

Influenza Surveillance in New Mexico 2007 — 2008 Season

Influenza sentinel provider surveillance was instituted by the New Mexico Department of Health (NMDOH) during the 1990-1991 season. Data are collected on outpatient visits for influenza-like illness (ILI) to track the annual influenza season - ILI is defined as temperature of $\geq 100^{\circ}$ F and cough or sore throat in a patient with no known diagnosis that could cause these signs and symptoms. ILI sentinel surveillance is one component of New Mexico's influenza surveillance system. The other components include laboratory data collected from a state-wide network of 31 reference and hospital clinical labs.; virologic information from culture submissions to NMDOH's Scientific Laboratory Division (SLD); influenza-related hospitalizations; and mortality data including pediatric influenza-associated deaths. Weekly data from these systems are used to assess the burden or "activity level" of influenza during the annual influenza season from early October to late May. This activity level is reported to the Centers for Disease Control and Prevention (CDC) and included in a weekly national report of influenza activity in the 50 states and territories.

The 2007-2008 sentinel surveillance system included 25 sentinel provider sites, and 31 laboratories throughout the state. In addition NMDOH worked with one clinic and laboratory site in Chihuahua, Mexico to gather influenza surveillance data. The provider sites reported the total number of patients seen and the total number of patients seen with influenza-like illness on a weekly basis. The hospital and reference laboratory sites reported weekly aggregate antigen and direct fluorescent antigen (DFA) test results. Both the clinical and laboratory data aid in the determination of the onset, peak and end of the influenza season as well as changes in activity throughout the season.

Outpatient ILI Surveillance

For the 2007-08 season, all 25 sentinel sites, situated throughout New Mexico, submitted >50% of their weekly reports during the 32 week influenza season.

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New Mexico ILI sentinel provider visits peaked at 4.8% of total visits during week 8 (week ending 2/23/2008) of the 2007-08 influenza season. National ILI for 2007-08 peaked one week earlier at 6.4%, nearly twice the percentage from the previous season. During the 2007-08 influenza season, New Mexico reported "widespread" activity (defined as increased ILI in greater than half of a state's regions) for 5 weeks (weeks ending 1/26/08 to 2/23/08). In the previous influenza season, ILI visits in New Mexico peaked 3 weeks later at 3.5% (week ending 3/17/07).

Rapid Influenza Test Surveillance

During the 2007-08 season, the 31 sentinel labs performed 16,675 rapid influenza tests. Typing results of these tests indicated that 1159 (6.9%) were positive for influenza A, 764 (4.6%) were positive for influenza B, and 359 (2.2%) were positive but indistinguishable between influenza A and influenza B. The percentage of rapid influenza tests that were positive peaked at 21.1% in week 7 (week ending 2/16/08) (Figure 1).

Virologic Surveillance

SLD performs viral isolation on select specimens at different times during the influenza season. From October to May, SLD received 527 culture specimens representing a 20% increase in submitted specimens from the previous season. Of those specimens, influenza was isolated from 160 (30.1%) specimens. The first culture positive result, influenza B, was collected during week 50 (week ending 12/15/07); the first isolation of influenza A (H1 subtype) was also reported during week 50. Week 50 is early for the appearance of influenza B which typically circulates later in the influenza season. Overall during the 2007-08 season, influenza A predominated as 55% of positive specimens

were influenza type A and 70% of the type A positive cultures were subtype H1. Influenza A subtype H3 accounted for 27% of isolated influenza A specimens. Antigenic characterization on a subset of the influenza A/H1 isolates matched the strain included in the 2007-08 vaccine (A/Solomon Islands/03/2006-like). All of the influenza B strains isolated in New Mexico were identified as B-Yamagata lineage, a strain that was not included in the 2007-08 vaccine. Type A/H3 characterization was not performed.

Mortality Surveillance – Pneumonia and Influenza Deaths

Surveillance for pneumonia and influenza (P&I) deaths is conducted by NMDOH's Bureau of Vital Records and Health Statistics through death certificate filings. P&I death rates serve as an indirect measurement of the severity of influenza during a season. In New Mexico, the 2007-08 influenza season death rate for P&I was 12.6/100,000 NM residents, similar to the death rate of 11.8/100,000 seen during the 2006-07 season, a relatively mild season. The highest age-specific mortality rate attributable to P&I was again observed among those persons 65 years and older. For the 2007-08 influenza season, the age-specific death rate was 80.3/100,000 persons aged 65 and older, compared to a rate of 76.2/100,000 during the 2006-07 influenza season. One pediatric death, directly attributable to influenza, was identified during the 2007-08 season.

