

Innovative Uses for ESSENCE to Improve Standard Communicable Disease Reporting Practices in Miami-Dade County

Erin O'Connell, MPH, Guoyan Zhang, MD, MPH, Anthoni Llau, MPH, Fermin Leguen, MD, MPH
Miami-Dade County Health Department, Office of Epidemiology and Disease Control

OBJECTIVE

To illustrate how ESSENCE can be utilized to collaborate with healthcare practitioners in order to improve communicable disease reporting

BACKGROUND

Miami-Dade County Health Department (MDCHD) has used Electronic Surveillance System for the Early Notification of Community Based Epidemics (ESSENCE) in 14 of the largest hospitals since 2005. Although ESSENCE's primary aim is to detect outbreaks or bioterrorism events, we wanted to determine its value in improving communicable disease surveillance and reporting. Despite notification to all providers and hospitals that varicella (chicken pox) became a newly reportable disease in Florida in 2006, few cases were being reported. Additionally, although it is recommended that animal bites be reported to MDCHD, it is not required by Florida statute and therefore there have been discrepancies in reporting.

METHODS

Since the implementation of ESSENCE, individual disease-related chief complaint queries were performed occasionally during outbreaks or mass gathering events. However, MDCHD staff sought to enhance its capabilities on a daily basis. Therefore, since 2008, MDCHD has performed specialized daily chief complaint queries for 20 reportable diseases. These include queries for chicken pox, malaria, animal bites, meningitis, cyclosporiasis, cryptosporidiosis, ciguatera, mumps, pertussis and hepatitis, to name a few. When descriptions of these diseases are found in the chief complaint, MDCHD staff investigates each one individually and excludes those that are irrelevant to the search. When it is suspected that the chief complaint may be a valid case, staff then contact the Infection Control Practitioner (ICP) of the hospital and follow up until the disease is confirmed and entered into the Florida electronic disease reporting system, Merlin. Findings in ESSENCE queries were compared to Merlin and to the MDCHD Animal Bite Database and analysis was performed using SAS 9.1.3.

RESULTS

In 2007, there was a mean of 2,356 ED visits per day and a mean of 10.2 visits that had a queried reportable disease in the chief complaint. After excluding those that were irrelevant, there were 120 ED visits for chicken pox during 2007. However, only 43 (35.8%) were reported in Merlin that year. After the implementation of the specialized query, 38 cases of possible chicken pox detected in ESSENCE were investigated between January and June 2008.

To assess the quality of animal bite surveillance for the year 2006, Merlin cases in which post-exposure prophylaxis (PEP) for rabies was recommended were compared both to ESSENCE and to MDCHD's Animal Bite database. The Animal Bite database includes reports from hospitals, the Miami-Dade County Animal Services Department, veterinarian clinics and community residents. Only 14 of the 43 (32.6%) cases in Merlin in which PEP was recommended were correctly reported to the MDCHD Animal Bite database. Additionally, of the 1,824 ED visits for animal bites in ESSENCE, only 552 (30.3%) of cases from hospitals were reported to the MDCHD Animal Bite database.

CONCLUSIONS

This study verified that ESSENCE can be useful not only in providing early warning of abnormal health conditions in the community but also for ensuring that healthcare practitioners report appropriately. Due to the fact that only a small percentage of chicken pox and animal bite cases were reported, this approach will improve systematic quality control measures. By contacting the ICP when reportable disease names are found in the chief complaint, MDCHD has developed a stronger relationship with hospitals. Staff will continue to use these specialized search methods on a daily basis and hopefully better compliance will result through this innovative use of syndromic surveillance. In addition, staff will also provide healthcare practitioners with information about the reportable disease list via email, phone, mail, and on-site hospital visits.