providers sent weekly fax reports of the numbers of persons seen with a fever of $\geq 100^{\circ}$ F AND cough and/or sore throat in the absence of a KNOWN cause other than influenza.

The Participants: The health care providers participating in the program were:

- Family Medicine Associates, Ltd.
- UNR Student Health Services
- Northern Nevada Medical Center Emergency Department
- Renown Regional Medical Center Emergency Department
- Renown South Meadows Regional Medical Center Emergency Department
- Saint Mary's Regional Medical Center Emergency Department

Level of Influenza Activity: The following graph illustrates the proportion of ILI cases by age group and week. Influenza activity in the ≥ 65 -year age group was consistently low through out the season. This age group is the main target for influenza immunization. These data suggest the vaccination program was successful at lowering influenza illness in the targeted age group.

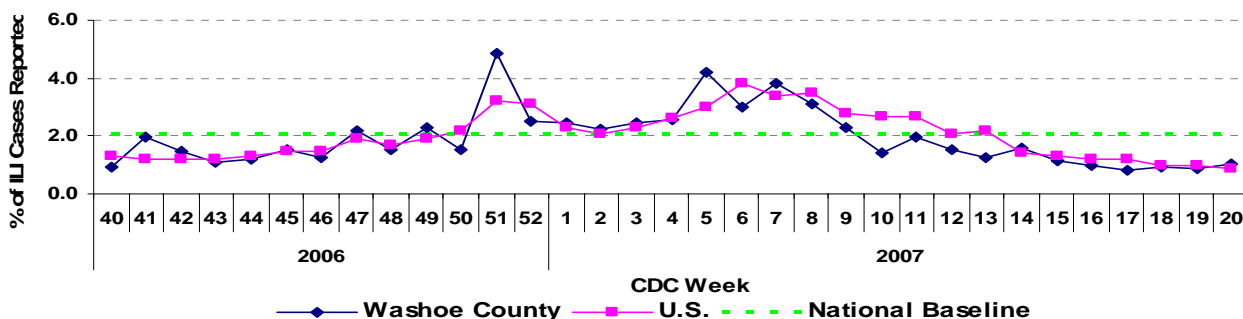
Number of ILI Cases by Week and Age Group Reported by Sentinel Providers, Washoe County Influenza Surveillance, 2006–07.



The percentage of overall patient visits for ILI in Washoe County peaked twice, once at 4.9% during the week ending December 23, 2006 (week 51) and again at 4.2% during the week ending February 3, 2007 (week 5).

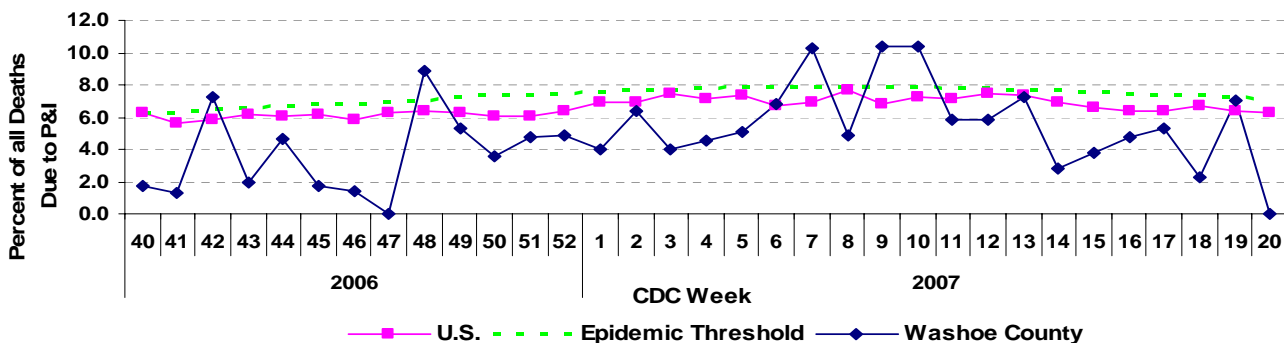
Nationally, this percentage peaked twice, once at 3.0% for the week ending December 30, 2006 (week 52), and again at 3.5% for the week ending February 17, 2007 (week 7). The increase in the percentage of patient visits for ILI during the week ending December 30, 2006 (week 52) might have been influenced by a reduction in routine health-care visits during the holiday season, as has occurred in previous seasons. During the previous three influenza seasons, the peak percentage of patient visits for ILI has ranged from 3.3% to 7.6% and the peak occurred during late December to mid-February.

