



North Carolina Disease Event Tracking and Epidemiologic Collection Tool

NC DETECT Summary

NC DETECT is the Web-based early event detection and timely public health surveillance system in the North Carolina Public Health Information Network. NC DETECT uses the CDC's CUSUM algorithms from the Early Aberration Reporting System (EARS) to monitor several data sources for suspicious patterns. The reporting system also provides broader public health surveillance reports for emergency department visits related to hurricanes, injuries, asthma, vaccine-preventable diseases, environmental health and others.

Data Sources

NC DETECT receives data on at least a daily basis from four data sources: emergency departments, the statewide poison center, the statewide EMS data collection system and a regional wildlife center. Data from select urgent care centers and three laboratories from the NC State College of Veterinary Medicine are in pilot testing.

Emergency Department (ED) Data

As of May 2, 2008, NC DETECT is receiving data daily from 110 of the 112 24/7 EDs in North Carolina. North Carolina has a mandate requiring collection of ED data via a system called the North Carolina Hospital Emergency Surveillance System (NCHES) and all 112 hospitals are expected to be reporting by the end of 2007. Prior to the mandate, ED data were collected voluntarily through a project called the North Carolina Emergency Department Database (NCEDD), which was created in 1999.

ED visits are grouped into syndromes based on analyses of the chief complaint, initial ED temperature and history of present illness (when available). An ED visit can be "binned" into one or more of the following syndromes:

- Botulism-like
- Fever/Rash
- Gastrointestinal All
- Gastrointestinal Severe
- Influenza-like Illness
- Meningoencephalitis
- Respiratory

The syndromes are based on the CDC's Syndrome Definitions for Diseases Associated with Critical Bioterrorism-associated Agents (October 23, 2003) and all syndromes except Gastrointestinal All require the presence of constitutional symptoms.

Poison Center Data

The Carolinas Poison Center provides the poison control hotline for the entire state of NC and receives over 108,000 calls every year from residences as well as health care facilities throughout NC. Roughly 75% of these calls are for a human exposure and 39% of those are assigned one or more "clinical effects". The clinical effects are grouped into larger categories and analyzed in EARS. NC DETECT currently monitors the following clinical effect groupings:

- Cardio
- Dermal
- Fever
- Gastro

- Heme / Hep
- Nerve Agent
- Neurological
- Ocular
- Renal
- Respiratory

EMS Data

NC DETECT downloads daily files from the NC Pre-hospital Medical Information System (PreMIS), a mandated statewide system for collecting and analyzing EMS data. NC DETECT currently monitors EMS data for seven syndromes based on the standardized pick lists for dispatch complaint and primary symptom:

- Fever
- Gastro
- Hemorrhagic
- Neurological
- Poisoning
- Rash
- Respiratory

Wildlife Data

The Piedmont Wildlife Center (PWC) is one of the regional wildlife centers in North Carolina and is a non-profit organization dedicated to wildlife rehabilitation, education, and scientific study of health and disease in wildlife populations. PWC admits approximately 2,500 animals annually, including mammals, birds, and reptiles, the majority of which are from 21 counties in central North Carolina. The PWC defines 8 syndromes and assigns each patient visit to none, one or as many syndromes as are appropriate based on clinical case definition. Some wildlife syndrome definitions are similar to human syndromes (e.g. rash, gastrointestinal, respiratory, botulism-like, and neurological) while others are more wildlife specific (e.g. spontaneous abortion, vesicular, and lymphadenopathy).

Pilot Data

The *NC State College of Veterinary Medicine Laboratories (CVML)* has sent pilot data to NC DETECT from three of its laboratories: vector-borne disease, microbiology and immunology. Analyses of select lab orders and results are available in line listing reports in NC DETECT.

NC DETECT is testing data from select urgent care centers in North Carolina. Syndromes in these data are based on ICD-9-CM diagnosis codes rather than free-text chief complaints.

Users

NC DETECT serves hospital-based and public health users at the local, regional and state levels. All users must be approved by the NC Division of Public Health before access to the system is granted. Depending on the assigned user role and data source, users have access to secure, Web-based county- and/or hospital-based views of the data and can access a variety of tabular and graphical reports. On several reports, users can specify the date ranges and can cross-reference the results against ICD-9-CM final diagnosis codes. Customized reports to monitor for specific events and/or conditions can be added in less than two hours.

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