Automated Identification, Tracking and Reporting of Central Line-Associated Blood Stream Infection to comply with Required New York State Reporting

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Introduction: In 2005, New York State enacted a Public Health law mandating routine surveillance and reporting of selected Hospital Acquired Infections (HAIs), including intensive care unit (ICU) based Central-Line-Associated Blood Stream Infections (CLABSI). It is expected that additional types of infections will be added, therefore, an automated method for identifying and tracking HAIs is essential to stay compliant with regulatory requirements while maintaining existing staffing levels and budget.

The New York Presbyterian Hospital has developed a web-based, epidemiology decision support system called “EpiPortal”. Data from the ADT, laboratory, pharmacy, and microbiology systems are brought in from a data warehouse. EpiPortal is a framework for electronic, data-driven functionalities that contain a number of secure, web-linked modules geared towards enhancing healthcare provider workflow and decreasing the need for accessing multiple systems. Its design is flexible and customizable to the evolving needs of internal and external reporting requirements. A new CLABSI module was developed and implemented in June 2006 in anticipation of the required State reporting. This poster describes the workflow and impact associated with the application.

Methods: The workflow of the infection control practitioners (ICPs) in identifying and evaluating CLABSI was reviewed and replicated. The CLABSI module generates and displays patient lists (Figure 1) and provides structured fields for documenting notes and decisions (Figure 2). Using CDC guidelines for CLABSI identification, positive microbiology results are linked to patient locations for the identification of infection cases. Lists are generated using various parameters such as users, location, and culture dates, with visual markers distinguishing between pending and completed cases. Additional screens were developed to capture the CLABSI “evidence” and to display patient specific histories. Patient/Unit specific data are shared with ICU directors using patient level reports. Summarized reports with drill through capability are provided to the Chief Quality and Chief Operating Officers and Vice Presidents of Operations through the Business Intelligence System.

Results: Eleven ICPs cover 16 ICUs containing a total of 445 beds. Since the implementation of the module, a total of 57,084 positive cultures were reported by the microbiology laboratory for 105,854 discharges. The module reduced the volume of cultures requiring review for potential CLABSI cases by 70%. In addition, the time spent by ICPs processing CLABSI cases was decreased by 35%. The automated reporting feature saved 290 hours of data analysis and report generation over 9 months.

Conclusion: The CLABSI module was designed and implemented to automatically identify cases for review and generate various reports. The next step is to electronically capture central line usage and other relevant clinical data to further automate the process. (A live demo will be available at the poster session)


Figure 1: Screen showing patient list with potential CLABSI cases

Figure 2: Screen where notes and decisions are documented