

# Using Poison Center Syndromic Surveillance for Environmental Health Signals Detection

Lana Deyneka<sup>1</sup>, MD, MPH, Peter Costa<sup>1</sup>, MPH, CHES, Aaron Kipp<sup>2</sup>, MPH, GRA  
*North Carolina Division of Public Health<sup>1</sup>*

*Department of Emergency Medicine, University of North Carolina<sup>2</sup>*

## OBJECTIVE

This paper describes the use of Carolinas Poison Control Center (CPC) data for early detection of chemical and environmental events and the follow up protocol development process.

## BACKGROUND

North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT) is the Web-based early event detection and timely public health surveillance system in the North Carolina Public Health Information Network. At the present time NC DETECT monitors five data sources: emergency departments, the statewide poison center, the statewide EMS data collection system, a regional wildlife center and laboratories from the NC State College of Veterinary Medicine for suspicious patterns. NC DETECT receives CPC data every 24 hours as of August, 2005. CPC provides the poison hotline for the entire state and handles over 105,000 calls a year 24/7/365. Seventy-five percent of calls are from the general public, with the remainder originating from healthcare providers, pharmacists, law enforcement, etc. CPC is staffed by registered nurses and pharmacists specially trained to provide diagnostic and treatment advice for acute and chronic poisonings to the public and healthcare professionals, backed up by board-certified medical toxicologists.

## METHODS

About 25% of all calls to CPC are assigned one or more clinical effects. The clinical effects are grouped into larger categories and analyzed using CDC's Early Aberration Reporting System (EARS). NC DETECT currently monitors nine syndromes using the clinical effect groups: cardiologic, dermal, fever, gastrointestinal, neurological, ocular, hematological/hepatic, nerve agent, and respiratory. Initially all CPC signals were monitored on a daily basis by a communicable disease public health epidemiologist on the state level. Due to a large percentage of environmental/chemical exposure signals (Figure 1), it was decided that these signals would be monitored and followed up by an occupational environmental epidemiologist.

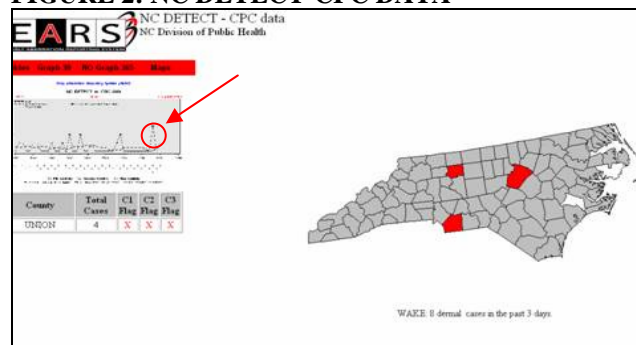
## RESULTS

Chemical and environmental exposures are monitored, and the signal aberrations (Figure 2) are evaluated by the public health environmental epidemiologist. Follow up protocols were developed by the occupational environmental epidemiologist to continue signal investigation: all signals requiring additional client information are discussed with CPC. Public Health authorities are involved in the investigations.

**FIGURE 1: EXAMPLES OF POISON CENTER SIGNALS**

Exposure	Date	Cases	Co	Site	Syndrome
Nitric Acid	09/2005	13	Guilford	Work	Resp.
Mercury	10/2005	4	Orange	Residence	GI
Battery Acid	10/2005	3	Chatham	School	Dermal
Prime 2B	11/2005	3	Alleghany	Hospital	Dermal, Resp.
Phospho toxin	5/12/06	25	Stokes	Hospital	GI

**FIGURE 2: NC DETECT-CPC DATA**



## CONCLUSION

NC DETECT system demonstrates the ability to identify and follow up minor environmental syndromic signals. Investigation of CPC clusters through NC DETECT indicated the need for additional client's information to be included in the signal detailed listing to facilitate public health response.