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SUMMARY OF THE 2011-2012 INFLUENZA SURVEILLANCE AND UNUSUAL OFF-SEASON INFLUENZA ACTIVITY IN WASHOE COUNTY

BACKGROUND

It is estimated that 2000 to 49,000 influenza-related deaths and 226,000 influenza-related hospitalizations occur on average each year.¹ It is important to conduct ongoing influenza surveillance for the following reasons:

- Influenza viruses are constantly changing which requires ongoing collection and characterization of the strains.
- Influenza strains can rapidly undergo changes leading to pandemics of influenza; surveillance of viruses will detect these changes.
- Vaccines must be administered annually and are updated regularly based on surveillance findings.
- Treatment for influenza is guided by laboratory surveillance for antiviral resistance.
- Local or national responses to emerging pandemic strains are triggered by surveillance data.
- Varying segments of the population are affected by influenza and may require targeted interventions. These groups are determined through influenza surveillance.

Washoe County Health District (WCHD) has participated in the national influenza surveillance conducted by the Centers for Disease Control and Prevention (CDC) since 1984. The objectives of surveillance are:

- Determine whether and when influenza activity increases;
- Track influenza-related illness;
- Determine which influenza viruses are circulating in the community;
- Measure the impact that influenza is having on mortality;
- Contribute local data to national influenza surveillance in the United States;
- Assist in early identification of novel influenza viruses.

METHODS

The surveillance definition is a critical standard used to allow comparison between local and national data. In the current surveillance system, influenza like illness (ILI) is defined as fever (temperature of 100 °F (37.8 °C) or greater) and a cough and/or a sore throat in the absence of a known cause other than influenza. Both

active and passive surveillance methods are applied in influenza surveillance. There are several systems to monitor influenza activity nationally and locally. Table 1 summarizes the systems used in the United States and Washoe County.

HIGHLIGHTS OF FINDINGS

Influenza surveillance season generally starts in October and ends in May. The season for 2011-2012 began on October 2, 2011 (Week 40) and ended on May 19, 2012 (Week 20). During this season, a total of 567 laboratory-confirmed influenza cases were reported, a 25% reduction in comparison to the previous season. Of these, 494 (87%) were type A, 44 (8%) were type B, and 29 (5%) were of unknown type. A total of 13 confirmed influenza isolates including nine A(H3), three A(2009 H1N1), and one B were submitted to the CDC for further antigenic characterization. All antigenic characterizations matched to the 2011-2012 influenza vaccine.

Twenty-eight (4.9%) of the 567 laboratory confirmed cases were hospitalized, which was similar to a hospitalization rate of 4.5% in the 2010-11 season. Of the 28, 19 (68%) were adults and 9 (32%) were children 18 years of age or younger. The median length of hospital stay was two days. Eight (29%) of 28 were admitted to ICU. Twenty-one (75%) of the hospitalized cases had underlying medical conditions. No influenza associated fatalities were reported.

The percentage of outpatient visits for ILI reported by six sentinel healthcare providers have been described in Figure 1. The overall trend was consistent with the region and the nation. The percentage of patient visits due to ILI exceeded the statewide baseline in week 10 (ending on March 10, 2012).

Syndromic surveillance also provided a picture of influenza activity in the community in a real-time fashion. EpiCenter, one of the real-time surveillance systems, monitoring emergency room visits due to influenza related illness also showed a statistically significant correlation with the sentinel reporting (Pearson Correlation Coefficient = 85.6%, P<0.001) (Figure 2).

¹ <http://www.cdc.gov/flu/professionals/vaccination/nfs-survey-march2012.htm>

Table 1. Influenza Surveillance Systems in Washoe County and in the United States, 2011-2012

Method	Use	National	Washoe
Viral surveillance	Measures the positivity rate of influenza, type and subtype of influenza virus, gene sequencing, antiviral resistance testing, and antigenic characterization	Yes	Yes ¹
Outpatient ILI	Monitors weekly outpatient visits to health care providers (HCP) for ILI	Yes	Yes ²
Mortality	Rapid tracking of influenza-associated deaths	Yes	Yes ³
Hospitalization	Monitors laboratory confirmed influenza-associated hospitalizations in children and adults	Yes	Yes
Summary of geographic spread	Weekly influenza activity levels shown on the map by different states	Yes	NA
Reporting	Laboratory confirmed influenza is reportable to the health authority in Nevada	No	Yes
Syndromic Surveillance	Utilizes existing pre-diagnosis data for other purposes to monitor ILI	No*	Yes ⁴

