



Free Influenza Testing During the 2008-2009 Flu Season

To isolate and identify circulating influenza virus strains in Connecticut, the Department of Public Health (DPH) offers free influenza testing. Health care providers may obtain respiratory viral reference collection kits (VRCs) may be obtained at no cost by calling the DPH Laboratory at 860-509-8501. Questions about specimen collection, handling, or transport should be directed to the DPH Virus Laboratory at 860-509-8553. Questions concerning DPH influenza surveillance efforts, testing for avian influenza or other novel influenza A strains, should be directed to the DPH Epidemiology and Emerging Infections Program at 860-509-7994.

Multiple Surveillance Systems Identify High Levels of Influenza Activity During the 2007-2008 Season

In the 2003-2004 influenza season, an influenza A drift variant circulated widely and peaked in December. More recent influenza seasons were characterized by circulation of multiple influenza A and B strains that peaked in February and early March.

The DPH closely monitored influenza morbidity and mortality using multiple surveillance systems. This enhanced influenza surveillance also assisted in the ongoing evaluation of the value of syndromic surveillance systems to supplement traditional surveillance in the tracking of influenza during an epidemic or pandemic.

Methods for Conducting Influenza Surveillance in Connecticut

Data from various surveillance systems were monitored between October 2007 and May 2008. Six of these systems are described below. Data summaries were posted on the DPH website throughout the influenza season as part of a "Weekly Influenza Update" (1).

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Connecticut Influenza Surveillance System: For over 10 years, the DPH has tracked laboratory-confirmed influenza tests from hospital laboratories and other providers. Summaries of Connecticut laboratory influenza testing are examined daily to determine which strains are circulating and identify demographic trends among those tested for influenza.

Connecticut Influenza Sentinel Provider Surveillance System: This system uses data provided by physicians, clinics, health centers, and other sentinel health providers. Each week, sentinel providers report the number and percentage of patients with influenza-like illness (ILI), defined as a cough or sore throat in the absence of a known cause and the presence of a fever $\geq 100^{\circ}\text{F}$.

Hospital Admission Syndromic Surveillance (HASS) System: The HASS system was created on September 11, 2001, to monitor for possible bioterrorism events. It also provides information on the impact that influenza has on respiratory morbidity and associated hospitalizations and will be used to track an influenza pandemic (2,3,4). Daily electronic reports are received from Connecticut's 30 acute care hospitals on their acute, unscheduled admissions in various diagnosis/syndromic categories. Information from the "total statewide pneumonia admissions" category was tracked throughout the last five influenza seasons.

Hospital Emergency Department Syndromic Surveillance (HEDSS) System: This system, developed in 2004, receives daily electronic reports from more than half of Connecticut's acute care hospitals. Data include a listing of total patient visits with information on their town of residence and chief

complaint. Chief complaint data are reviewed for patterns that may indicate the presence of agents of bioterrorism or emerging infections (4). The weekly percentage of visits for the "fever/flu" syndrome correlates well with influenza activity and supports the DPH pandemic preparedness efforts (5).

Mortality Reporting: The Centers for Disease Control and Prevention (CDC) maintains the national 122 Cities Mortality Reporting System. Four Connecticut cities (Bridgeport, Hartford, New Haven, and Waterbury) supply death certificate data to the CDC as part of the New England reporting area. These data are published each week in Table III of the CDC publication, Morbidity and Mortality Weekly Report (MMWR). Weekly total pneumonia and influenza deaths in these four cities have been compared with the results of influenza and hospital admission surveillance (3). Influenza-associated Pediatric Deaths have been reportable in Connecticut since January 2005. During the 2007-2008 season, the DPH conducted enhanced surveillance for influenza-associated pediatric deaths with bacterial co-infection, in response to a health advisory issued by the CDC in May 2007 (www2a.cdc.gov/HAN/ArchiveSys/ViewMsgV.asp?AlertNum=00259).

Results of 2007-2008 Influenza Surveillance in Connecticut

Connecticut Influenza Surveillance System: The 2007-2008 season started with a gradual rise in laboratory-confirmed influenza tests (LCTs) reported through January. This was followed by a rapid rise in the week ending February 2, 2008 (2008 week 5) that reached a peak of 828 reports during the week ending February 23, 2008 (2008 week 8). This high level of influenza activity persisted through the week ending April 5 (2008 week 14), returning to background levels during the week ending May 3 (2008 week 18). The total number of LCT reports received during the 2007-2008 season (5,648) was 70% greater than the previous high set during the 2003-2004 season (Figure 1).