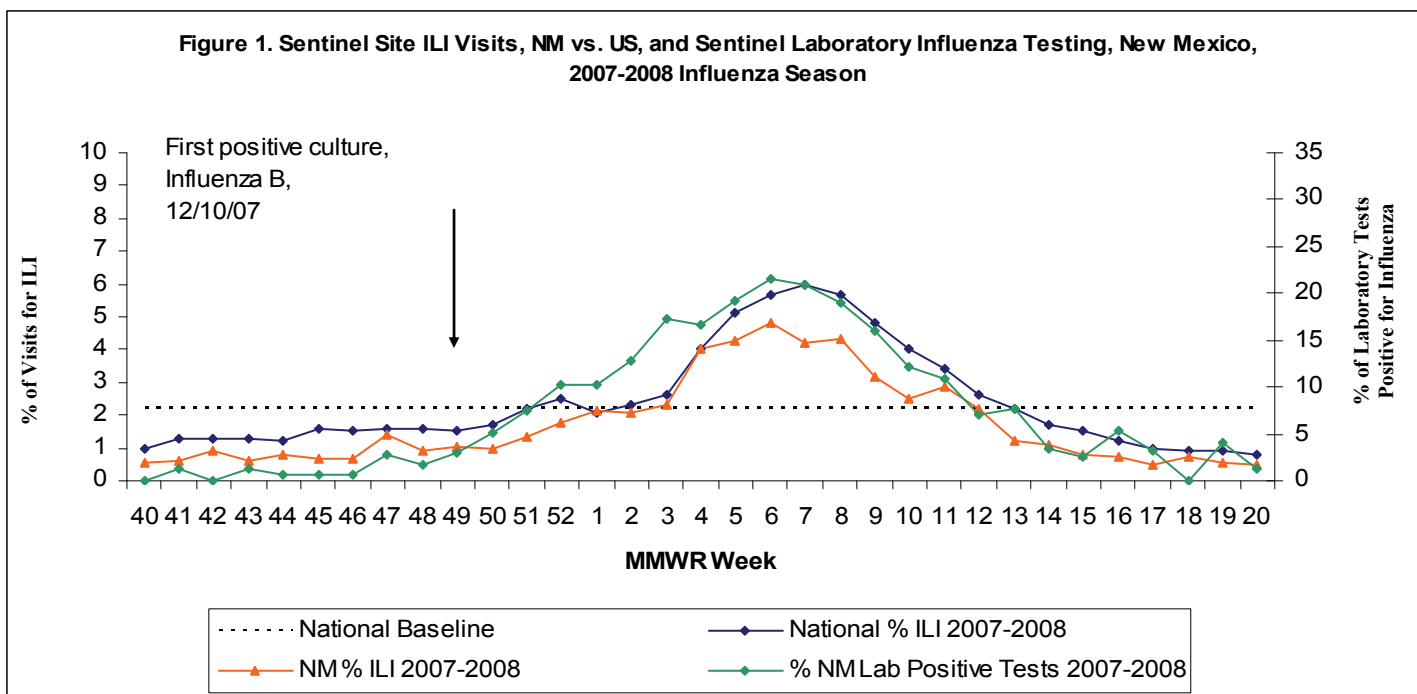
Figure 2 on the back page displays P&I mortality trends during the 2007-08 season as compared to influenza-like activity. Note the comparable trends in these two measures of influenza activity and severity.

Influenza Hospitalization Surveillance

The New Mexico Emerging Infections Program (EIP) continues to conduct population-based, active surveillance for laboratory-confirmed pediatric (6 counties) and adult (3 counties) influenza hospitalizations. This work includes a medical chart review to ascertain information on course of illness, clinical management, vaccination history, and underlying risk factors for severe complications of influenza. During the 2007-08 season, 38 pediatric (14.3/100,000) and 54 adult (8.4/100,000) influenza-associated hospitalizations were identified. Figure 3 shows hospital admissions chronologically, by gender and influenza virus type, along with influenza-like illness activity measured through the sentinel provider network.

Binational Influenza Surveillance

During the 2007-08 influenza season in collaboration with Chihuahua State Health Services and CDC, NMDOH completed ILI sentinel and laboratory surveillance at one clinic in Ciudad Juarez, Chihuahua, Mexico. A total of 1,929 patient visits were surveyed for ILI, 37 (2.0%) met the case definition and 7 (0.4%) were rapid test positive for influenza. Both influenza A and B were isolated from specimens obtained from pa-



tients seen at the Juarez clinic. The onset of influenza activity, the peak activity and the circulating influenza strains identified in Juarez were similar to those noted in New Mexico.