¹ through State Lab for testing the type and subtype of influenza virus, submit selected isolates to CDC for further testing; ² six sentinel sites; ³ Washoe County's death certificate registry system; ⁴ Several systems including monitoring Emergency Room Visits and five urgent cares for influenza related illness (EpiCenter); over-the-counter sales for cough and/or cold remedies (NRDM); REMSA calls for respiratory problems (FirstWatch); *Google FluTrend (not CDC product)

Figure 1. Proportion of Patients Seen with ILI by Sentinel Healthcare Providers, Washoe County, 2011-2012

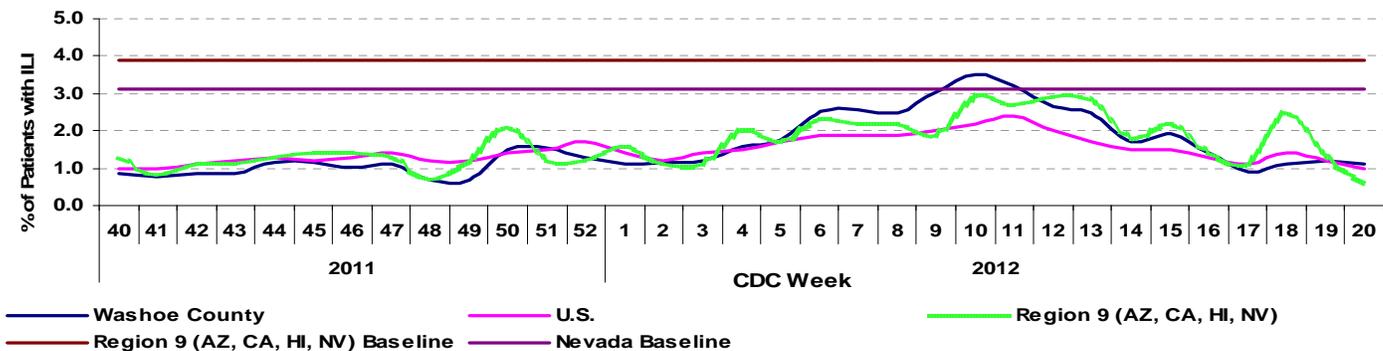
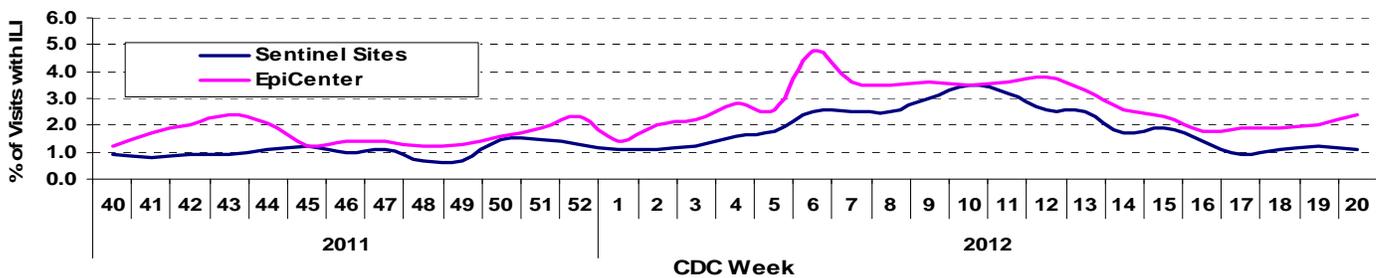


Figure 2. Comparison of Proportion of Patients Seen with ILI by Sentinel Healthcare Providers and by EpiCenter Syndromic Surveillance System, Washoe County, 2011-2012



CURRENT INFLUENZA ACTIVITY LEVELS IN WASHOE COUNTY

Since week 20, Washoe County has continued to experience a low-level of influenza activity. This appears unusual since the activity is occurring outside of the normal influenza season. Between CDC week 21 and 28 (May 20-July 14, 2012), the Washoe County Influenza Surveillance Program has received a total of 39 laboratory confirmed influenza cases, which is 10 times greater than in the same time period in 2010 and 2011 (Table 2).

