

**National Public Health Leadership Development Network
Balderson Leadership Project Award
RUNNER-UP**

Northeast Regional Public Health Leadership Institute

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**Establishment and Assessment of a Hospital Emergency Room
Syndromic Surveillance System in Ocean County, New Jersey**

The purpose of this project was to initiate a surveillance system by which chief complaint data is automatically transmitted daily from a hospital emergency department (ED) to the Ocean County New Jersey Health Department for analysis for early detection of disease-causing events in the community. This surveillance system is to use chief complaint data that is already being collected electronically, thus preventing extra workload for hospital staff and human error in transcription, and minimizing on-going follow-up time at the local and state levels.

Ocean County has 510,360 residents. Since it holds a large commuter population, sizeable summer population as well as military bases, commuting arteries and several entertainment facilities, it is a potential target for bioterrorism or newly emerging infection diseases,. If a bioterroristic or other disease-causing event were to occur in the community, the current passive surveillance system commonly used by local and state health departments would not detect the event for several days, if at all. Additionally the enhanced passive surveillance system used by the New Jersey Department of Health and Senior Services for "Influenza-Like Illness" and ED activity is labor intensive and relies on the efforts of hospital staff to collect and transmit data, as well as efforts of local and state health department staff for review and analysis.

Syndromic or "chief complaint" surveillance would detect an increase in a particular set of symptoms presented to acute care hospitals much earlier. Once initiated in the four hospitals in the county, transfer of data would be done daily. Increases in rates of chief complaints that might not be evident at individual hospitals may be identified when data is analyzed in aggregate and, if appropriate, would trigger an epidemiological investigation. This project will enable the chief complaints of gastrointestinal illness, respiratory illness, fever, asthma and rash to be collected by an electronic system linked to emergency room data, and transmitted to the Ocean County Health Department. A system for the early detection of these events is important in facilitating a timely public health response.

Methods: Meetings were held with Southern Ocean County Hospital personnel to determine if this data transfer was possible and what agreements/contracts were required to assure that the parties were in compliance with applicable confidentiality

laws. Contacts were made with other agencies that use this system for advice and technical assistance. Hospital and county health department computer support staff worked together to establish the software programs necessary to accomplish the data transfer. The Ocean County Health Department's epidemiologist will monitor the data and investigate any significant increases in chief complaint rates. Graphs will be made and compared to actual emergency department data to evaluate the accuracy of system. Data will also be compared to the "Influenza-like illness" surveillance that will be done weekly to determine if the two systems report similar findings regarding respiratory symptoms.

We conducted a pilot project. ED patient data was received daily as text files, beginning in October, 2003, for two of the hospitals. Chief complaint data was converted to syndromes by using the NYC DOH syndromic categories SAS codes. They included respiratory, rash, fever, cold, diarrhea, asthma, vomit and sepsis. ED admittance data was also analyzed. The data closely followed the pattern of the influenza season as reported to the Centers for Disease Control (CDC) by sentinel physicians nationally, demonstrating our system's accuracy. Our system also identified an abnormal spike in emergency department admissions at one hospital in November, and allowed us to do further analysis to determine if the increase was related to any specific area, gender, age group, etc. , (which it was not).

Project Outcomes/Status: The project was successful in challenging the current process of manual Influenza-Like Illness and emergency department surveillance and was able to establish an electronic system for collecting daily data from 3 of 4 Ocean County hospitals that requires no manual work on the part of the emergency department staff. The fourth hospital is interested in participating and we are in the process of working out some logistics.

Our investigation of the feasibility of getting the data electronically led us to discover that a large hospital system that has 2 of the 4 hospitals in the county contracts with a company to collect emergency department data, analyze it, and distribute it to stakeholders in their system. This company was willing to add us to their list of sites that automatically get this information in an FTP file daily. This allows us to receive the chief complaint data that we use (with no identifiers) from those 2 hospitals automatically and electronically on a daily basis.

The project also has resulted in a strengthened relationship among the infection control practitioners, the emergency department staff, and the health department, a goal that is very important in the current climate of emergency preparedness and emerging infectious diseases. I see our team as "modeling the way" for more communication and cooperation across the political boundaries of the different hospital systems, and between the hospitals and the public health department.