Connecticut Influenza Sentinel Provider Surveillance System: A dramatic increase in influenza-like illness (ILI) reports was seen during the week ending January 26, 2008 (2008 week 4). This increased activity peaked during the week ending February 16, 2008 (2008 week 7), persisted through the week ending April 5 (2008 week 14), and returned to background levels during the week

ending May 3 (2008 week 18). During the peak period, the weekly percentage of ILI patients seen was over three times greater than that reported during the 2006-2007 season (Figure 2).

Hospital Admission Syndromic Surveillance (HASS) System: A review of the HASS weekly total statewide pneumonia hospital admissions revealed more than 400 total statewide admissions during the weeks ending December 29, 2007 (2007 week 52) through January 19, 2008 (2008 week 3). This early seasonal period of high pneumonia activity is often associated with circulating strains of respiratory syncytial virus (RSV) in the U.S. (5). A greater and more persistent period of high statewide pneumonia admissions occurred between the weeks ending February 9, 2008 (2008 week 6) and April 5 (2008 week 14). Statewide pneumonia admissions peaked during the weeks ending February 23 and March 8, 2008 (2008 weeks 8 and 9). The elevated number of pneumonia admissions in the spring was similar to that observed during the 2005-2006 season, and paralleled changes in LCT reports for each season (Figures 1, 3).

Hospital Emergency Department Syndromic Surveillance (HEDSS) System: Analysis of the HEDSS data indicated an initial peak of high (>6%) total statewide fever/flu Emergency Department (ED) visits during the week ending December 29, 2007 (2007 week 52) associated with circulating RSV (5). A greater, and more persistent period of high statewide fever/flu ED visits occurred between the weeks ending January 19, 2008 (2008 week 3) and April 5 (2008 week 14). Background levels below 6% fever/flu ED visits, were reached during the week ending May 10 (2008 week 19, Figure 4).

Mortality Reporting: CDC 122 Cities Mortality Reporting System: The peak number and percentage of pneumonia and influenza (P&I) deaths among the Connecticut and New England cities that participate in the 122 Cities Mortality Reporting System occurred during the week ending March 15, 2008. Two influenza associated pediatric deaths were reported during the 2007-2008 season. Only one such death was reported in each of the two previous seasons.

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Editorial Note: The large number of laboratory confirmed influenza reports received by the DPH suggested that high levels of influenza activity occurred in Connecticut during 2007-2008 as compared to the previous four seasons.

Data from the Connecticut syndromic surveillance systems provided supportive evidence that the high level of influenza activity in the 2007-2008 influenza season was not an artifact of increased testing. Moreover, the peak influenza activity week for each of these systems appear to reflect the temporal

progression of influenza transmission in the community.

In Connecticut, syndromic surveillance systems continue to provide information beyond their original mission for detection of bioterrorist events. Further developments in these systems will greatly enhance Connecticut's state of readiness for pandemic preparedness events.

The DPH will conduct enhanced influenza surveillance during the 2008-2009 influenza

Figure 1. Laboratory Confirmed Influenza Tests by Flu Season—Connecticut, 2003-2008

