



Using Statewide Syndromic Surveillance for Influenza Monitoring

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Objective

To describe the use of emergency department (ED) data for influenza like illness (ILI) syndromic surveillance, and compare it to ILI surveillance in the sentinel provider network (SPN) in North Carolina.

Background

Sentinel Provider Network

- The North Carolina Division of Public Health (NC DPH) started participating in the CDC's SPN for ILI surveillance during the 2001-02 flu season.
- The SPN for the 2006-07 flu season has over 70 sentinel providers in 45 counties in North Carolina.
- Some limitations of the SPN include:
 - Geographic representation
 - Reporting of data on a weekly basis

NC DETECT

- NC DPH began developing syndromic surveillance using Emergency Department data in 2002.
- The North Carolina Disease Event Tracking and Epidemiologic Collection Tool (**NC DETECT**) is a web-based early event detection system which currently monitors data from 94 hospital-based emergency departments throughout the state.
- The system categorizes visits into pre-diagnosis syndromes in near real-time in order to detect unexpected cases and outbreaks earlier in their course than traditional disease-based surveillance.

Figure 1: INFLUENZA SURVEILLANCE, NC 2006-2007 (Solid Line)
Influenza-Like Illness in Sentinel Site Patients
Comparative prior years, Dashed Lines
-- Data available as of 20 January 2007 --