Proportion of Patients Seen with ILI by Sentinel Physicians, Washoe County Influenza Surveillance, 2006–07



The proportion of deaths due to pneumonia and influenza (P & I ratio) peaked three times in Washoe County: once at 10.3% for week ending February 17, 2007 (week 7) and twice at 10.4 for the weeks ending March 3 (week 9) and March 10, 2007 (week 10). The P & I ratio as reported by the 122 Cities Mortality Reporting System also peaked three times, once at 7.5% during the week ending January 20, 2007 (week 3), once at 7.7% during the week ending February 24, 2007 (week 8), and again at 7.5% during the week ending March 24, 2007 (week 12), but did not exceed the epidemic threshold.

Pneumonia and Influenza Mortality, Washoe County Influenza Surveillance, 2006–07.

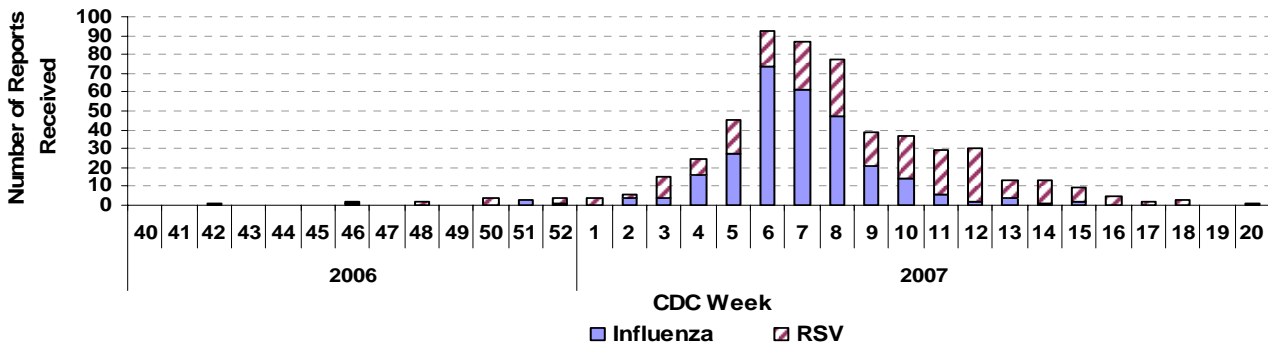


Testing: Family Medicine Associates and UNR Student Health Services were given culture media to test patients who fit the criteria for influenza-like illness (ILI). The hospital providers did not participate in the testing component of the surveillance. Fifty-eight (62%) of ninety-

three specimens submitted for viral testing to the Nevada State Public Health Laboratory (NSPHL) yielded influenza isolates. Fifty-six (97%) of the fifty-eight isolates were identified as influenza type A (nine were subtyped as H1, forty-four as H3, and 3 as A only). The remaining two isolates (3%) were identified as influenza type B.

A total of 288 laboratory-confirmed cases of influenza were reported in Washoe County during the 2006-07 surveillance season. One hundred sixty-one (56%) of the 288 cases were identified as influenza type A (46 by culture, 11 by rt-PCR and 104 by rapid antigen testing). Thirty-seven (80%) of the 46 influenza type A cultures were subtyped as H3. Ten (3.5%) of the 288 cases were identified as influenza type B (2 cultures, 8 rapid antigen tests). The remaining 117 cases (40.5%) were laboratory-confirmed by a type of rapid test that does not differentiate between influenza type A or B. Each year, NSPHL sends a select sample of influenza isolates to CDC for antigenic characterization. Six Washoe County isolates were sent to CDC during the 2006-07 influenza season; four influenza A isolates, and two influenza B isolates. Two of the four influenza A isolates were identified as A/New Caledonia/20/99-like (H1N1), which is the H1 component of the 2006-07 vaccine and two were identified as A/Wisconsin/67/2005-like (H3N2), which is the H3 component of the 2006-07 influenza vaccine. The two influenza B isolates were both identified as B/Ohio/01/2005-like, however one isolate had somewhat reduced titers with this antisera. B/Ohio/1/2005 is a recent B/Malaysia/2506/2004-like reference strain. B/Malaysia/2506/2004-like viruses were included in the 2006-07 influenza vaccine.

Influenza and RSV Lab Reports, Washoe County Communicable Disease Surveillance, 2006–07.



Nationally the percentage of specimens testing positive for influenza, a key indicator of the level of influenza activity, peaked at 28.0% during the week ending February 10, 2007 (week 6). Seventy-two percent of isolates reported nationally were influenza type A and 28% were influenza type B. Among the influenza A viruses, 6,280 (33.4%) were subtyped; 3,912 (62.3%) were influenza A (H1) viruses and 2,368 (37.7%) were influenza A (H3) viruses.