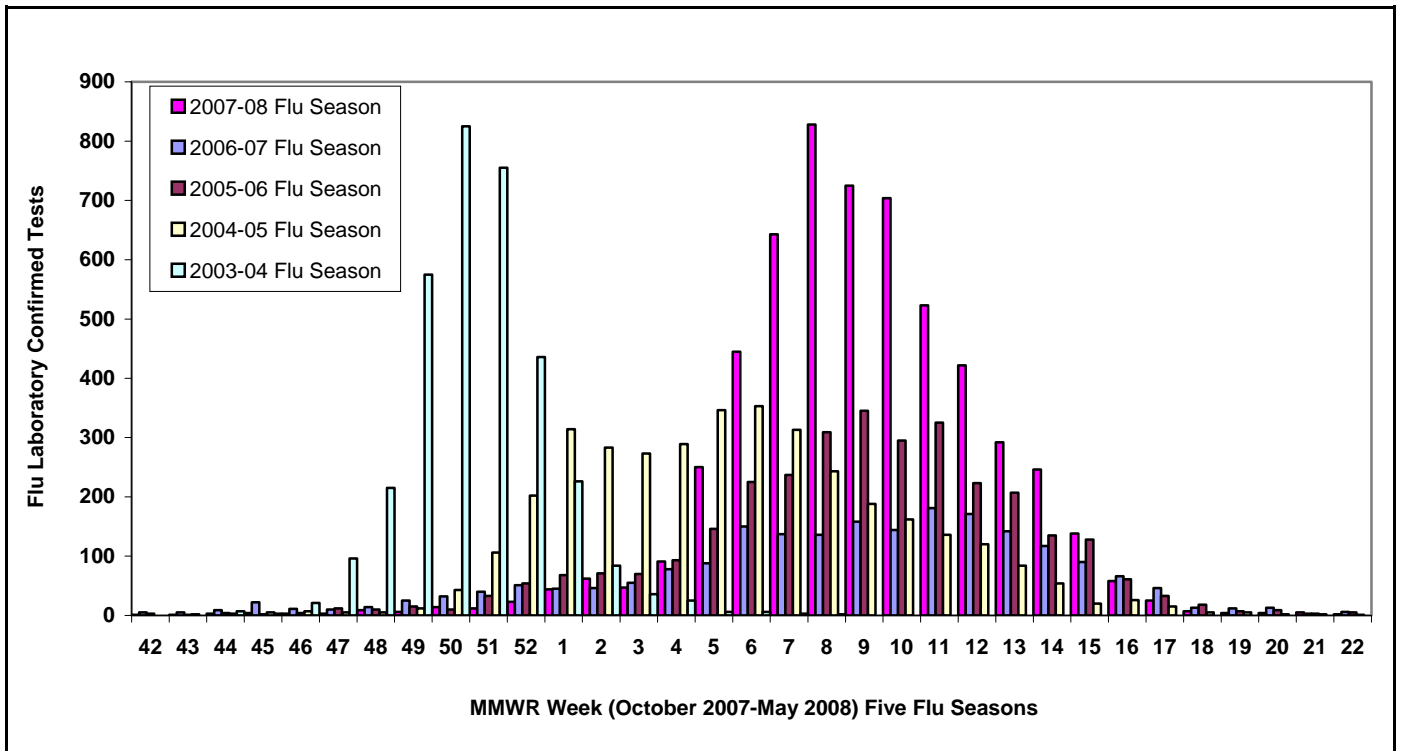
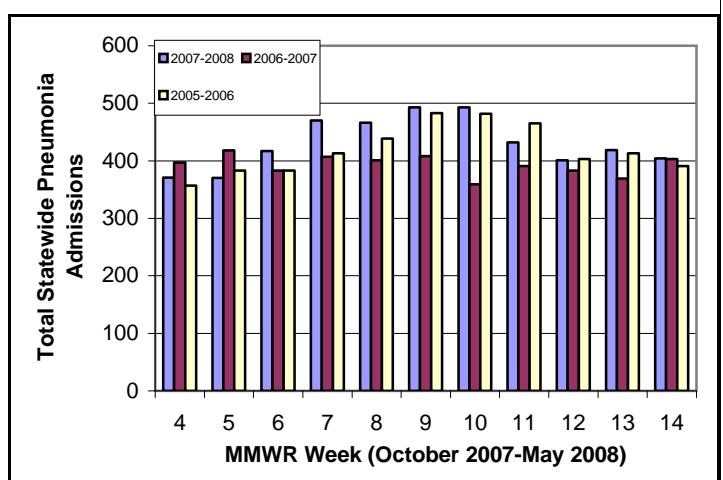
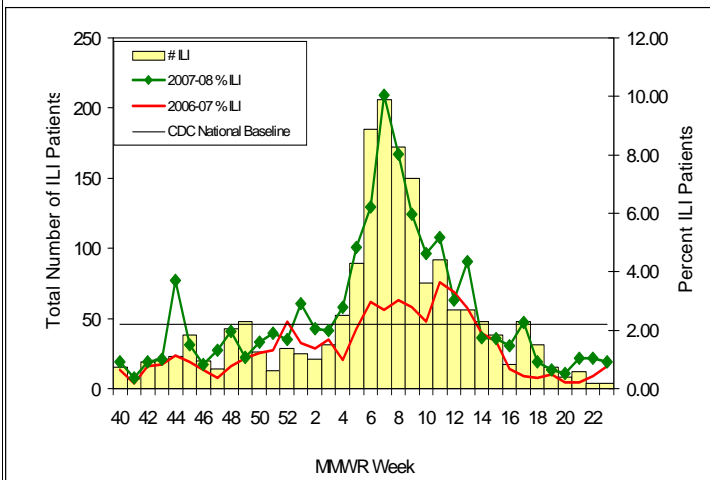


Figure 2. Sentinel Provider Reports of Influenza-Like Illness (ILI), -Connecticut, 2007-2008.