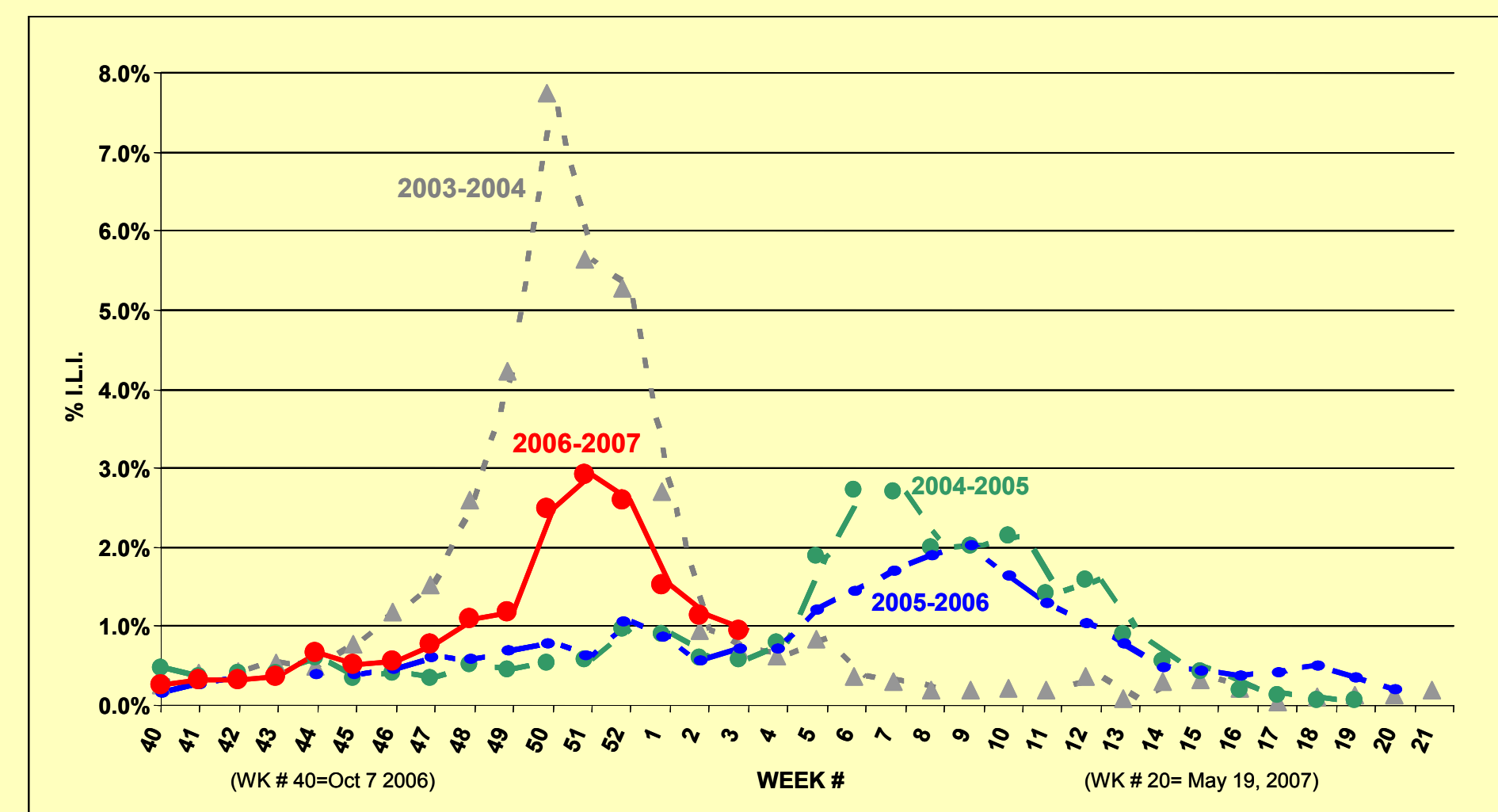
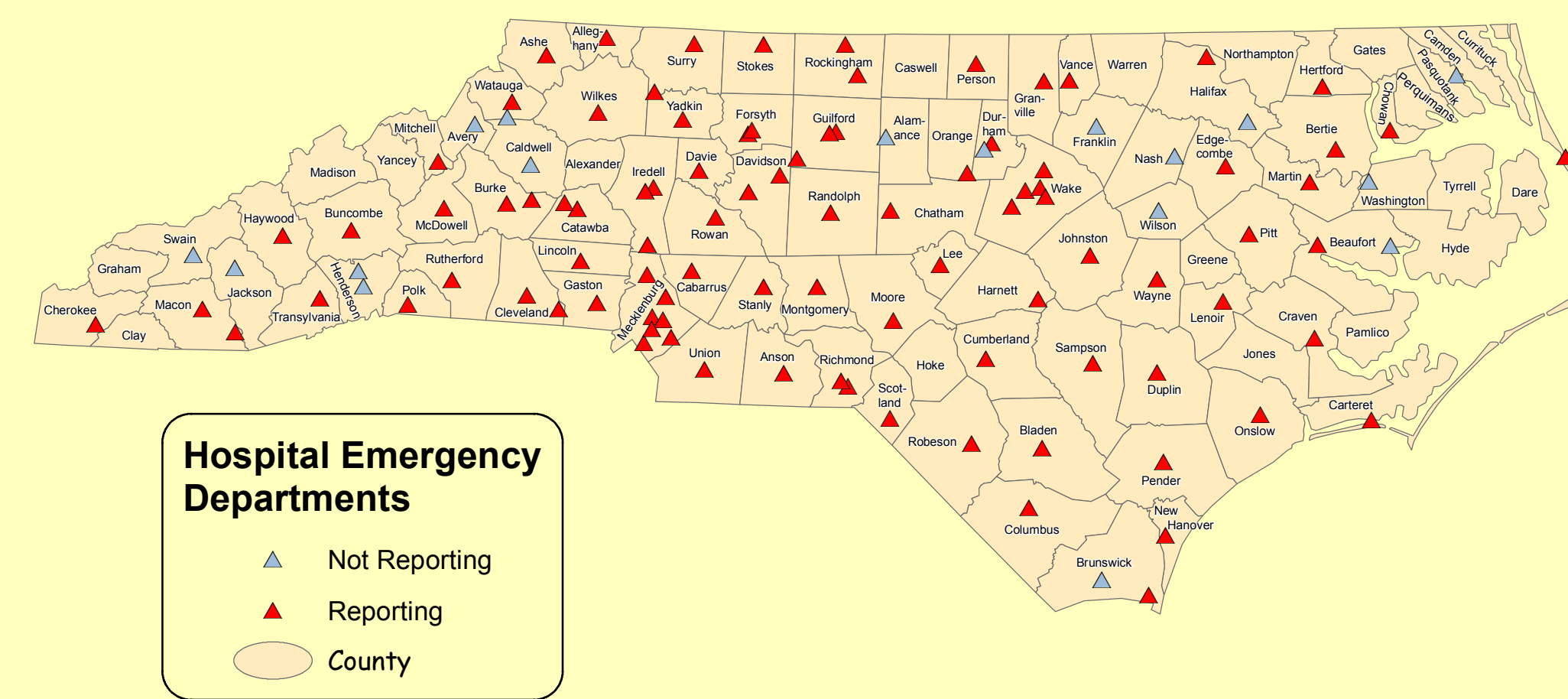


Figure 2: Hospital Emergency Departments Reporting through NC DETECT



Results

- In each influenza season, trends in the proportion of visits for ILI in EDs and the SPN were similar.
- The proportion of ILI visits was higher for EDs than the SPN.

