

Poison Center Data Use for Enhanced Public Health Surveillance

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OBJECTIVE

Although many jurisdictions are collecting poison center data for biosurveillance¹, documented public health benefits have been limited. This presentation will illustrate the methodologies used and resulting improvements in public health investigation and response based on analysis of Carolinas Poison Control Center (CPC) data in NC DETECT.

BACKGROUND

NC DETECT provides early event detection and public health situational awareness to hospital-based and public health users across NC. Authorized users are able to view aggregated analyses and line listing information from emergency departments (n=119, 99%), the CPC, the statewide EMS data system, as well as pilot animal health data and data from select urgent care centers. The CPC provides statewide coverage for NC and receives over 120,000 calls each year, meeting a wide range of needs to the public and to professionals including food poisonings and recalls, environmental exposures, medication errors and toxicity, drug identification and other information needs. The CPC has been transmitting a subset of its data to NC DETECT hourly since April 2005 to meet the surveillance needs of NC public health practitioners. Other states have reported limited utility with the poison center information and use it on a very limited basis, but NC DETECT users have been able to detect localized outbreaks and exposures using CPC reports and have implemented intervention measures to reduce morbidity in NC.

METHODS

Data are transmitted from CPC to NC DETECT hourly via a secure FTP process and are loaded into NC DETECT using data integration software from Pervasive (Austin, TX). NC DETECT uses CUSUM algorithms from the Early Aberration Reporting System (EARS)² to detect unusual increases in clinical effect groupings (cardiovascular, dermal, fever, gastrointestinal, hemorrhagic / hepatic, neurologic, nerve agent, renal, ocular, and respiratory). Line listing information available to authorized users includes call date and time, basic demographics, exposure reason, any therapies used, substances involved and any related case numbers for cluster identification. Select epidemiologists are able to decrypt free text notes when needed during investigations.

RESULTS

CPC data in NC DETECT have allowed users to track the effects of known events as well as detect small localized exposures that would have otherwise gone unreported to public health authorities. For example, a neurologic signal in Wake County in April 2006, after investigation, led to the repair of dry cleaning equipment. The CPC data provided the timeliest access to information on the effects of an unknown chemical release at a school in Buncombe County, NC in March 2007 as the hospital abandoned its use of computerized health information entry during the mass simultaneous influx of patients. For many events, poison center data provides solid backup, redundancy and confirmation of the information from EDs. CPC provides an excellent resource for tracking results of food recalls, as evidenced by the approximately 190 calls CPC received on 2/15/2007 from individuals who were exposed to or were concerned about contaminated peanut butter and more recently, the tomato-related calls in June 2008. All callers to CPC were given the identical message as that disseminated by the NC Division of Public Health. Based on documentation available in NC DETECT, over 95 CPC signals have been investigated and resulted in some public health response from January 1, 2008 to August 31, 2009.

CONCLUSIONS

CPC information has been useful for a variety of public health issues, based on accurate processing and analysis of the data sent hourly, easy drill down access to the data for investigation when needed, and a partnership with public health. Additional improvements are planned including early event detection using improved clinical effect groupings and analysis of substances, including substance monitoring for antiviral and vaccination adverse events. The benefits of these additional analyses, however, must be weighed against potential additional burden that may be created during both data capture and response.

REFERENCES

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