

Incorporating Wildlife Data into Syndromic Surveillance

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OBJECTIVE

This poster will illustrate how a novel data source, wildlife health center data, is being incorporated and used in a syndromic surveillance system.

BACKGROUND

The North Carolina Bioterrorism and Emerging Infection Prevention System (NC BEIPS) serves public health users across North Carolina at the local, regional and state levels, providing syndromic surveillance capabilities. At the state level, our primary users are in the General Communicable Disease Control Branch of the NC Division of Public Health. NC BEIPS currently receives daily data from the North Carolina Emergency Department Database (NCEDD), Carolina Poison Control Center (CPC), Pre-hospital Medical Information System (PreMIS) and the Piedmont Wildlife Center (PWC). Future data sources will include the North Carolina State University College of Veterinary Medicine Laboratories.

The PWC is a non-profit organization dedicated to wildlife rehabilitation, education, and scientific study of health and disease in wildlife populations. PWC admits approximately 3,000 animals annually, including mammals, birds, and reptiles, the majority of which are from 21 counties in central North Carolina.

METHODS

The PWC utilizes the Wildlife Record Keeping System provided by the National Wildlife Rehabilitators Association (NWRA). Data are extracted daily and sent to NC BEIPS via secure FTP and stored in the NC BEIPS data warehouse along with the data from other sources.

Syndromes are defined for all data sources in NC BEIPS and analyzed with the CDC's Early Aberration Reporting System (EARS). EARS detects aberrations in the data using three different CUSUM-based algorithms and provides tabular, graphical and map-based output. The graphs allow drill down into any red flags that are generated, providing a line listing of all the syndrome visits that contributed to the flag on that particular date.

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).

RESULTS

NC BEIPS has received electronic data from PWC since January 1, 2005. During that time, 1377 patient visits representing 109 different species from 20 counties and out of state have been reported, averaging seven visits per day. The most frequent animal types are birds, rabbits and opossums.

The PWC is currently assigning syndromes to each visit where appropriate but are not yet providing that information to NC BEIPS. These syndrome data are expected to be available soon and will then be used with EARS and other NC BEIPS data sources to generate maps such as the example in Figure 1. PWC data can be layered with other syndrome data during a specific period (days or weeks) to enhance public health surveillance.

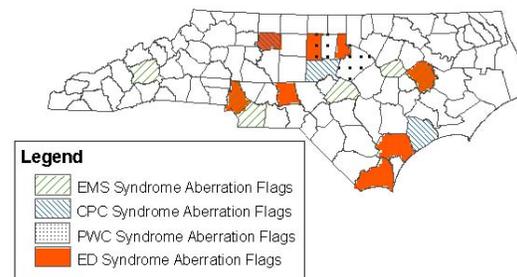


Figure 1 – A sample daily plot by county showing where aberrations have occurred from the four data sources.

CONCLUSIONS

Wildlife data from PWC are seen as a compliment to human data, providing a possible sentinel source of information about the health status of the community. If the PWC data can be successfully used in NC BEIPS, we will seek to obtain data from the other two wildlife centers in North Carolina in order to provide complete wildlife data for syndromic surveillance in the state.

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