The New York State BioSense Sentinel Alert Experience

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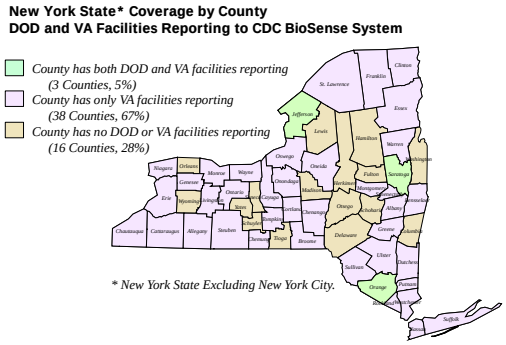
OBJECTIVES

To describe the New York State Department of Health's (NYSDOH) experience with the monitoring of Sentinel Alerts generated for NYS within the CDC's BioSense application, following up each alert with local health department (LHD) staff to determine case resolution, and providing user-level feedback to the CDC to effect system improvements.

BACKGROUND

In addition to monitoring Emergency Department chief complaint data and pharmacy sales as indicators of outbreaks, the NYSDOH Syndromic Surveillance System also monitors information from the CDC's Early Event Detection and Situational Awareness System, BioSense. BioSense includes Department of Defense (DOD) and Veterans Affairs (VA) outpatient clinical data (ICD-9-CM diagnoses and CPT procedure codes), and LabCorp test order data. Within NYS excluding New York City, there are a total of 7 DOD and 60 VA hospitals and/or clinics reporting to the BioSense system, located across 41 of 57 counties.



BioSense includes a Sentinel Alert system, which monitors for diagnoses of CDC-classified Category A, B, and C diseases that have been reported from DOD and VA facilities[1]. Sentinel Alerts are issued for single disease records, and can be followed up at local discretion to assess for public health significance and to determine whether the source of the disease might be intentional.

METHODS

The NYSDOH Syndromic Surveillance Coordinator monitors the BioSense website. From February through May 2005, all Sentinel Alerts reported on the BioSense website were followed up with the appropriate LHD staff for case investigation. If any system-related difficulties arose during follow-up activities, these were reported to BioSense staff for the purpose of system improvement.

RESULTS

From February through May 2005, 8 Sentinel Alerts were issued for NYS on the BioSense website: 2 for Crimean-Congo hemorrhagic fever, 2 for cryptosporidiosis, 2 for typhoid fever, 1 pneumonic plague and 1 Russian spring-summer encephalitis. Upon follow up, all 8 alerts were determined to not represent cases of immediate public health significance. 4 alerts were issued based upon ICD-9 miscodes; examples included confusion of the common abbreviation for congestive heart failure (CHF), with that of Crimean-Congo hemorrhagic fever (CCHF), and the mis-entry of pleural "plaque" as pleural "plague". The other 4 alerts were related to the patient's past medical history (PMH); BioSense does not receive information to distinguish between a patient's current illness and PMH. During follow up, linking each Sentinel Alert with a specific patient was challenging as the alerts contain limited patient identifying information: patient age, gender, coded patient ID and/or visit ID.

Although all 8 alerts were determined to be "false alarms", each provided an opportunity to improve communication between NYSDOH, LHD, CDC, central VA and local DOD and VA staff. Communications from central VA staff were crucial in training local VA staff with regards to using the coded patient ID available in BioSense to locate a patient's medical record. As each case was resolved, potential system solutions were identified to prevent similar errant alerts in the future.

CONCLUSIONS

1) False alarms generated by new surveillance systems should be viewed as opportunities to test and improve communication pathways across national, state and local levels; 2) Caution should be exercised when assessing ICD-9 coded syndromic surveillance data, including the possibility of human error; and 3) Utilizing user feedback to effect overall system improvement as well as end-user access to the system is an essential component of any successful surveillance system.

REFERENCES

[1] BioSense User Guide Version 1.9, Centers for Disease Control and Prevention Department of Health and Human Services, June 2005.

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