Table 2. Reported Laboratory Confirmed Influenza during Week 21-28, 2010-2012

Types	2010	2011	2012
A	0	0	1
B	3	2	32
Unknown	0	1	6

There have been two hospitalized cases that were positive for influenza B, which occurred in week 21 and week 25. Both cases were non-complicated and

neither required ventilator support or admission into ICU.

During the same timeframe the CDC has reported low levels of influenza activity nationwide, including outbreaks in the southeast and the Pacific Northwest. The majority of the influenza viruses reported to CDC have been influenza B, which is consistent with the positive influenza reports seen here in Washoe County. However, in Washoe County, no outbreaks of influenza have been reported.

One of the goals of year-round influenza surveillance is to ensure that atypical or unusual activity occurring out of the normal seasonal patterns is not due to an emerging novel influenza virus that may be a precursor to a pandemic. Therefore, we are asking healthcare providers to continue to consider influenza as a diagnosis in patients that present with ILI (fever-

temperature of 100 °F (37.8 °C) or greater, and a cough and/or a sore throat in the absence of a known cause other than influenza). The Washoe County Influenza Surveillance Program is encouraging healthcare providers to test those patients with ILI for influenza during this unusual off-season. Sentinel providers are invaluable in helping to detect the level of influenza activity, as well as, identifying the circulating strains of influenza within our community. At this time the Influenza Surveillance Program only has two sentinel providers that are assisting in the collection of specimens which are sent to the Nevada State Public Health Laboratory for PCR testing. We have requested that these sentinel providers resume their routine ILI reporting and begin collecting specimens for PCR testing as appropriate. The more sentinel providers we have within our community the better we are able to understand the level and type of influenza we are experiencing.

RECOMMENDATIONS FOR HEALTHCARE PROVIDERS

The influenza surveillance in Washoe County during the past decades cannot be successful without local healthcare providers' support and contribution. However, in an effort to continue improving the surveillance system, we still have the following recommendations for HCPs in Washoe County.

- **Be responsible for reporting** – Per Nevada laws NAC441A, influenza is a reportable disease. Any laboratory confirmed case should be reported to the WCHD by fax at **775-328-3764** or call at **775-328-2447**.
- **Be a sentinel site** – WCHD would encourage any healthcare provider office that is interested in participating in sentinel influenza surveillance to contact our office at 328-2447. At that point we can provide testing supplies, so that further PCR testing can be performed.
- **Be proactive in prevention** – the Advisory committee on Immunization Practices (ACIP) recommends vaccination of all persons aged ≥6 months. However, in the 2011-12 season, preliminary estimates suggest that only 46% of people 6 months and older were vaccinated. Doctor's offices accounted for 32.5% and 65.4% for adults and children, respectively, as the most common place of vaccination.² Increasing the vaccination among your patients is highly recommended in the upcoming influenza season.
- **Be specific in filling out the death certificate form** – Death certificates have been playing an extremely important role in influenza surveillance. Immediate causes of death and underlying causes of deaths provide valuable information to

the influenza surveillance system allowing the capture of pneumonia and influenza associated deaths.

- **Be aware of the most appropriate diagnostic test and know its interpretation** – Although confirmation of influenza virus infection by diagnostics testing is not required for clinical decisions to prescribe antiviral medications at an individual level, it is important to know what type and strain is circulating in the community. Having laboratory confirmation is also helpful in an outbreak investigation. Check here for the updated guideline for lab diagnosis of influenza. http://www.cdc.gov/flu/professionals/diagnosis/ind_ex.htm
- **Be familiar with the most current treatment guideline** - Checking frequently with CDC's website here http://www.cdc.gov/flu/professionals/antivirals/ind_ex.htm. WCHD will also provide an issue of Epi-News if the guideline for treatment and chemoprophylaxis of influenza is changed.
- **Be a good educator to your patient** – Educate your patients about the transmission of influenza and emphasize the important of personal hygiene including hand washing, cough etiquette, and social distancing to prevent the spread of the disease.

WCHD is grateful for the following healthcare providers' participation in the sentinel influenza surveillance. They are:

- 1) *Family Medicine Associates;*
- 2) *Northern Nevada Medial Center;*
- 3) *Renown Regional Medical Center;*
- 4) *Renown South Meadows Medical Center;*
- 5) *St. Mary's Regional Medical Center;*
- 6) *UNR Student Health Center.*

² <http://www.cdc.gov/flu/professionals/vaccination/nfs-survey-march2012.htm>