FIGURE 3: Influenza-Like Illness Surveillance in North Carolina, 2005-2006 Influenza Season

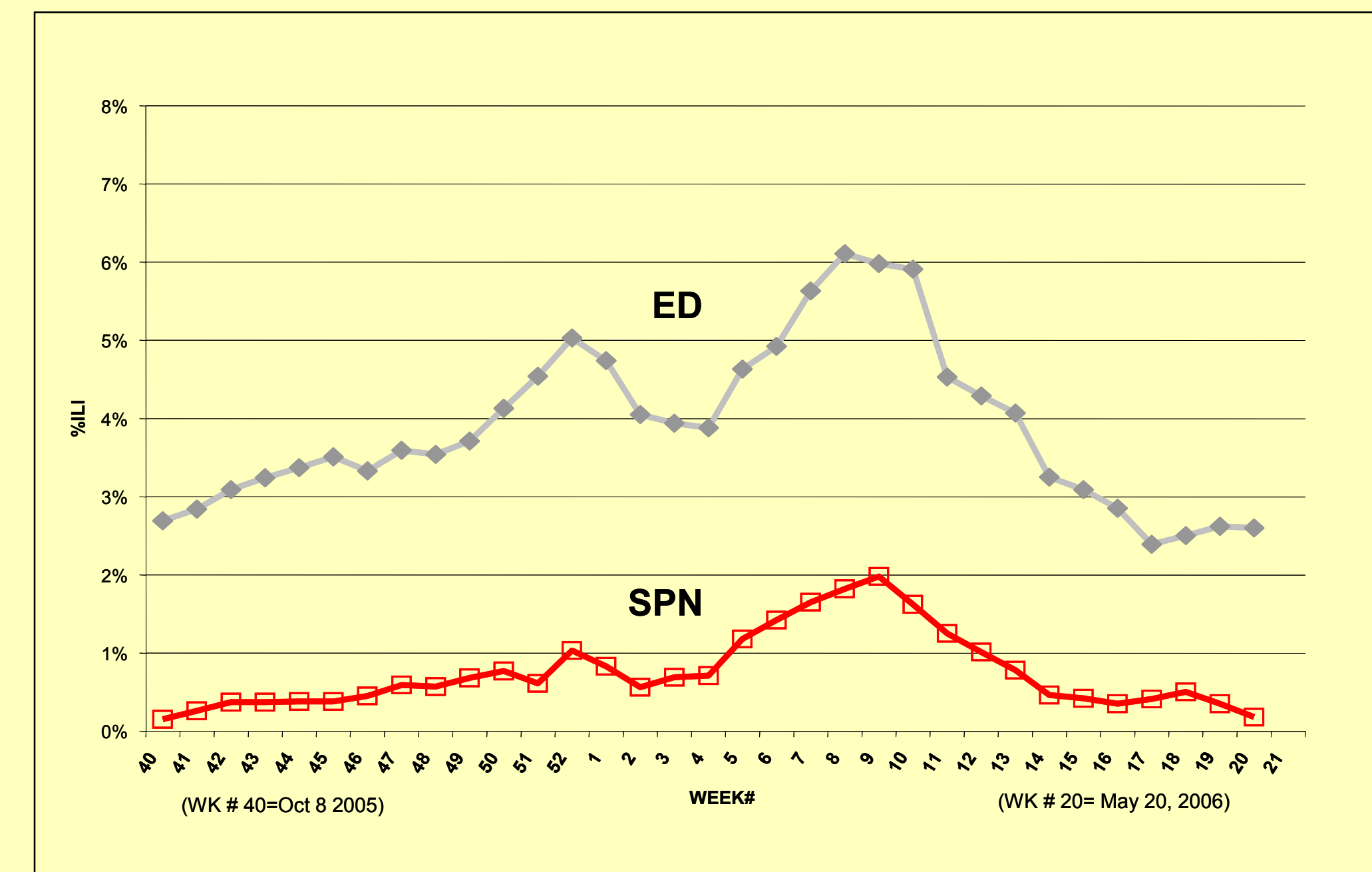
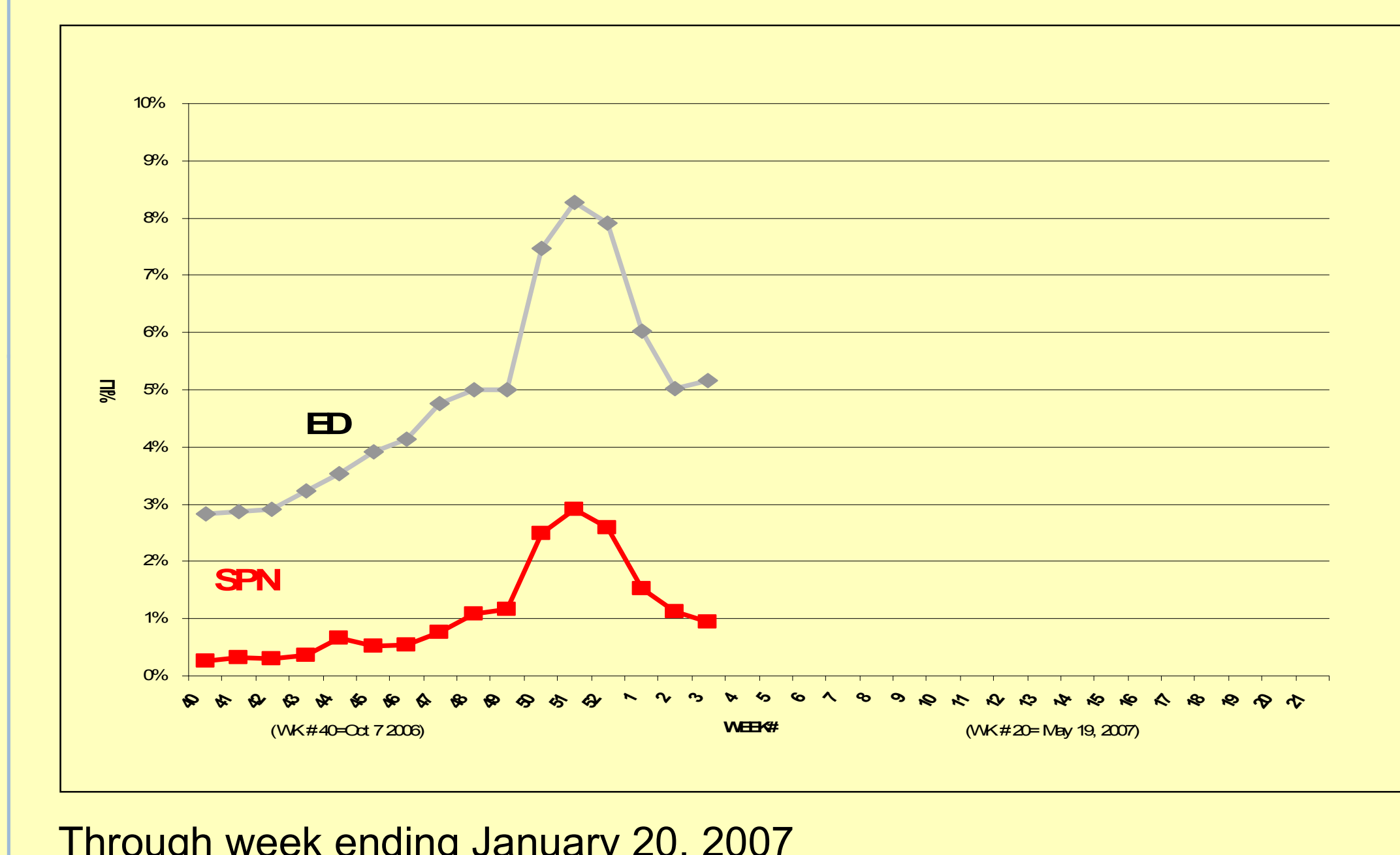


