A Day at the Races: Community Wide Syndromic Surveillance During the 2002 Kentucky Derby Festival

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INTRODUCTION

Syndromic surveillance has been proposed as an important method for the early detection of a biological weapons agent release. In Louisville, Kentucky a project was developed to attempt community-wide surveillance including all area acute care hospitals, the local health department, and the local Emergency Management Agency.

In February 2002, the Medical Subcommittee of the Louisville Crisis Management Group began to discuss how this information could be captured for analysis. In March 2002, the staff of the Infection Control Department at the University of Louisville Hospital in collaboration with the Jefferson County Health Department, proposed a simple and inexpensive system designed to collect basic demographic and syndromic data using a personal digital assistant (PDA).

The plan included collection of data from April 17 through May 14, 2002 with the option of ongoing data collection. Data were collected in 12 Louisville and southern Indiana acute care hospitals and were forwarded to the Jefferson County Health Department for aggregation and analysis. Participation by all area hospitals was voluntary. Two collection methods were employed; hospitals self-selected which method they used. One method involved use of personal digital assistants (PDA Group) that were placed in 6 Emergency Departments (ED) using software developed by the University of Louisville Hospital Infection Control Department. Hospital personnel were thoroughly trained in use of the PDA and the software before onset of the project. The other method involved using pre-existing Computerized Record systems (CR Group) in the remaining 6 hospitals.

The project was entitled BT Survey 2002.

OBJECTIVES

The primary objective of the project was to collect baseline data on patients seen in the Louisville metropolitan area Emergency Departments for the four weeks surrounding the Kentucky Derby, to evaluate the feasibility and utility of community-wide surveillance during a large, annual, multi-day outdoor festival.

Two different methods of data collection were utilized to determine the following:

- Can data be compared between groups?
- Is the PDA a viable method for data collection?
- Using the data, can trends be determined?
- Will the Health Department be accepted by the hospitals as the sole "keeper of the data"?

MATERIALS AND METHODS

Materials

The PDA group was provided with the following materials:

- Visor NEO with 8MB memory
- BT Survey 2002© software developed by Goss and Carrico (Figure 1)
- Printing software and a document reader for use withBioterrorism agent fact sheets

The CR Group was not provided any materials since records were s ent in the format normally collected by the participating hospital

Methods

12 of the 13 area acute care hospitals elected to participate. 6 elected to submit data via their internal computer systems and 6 chose to submit d ata collected using a PDA. The software was designed by the Infection Control Department staff at the University of Louisville Hospital.

The following data were collected for analysis and comparison between hospitals and method of data collection:

- Patient age
- Patient gender
- Patient zip code
- Reason for seeking care with categorization into 7 pre-defined syndromic categories

Data were separated by hospital with all entries automatically time and date stamped by the software. In addition,midnight census data was submitted electronically, by fax, or by voice mail.

PROCEDURE

PDA Group

For hospitals using the PDA for data collection, the procedure w as as follows:

- Patient assessed at presentation to the triage area
- Information entered into the PDA by triage personnel
- Synchronization to the Personal Computer (PC) via a HotSync cradle resulting in data being downloaded into an Access (Microsoft) database
- File exported to the designated contact at the Jefferson County Health Department (JCHD) via secure e-mail system
- Midnight census was submitted to the same contact at JCHD by the Admissions Department staff or other designee.

Computerized Record Group

For hospitals electing to utilize their current computerized records, the procedure was as follows:

- The facility Information Systems (IS) department developed a pro cess to aggregate and send the data directly to the JCHD via secure e-mail transmission
- 3 of the 6 hospitals in the CRG were unable to group their emerg ency department patients into one of the identifiedsyndromic categories but data based on chief complaint was still forwarded to the JCHD for review. (Note Figure 2).
- Midnight census was submitted to the JCHD by the Admissions Department staff or other designee.

Figure 1 BT Survey 2002© PDA Software Screen View

RESULTS

- Data were received from all 12 hospitals during the course of the study. Mean number of hospitals providing data on any given day was 6.6 with a range of 3-9 (Figure 2)
- The most complete data were submitted by hospitals using computerized records where category assignment was required by the triage personnel
- Data submitted via computerized records where category assignment was not performed were pertinent but not useable to facilitate any real time analysis. 3 of the 6 hospitals in the CR Group provided this type of data and were, therefore,not included in the analysis
- Although data were provided by all 6 hospitals in the PDA Group, PDA data quality and quantity varied according to hospital and shift
- The category labeled "Other" was the most frequently assigned reason for accessing care at Emergency Departments (Figure 3)
- Bed census data were of limited use because participating hospitals were at or near full capacity during the surveillance period
- No obvious "spikes" in ED utilization for a particular syndrome were identified during the study period (Figure 3)

Figure 2: Number of Hospitals Participating on Any Date
Max N = 9 (3 Hospitals from CR Group Excluded)

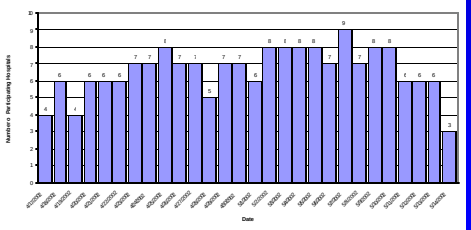
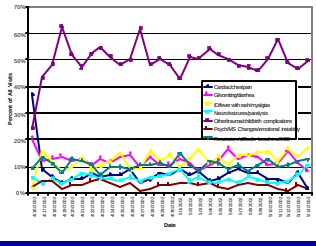


Figure 3 All EDs – Symptoms as a Percent of All Visits



CONCLUSIONS

- Among patients visiting area ED during the study period, no identifiable increase in any of the 7 syndrome categories was identified.
- Data can be compared within each group (PDA and CR) as well as between each group
- The PDA was accepted by the hospitals as a viable tool for data collection but this acceptance varied between hospitals.
- Computerized record data were useful when syndromic category assignment was made by the sending facility and were generally more complete than PDA group data.
- Each hospital had their own unique computer system that, as a general rule, did not communicate or interface with the systems at any other hospital.
- Data entry and transmission were performed by different types of personnel at different hospitals.
- Basic computer technologies differed between hospitals.
- Hospitals can work together on community based projects and will accept the Health Department as the data repository.

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