Missouri's Syndromic Surveillance Experience

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OBJECTIVE

This abstract describes Missouri's experience with syndromic surveillance. Missouri has expanded from acquiring pre-tabulated data from volunteers to receiving patient-level data via electronic feeds from 85 hospitals across the state processed through multiple analysis, visualization, and reporting tools. Missouri and its partners use these data for early event detection and situational awareness at the state and local levels.

BACKGROUND

In October 2001, Missouri began conducting surveillance to detect natural and intentional outbreaks as well as chemical events statewide using the High Alert Surveillance System (HASS). HASS was made possible by health care providers (emergency departments (ED), urgent care clinics, physician offices) volunteering to report to the Missouri Department of Health and Senior Services (DHSS) numbers of visits within predefined syndrome groups and the total number of visits.

Many sites that initially volunteered to report HASS now send data automatically due to the implementation of the Hospital Electronic Syndromic Surveillance (HESS) Reporting Rule (19 CSR 10-33.040) in 2004. The HESS rule requires that certain hospitals report ED data electronically to DHSS specifically for the purpose of syndromic surveillance. The remaining HASS reporters are still important because they provide syndromic surveillance data manually for sites (many of them rural) not required to report electronically.

METHODS

HASS data are analyzed and reported using Microsoft Access, SAS 9.1, and Crystal Reports. DHSS uses two systems to analyze, visualize, and report electronically ED data collected: Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE) and BioSense. DHSS acquired ESSENCE software in the spring of 2006 and Missouri began sharing ED data with the Centers for Disease Control and Prevention (CDC) for use in the BioSense project in late 2006.

RESULTS

About 30 HASS sites remain and are reviewed each weekday for possible outbreaks. Under the HESS Reporting Rule, the Missouri DHSS has acquired data for 85 hospitals; as of July 2007, after unduplication, ESSENCE and BioSense process approximately 7,000 ED records each day. Figure 1 shows statewide syndromic surveillance coverage in Missouri.

In addition to routine early event detection, ESSENCE has proven useful in improving situational awareness during norovirus outbreaks, heat/power outages, winter storm/ power outages, and is routinely conducted after boil water orders are issued for Missouri communities.

DHSS emphasizes the need for surveillance tools at the local level; therefore, Missouri initiated a campaign to issue access to the ESSENCE system to local public health jurisdictions and hospitals in early 2007. As of July 2007, 149 total ESSENCE users were registered. Forty-seven of these were DHSS employees and four were pilot users representing HESS reporting hospitals. The remainder was local public health agency staff representing 57 out of Missouri's 115 health jurisdictions. These numbers are expected to increase both among public health authorities and among hospital users.
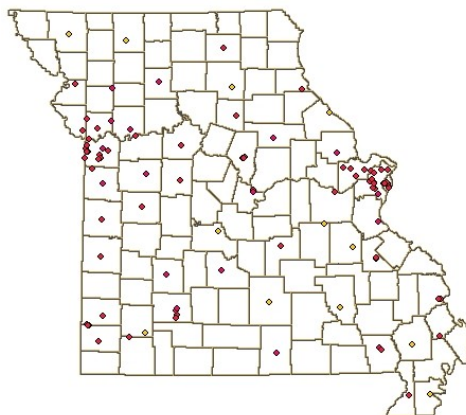

Figure 1. Missouri HASS (yellow, n=15) and HESS (red, n=85) hospitals.

CONCLUSIONS

Missouri's experience with syndromic surveillance has directed a shift in emphasis from a single bioterrorism-oriented system to a more general public health event detection and assessment approach. The emphasis on sharing surveillance tools with local public health authorities has directed future plans towards expanding both electronic and non-electronic data sources to assure syndromic surveillance coverage in all areas of the state.

Further Information:
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