

Dual monitoring of ILI syndrome using the ESSENCE system

Claudio Micieli, MPH, Rodlescia Sneed, MPH, O'Connell Erin, MPH, Rene Borroto-Ponce, Gouyan Zhang, MD MPH
Miami-Dade County Health Department (MDCHD), Florida Department of Health

OBJECTIVE

This paper describes the dual monitoring process of Influenza-like Illness (ILI) syndrome in Miami-Dade County using the ESSENCE syndromic surveillance system, and their potential use as part of the seasonal influenza and pandemic influenza surveillance strategies.

BACKGROUND

The threat of terrorism and high-profile disease outbreaks has drawn attention to public health syndromic surveillance systems for early detection of natural or man-made disease events [1]. In this sense, the Miami-Dade County Health Department has implemented ESSENCE (Electronic Surveillance System for the Early Notification of Community-based Epidemics) in 2005; which has been developed and updated by the Johns Hopkins University.

METHODS

On a daily basis, eight Miami-Dade County hospitals automatically transmit emergency room (ER) chief complaint data - along with patient demographic information - to the Office of Epidemiology and Disease Control. To be counted as a case of ILI, the encounter must have as a chief complaint fever and cough or sore throat. The ESSENCE systems alerting algorithms apply statistics to monitor ILI data for evidence of outbreaks in Miami-Dade County. The system runs significance tests on the statistics for this syndrome to determine whether current observed syndromic counts are reasonably close to what is expected. When one of these tests for reasonable agreement fails, the system produces flags to direct the attention of system users to a possible outbreak corresponding to the indicated syndrome group and location [2]. Additionally, the system generates the weekly percentage of ILI visits which is compared with a county baseline and threshold in order to monitor the ILI syndrome trend [3].

RESULTS

Presently, the Office of Epidemiology and Disease Control of MDCHD runs a dual monitoring program for ILI using the ESSENCE system. The first part consists of a daily monitoring of red (high) or yellow (moderate) flag alerts generated by the ESSENCE system for ILI in Miami-Dade County (Figure 1). An epidemiologist analyses the data and generates a report, which may trigger a further investigation if it is necessary.

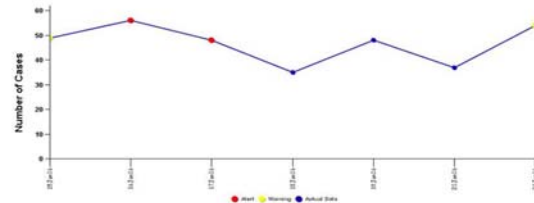


Figure 1 – Daily plot of ILI ER visits in Miami-Dade County, Week 16, 2006

The second part consists of a weekly comparison of percentage of ILI ER visits to ILI baseline and threshold lines for the Miami-Dade County using the same data recollected for early detection of an outbreak. (Figure 2)

CONCLUSIONS

The dual monitoring of ILI syndromic surveillance using the ESSENCE system has demonstrated to be an innovative element in the seasonal influenza surveillance, and could represent a valuable surveillance strategies tool in case of pandemic influenza.

REFERENCES

- [1] CDC. Framework for evaluating public health surveillance systems for early detection of outbreaks. MMWR 2004; 53(RR05).
- [2] Lawson AB, Kleinman K. Spatial and Syndromic Surveillance for Public Health. John Wiley & Sons. 2005; 1:4-7.
- [3] Florida Department of Health. Florida Influenza Surveillance. <http://www.dadehealth.org/flu/FLUmain.asp>

Further Information:

Claudio Micieli, MPH claudio_micieli@doh.state.fl.us

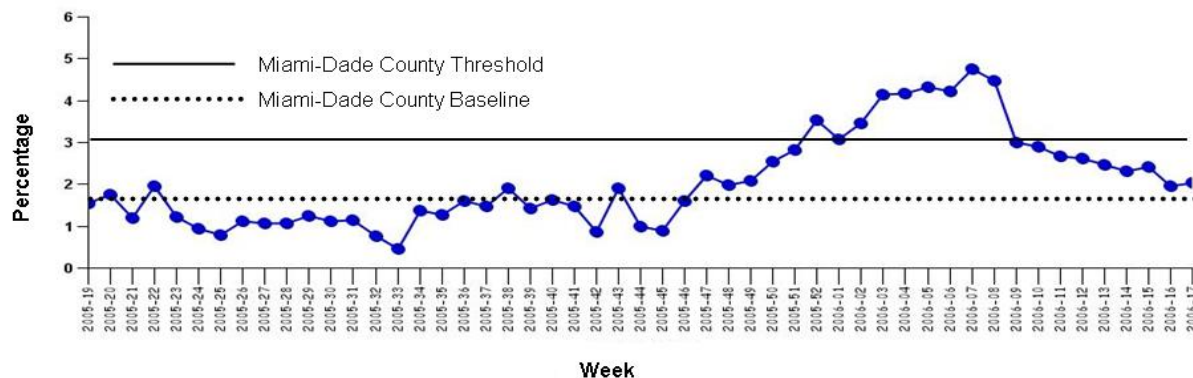


Figure 2 – Weekly percentage of ILI ER visits in Miami-Dade County, 2005-2006