FIGURE 4: Influenza-Like Illness Surveillance in North Carolina, 2006-2007 Influenza Season
Through week ending January 20, 2007



Conclusion

The similar trends between ILI activity in the SPN and ED validate the use of NC DETECT to capture and analyze ILI in near real-time, earlier than traditional surveillance.

References

- [1] Matthew J. Scholer, Jennifer MacFarquhar, Emily Sickbert-Bennett, Aaron Kipp, Debbie Travers, Anna Waller, Reverse Engineering of a Syndrome Definition for Influenza. Presentation at the 2005 National Syndromic Surveillance Conference, Seattle, Washington.
- [2] Scholer, M.J., Waller, A.E., Falls, D. & Johnson, K. (2004, November). Development of a syndrome definition for influenza-like-illness. Oral presentation at the 2004 American Public Health Association Meeting, Washington, DC.

Methods

- ED visits are placed into syndromes by analyzing the chief complaint and, when available, the initial nursing notes and ED temperature. Keywords for each syndrome are selected based on the case definition.
- The NC DETECT ILI syndrome case definition was derived from a sample of ED visits with a physician diagnosis of influenza [1,2].
- Emergency Department ILI cases must include any case with the term "flu" or "influenza" or have at least one fever term and one influenza-related symptom.
- NC DETECT ILI signals were monitored on a daily basis. ILI trends from NC DETECT were compared with those in the SPN.

Discussion

- Prompt recognition of ILI signals can lead to earlier implementation of public health control measures.
- The use of NC DETECT to recognize early clusters of ILI at the start of a pandemic has important ramifications for response efforts.