Results of testing performed in the United States by the World Health Organization (WHO) and the National Respiratory and Enteric Virus Surveillance System (NREVSS) laboratories between October 1, 2006 and May 19, 2007 are displayed in the following chart:

Total # Specimens Tested	Total # Yielding Influenza Isolates	% of Specimens Yielding Influenza Isolates						
172,268	23,753	13.2%						
<table border="1"> <thead> <tr> <th>Influenza Type A</th> <th>Influenza Type B</th> </tr> </thead> <tbody> <tr> <td>18,817 (79.2%)</td> <td>4,936 (20.8%)</td> </tr> </tbody> </table>			Influenza Type A	Influenza Type B	18,817 (79.2%)	4,936 (20.8%)		
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CDC antigenically characterized 1107 influenza virus isolates collected by U.S. laboratories between October 1, 2006 and May 19, 2007:

- ◆ 486 influenza type A (H1) viruses,
- ◆ 289 influenza type A (H3) viruses, and
- ◆ 332 influenza type B viruses.

Influenza A (H1) [486]

- Four hundred thirty-nine (90%) of the 486 viruses characterized were similar to A/New Caledonia/20/99, the influenza A (H1) component of the 2006-07 influenza vaccine.
- Forty-five (9%) of the 486 viruses showed somewhat reduced titers with antisera produced against A/New Caledonia/20/99 and are similar to A/Solomon Islands/3/2006 which is a recent antigenic variant of A/New Caledonia/20/99, and is the influenza A (H1) component recommended in the 2007-08 influenza vaccine.
- Two influenza A (H1) viruses showed reduced titers with antisera produced against both A/New Caledonia/20/99 and A/Solomon Islands/3/2006.

Influenza A (H3) [289]

- Sixty-nine (24%) of the 289 viruses were characterized as A/Wisconsin/67/2005, the influenza A (H3) component of the 2006-07 and 2007-08 influenza vaccines.
- Two hundred and twenty (76%) of the 289 viruses showed somewhat reduced titers with antisera produced against A/Wisconsin/67/2005.

Influenza B (B/Victoria/02/87 and B/Yamagata/16/88 lineages) [332]

Victoria lineage [254]

- Two hundred and fifty-four (77%) of the 332 influenza B viruses characterized belong to the B/Victoria lineage of viruses.
- One hundred and twenty-eight (50%) of these 254 viruses were similar to B/Ohio/01/2005.
- One hundred and twenty-six (50%) of these 254 viruses showed somewhat reduced titers with antisera produced against B/Ohio/01/2005.
- B/Ohio/01/2005 is antigenically equivalent to B/Malaysia/2506/2004, the recommended influenza B component for the 2006-07 and 2007-08 influenza vaccines.

Yamagata lineage [78]

- Seventy-eight (23%) of the 332 influenza B viruses were identified as belonging to the B/Yamagata lineage.

Conclusions: Nationally, low levels of influenza activity were reported during October through mid-December, increased during January, and peaked in mid-February. Peak activity was less intense, but activity remained elevated for a longer period of time this season compared to the previous three seasons. The longer period of elevated activity may be due in part to regional differences in the timing of peak activity and intensity of influenza B activity later in the season. In Washoe County, influenza activity began to increase in January, peaked early in February, and did not return to baseline until mid April. The majority of lab-confirmed cases in Washoe County were influenza type A.

WHO has recommended that the 2007-08 trivalent influenza vaccine for the Northern Hemisphere contain A/Solomon Islands/3/2006-like (H1N1), A/Wisconsin/67/2005-like (H3N2), and B/Malaysia/2506/2004-like viruses. The influenza A (H1N1) component has been changed from the 2006-07 season vaccine component. A/Solomon Islands/3/2006 is a recent antigenic variant of the current vaccine strain A/New Caledonia/20/99. The influenza A (H3N2) and influenza B components remain the same. B/Ohio/1/2005 is antigenically equivalent to B/Malaysia/2506/2004. This recommendation was based on antigenic analyses of recently isolated influenza viruses, epidemiologic data, and post-vaccination serologic studies in humans.

The District Health Department would like to thank the Vital Statistics program staff, the participating health care providers, and the Nevada State Public Health Laboratory for their support and cooperation. With their support, we have been able to provide physicians and the general public with important information about influenza activity in our community.
