

# A Closer Look at Developing a Statewide Emergency Department Syndromic Surveillance System in a Rural State

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## Objective

This paper describes the issues associated with the creation of a statewide emergency department syndromic surveillance system, part of the South Carolina Aberration Alerting Network (SCAAN), in a predominately rural state.

## Background

South Carolina has a statewide population of 4.3 million with the largest city, Columbia, having a population of 118,000. The South Carolina Department of Health and Environmental Control (SC DHEC) is a centralized health department system with eight Regional Public Health Departments responsible for the investigation of acute disease outbreaks. The emergency department (ED) chief-complaint data system is unique because the compiled hospital-specific syndromic data and summary reports will be delivered back to the hospitals via the same dedicated Public Health Information Network Messaging System (PHINMS)<sup>1</sup> route it was sent to SC DHEC.

## Methods

DHEC personnel distributed SCAAN information at regional mass casualty planning meetings, State-level meetings of infection control practitioners, hospital preparedness meetings and through emails to hospital contacts in order to recruit hospitals into the system. SC DHEC met with hospital management and information technology personnel to begin the automation process of sending daily emergency department data using a secured and PHINMS server provided by the hospital, or in some cases, by DHEC. Once data issues were corrected using test files, a hospital was approved to send daily ED data. A DHEC programmer developed SAS programs to automatically import ED files, clean and compile data, code data using the NYCDOH<sup>2</sup> syndrome coding algorithm, run a cumulative sums analysis using EARS-SAS<sup>3</sup>, and provide results using an automatic email notification. Summary results and actual syndrome coded data were sent to DHEC regional and central office staff. Hospital-specific information was sent back daily to each hospital and their infection control practitioners. Manuals on maintaining the system and completing follow-up investigations were written and trainings for both regional and central office staff were scheduled.

## Results

As of June 2008, SC DHEC was receiving daily data feeds which include information from five emergency departments. Barriers to recruiting hospitals into the system were mostly due to competing priorities within the health-care setting. South Carolina does not mandate hospitals to

report syndromic data. A closer look is needed on how to automatically analyze the syndromic data on both hospital location and patient home zip code (at times different from each other) using EARS-SAS. Currently, data analysis/interpretation is accomplished by epidemiologists within the Epidemiologic Response/Enhanced Surveillance Section (ER/ES) of DADE during this initial development. As additional hospitals enroll in the SCAAN system and input from ER/ES and others within DADE contribute towards a response protocol manual related to how to conduct follow-up investigations on aberrations, analysis will migrate to regional epidemiologic response staff. Hospitals will also be receiving their data coded into syndromes as well as results from a hospital based analysis (see Figure 1). Infection control staff will provide feedback to improve the quality of the output. Issues associated with sending data through PHINMS to hospitals will be addressed by DHEC programmers.

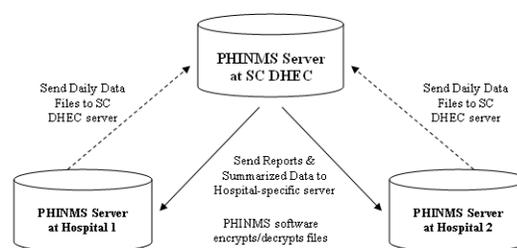


Figure 1 – PHINMS transfer diagram

## Conclusions

As with any new surveillance system, the SCAAN system has encountered challenges, as well as successes along the way. However, challenges bring opportunities to develop novel methodologies, such as resolving issues with delivering hospital-specific syndromic data back to the hospital through the PHINMS. The ED chief-complaint data system has shown to be successful in developing syndrome categories within a limited time frame (ex: MRSA) which adds to the flexibility and timeliness of the surveillance system. The system will be a valuable tool for increasing the state and local hospital's situational awareness.

## References

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