Figure 3. Hospital Admissions Syndromic Surveillance (HASS) System, Statewide Pneumonia Admissions by Flu Season—Connecticut, 2005-2008



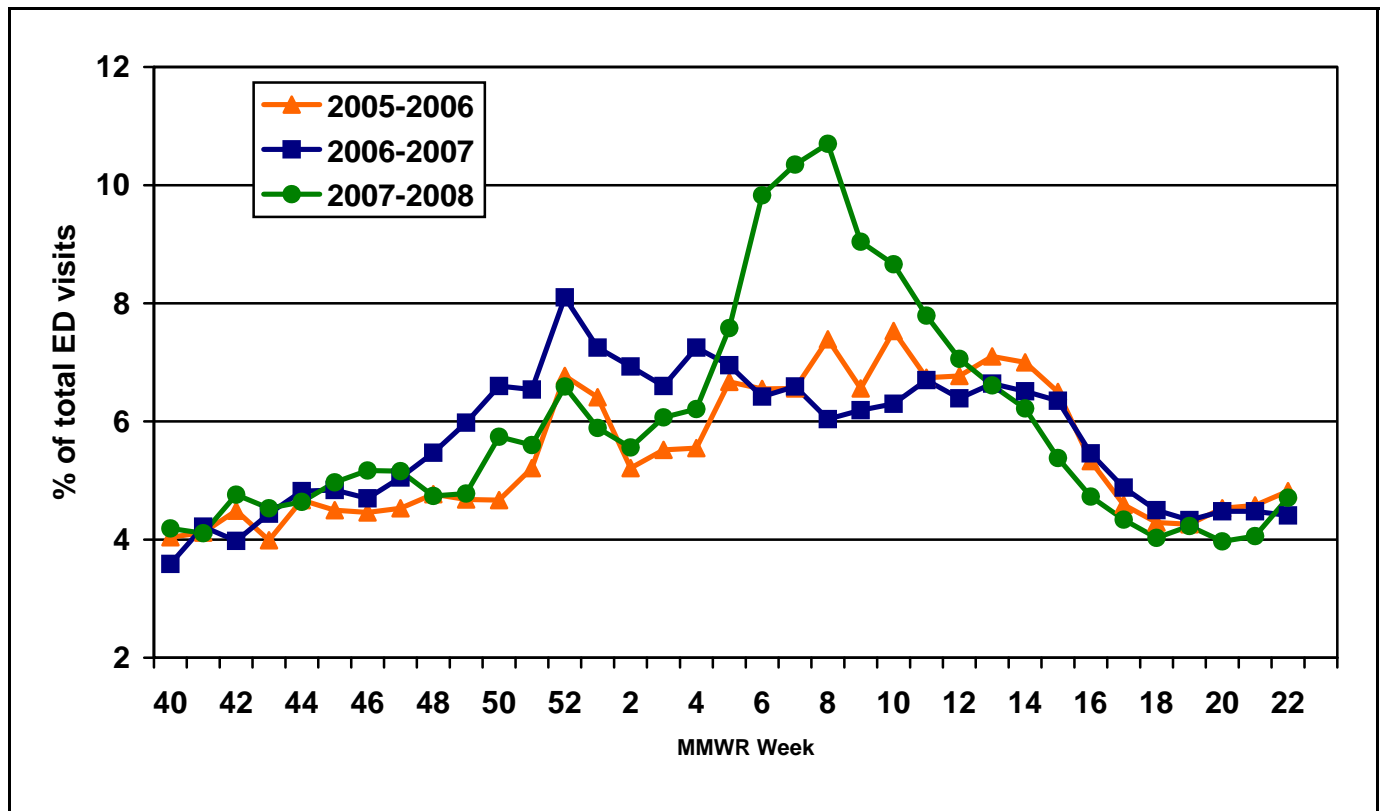
season. As part of the new Influenza Super Sentinel Surveillance Pilot Project, tracking influenza-like illness (ILI) cases reported by Connecticut sentinel providers will be included (<http://www.cste.org/dnn/ProgramsandActivities/InfectiousDiseases/tabid/67/Default.aspx>).

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Figure 4. Hospital Emergency Department Syndromic Surveillance (HEDSS) System, Statewide Fever/Flu Visits by Flu Season - Connecticut, 2005-2008



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