

Situational Awareness Using Web-based Annotation and Custom Reporting

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OBJECTIVE

We describe the addition of two reports to the North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT) designed to improve NC public health situational awareness capability.

BACKGROUND

While early event detection systems aim to detect disease outbreaks before traditional means, following up on the many alerts generated by these systems can be time-consuming and a drain on limited resources.¹ Authorized users at local, regional and state levels in NC rely on NC DETECT's Java-based Web application to monitor and follow-up on signals based on the CDC's EARS CUSUM algorithms.² The application provides users with access to aggregate syndrome-based reports as well as to patient-specific line listing reports for three data sources: emergency departments (n=103), ambulance runs and the statewide poison control center. All NC DETECT Web functionality is developed in a user-centered, iterative process with user feedback guiding enhancements and new development. This feedback, along with the need for improved situational awareness and the desire to improve communication among users drove the development of the Annotation Reports and the Custom Event Report.

METHODS

The Annotation Reports were added to the NC DETECT Web application in February 2007; the Custom Event Report was released in May 2007. With Annotation, users can view the EARS signals for each syndrome, drill down to the patient-specific information, add comments to signals and view the comments of other users who have access to the same signals. Users also assign an investigation status to the signal: *active investigation, monitoring, no action needed, or investigation complete*. If NC DETECT does not generate a signal for a known or suspected public health situation, users have the option of adding an event with their own parameters to the Annotation reports for comments and monitoring. The Custom Event Report is a separate module that allows for the rapid implementation of new keyword-based reports designed to monitor known or suspected events that might not be captured by existing syndromes. New custom reports can be added to the system in 1-2 hours. These reports search for suspected cases in the chief complaint and triage notes – NOT confirmed diagnoses, due to the

latency in receiving ICD-9-CM final diagnosis codes. The queries account for misspellings and abbreviations, and exclude terms that would create false positives, e.g. search for *fire* but not *fire ant*. Authorized users can retrieve the hospital's original medical record number from the report for follow-up directly with the hospital.

RESULTS

Between March 1 and June 30, 2007, NC DETECT generated 2599 hospital-based signals (we also generate county-based signals). Of those, 380 signals were reviewed and documented in the NC DETECT Annotation reports. Documentation came from the NC Division of Public Health Syndromic Surveillance Coordinator (NC DPH SSC) and the 11 hospital-based public health epidemiologists (PHE); there was no documented follow-up by any authorized users from local health departments or the regional surveillance teams. During this same time period, the NC DPH SSC and 1 PHE created and commented on 11 events in the Annotation reports for which NC DETECT did not generate a signal. As of July 18, 2007, 3 new queries have been added to the Custom Event report to monitor a suspected Hepatitis A outbreak, suspected food-borne illness from a child-themed restaurant and exposure to the Ciguatera fish toxin. Previously, these reports would have been generated daily by NC DETECT and submitted to the NC DPH SSC, who would then be tasked with sharing the data with additional jurisdictions. Now all public health jurisdictions can access the same report online at any time.

CONCLUSIONS

The NC DETECT Annotation Reports and Custom Event Report have improved communication and information exchange between NC DPH and the PHEs but the tools need to be more widely adopted by local health departments, regional surveillance teams and non-PHE hospital users before statewide situational awareness can reach its potential.

REFERENCES

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