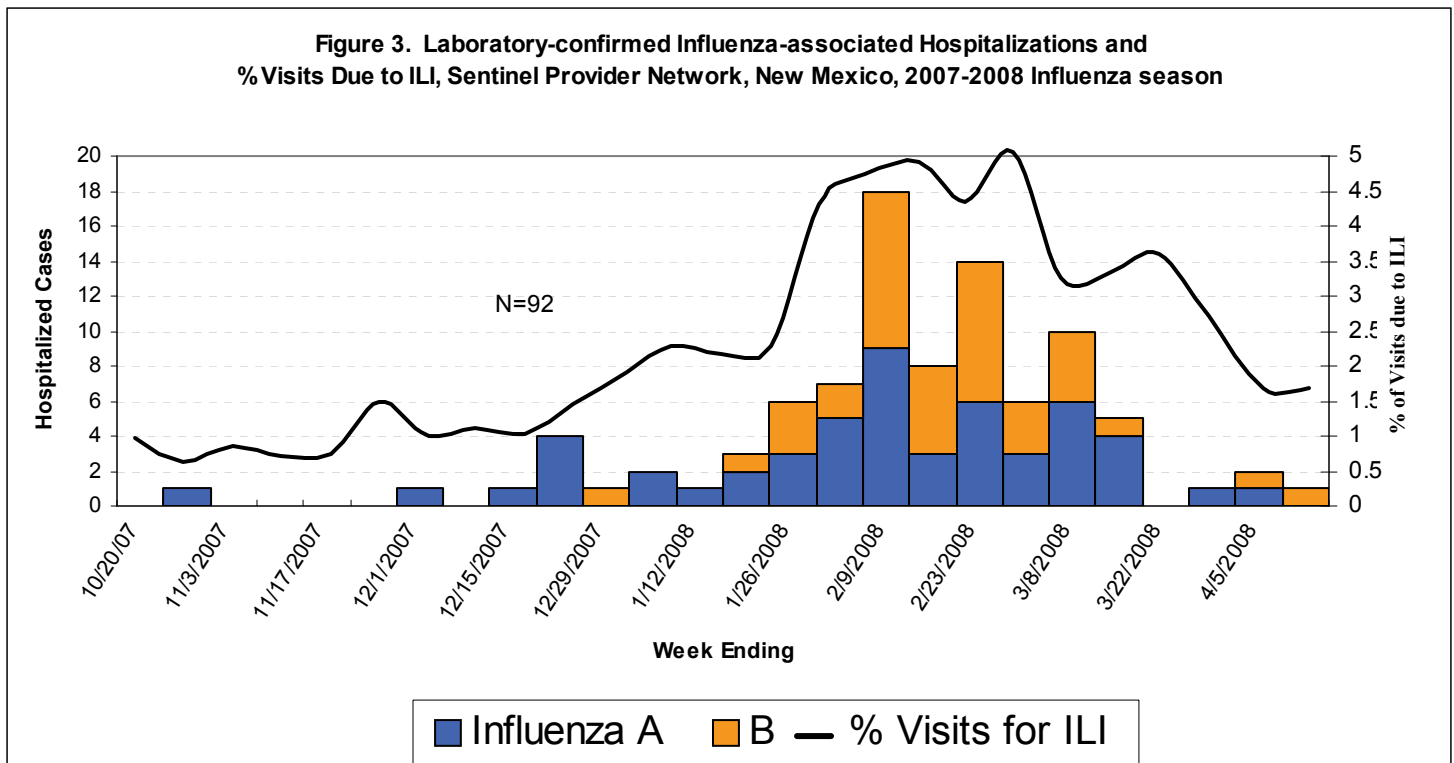
sentinel provider and lab sites who report weekly data to the New Mexico Influenza Sentinel Surveillance Program.

Conclusions

During the 2007-08 influenza season in New Mexico, influenza activity peaked earlier and with a greater percentage of ILI visits than the preceding season. The state experienced a longer duration of widespread ILI activity than was observed over the past two influenza seasons. Laboratory surveillance identified the subtype of circulating influenza strains in New Mexico, including the early circulation of influenza type B. The 2007-08 influenza related death rate was similar to that seen during the 2006-07 influenza season leading to the conclusion that the 2007-08 influenza season was relatively mild. The binational influenza surveillance project was initiated and has led to planning for the expansion of this project to other border communities along the New Mexico – Mexico border. In addition, efforts at the federal level and between all states along the U.S. – Mexico border have begun to standardize influenza surveillance in this region.

Acknowledgement

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**Figure 2. Pneumonia and Influenza Deaths vs. Influenza-like Illness Visits,
New Mexico, 2007-08 Season**

