The Emergency Department Whiteboard – An Information Hub for Tracking Patient Care and Enhancing Operational Workflow

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The Emergency Department (ED) whiteboard provides a critical operational and patient-level view and is the main point of entry for the staff’s information needs. For clinicians it interfaces with and provides seamless access to ED and institutional information systems. Patient-level and operational alerts provide high-level notification within and outside the ED. Substantial cost savings have been realized and the whiteboard has facilitated various research projects including the real-time prediction of ED diversion. As an information hub the whiteboard has become a mission-critical instrument for patient care and for managing workflow.

Problem statement: Over the last decade, emergency departments (EDs) have faced multiple challenges such as overcrowding, a sicker and older population seeking care in the ED, nurse shortages, a focus on error detection and prevention, and frequent hospital diversions. Solutions to these obstacles include the optimization of workflows while maintaining high quality patient care. Information technology is believed to be a way to increase efficiency and patient safety both within the ED and between the ED and other departments.

System description: Our academic, adult and pediatric EDs care for >95,000 patients annually. The browser-based ED information system includes a computerized whiteboard, an electronic triage application, order tracker application, and interfaces with the ADT system, computerized provider order entry, longitudinal electronic medical record, radiology system, and the hospital bedboard management application. The whiteboard has become one of the most essential and mission-critical instruments in ED patient management from both a clinical and an operational perspective.

The electronic whiteboard is a browser-based application, which has different operational modes. An unauthenticated mode allows various operational tasks without signon and acts as a screensaver. The authenticated mode provides access to patient information. A limited view is displayed in patient rooms and is available on PDAs. In the authenticated mode, the whiteboard displays a panel of patients which is completely embedded in the institution’s computerized patient record and provides quick access to patient-level information.

The intuitive whiteboard provides high-level operational and patient-level views, which include alerts and detailed tracking information for orders, radiology and laboratory exams, hospital bed request status, registration status, consultations, patient safety alerts, etc. Operational variables include diversion status for each hospital unit, waiting room count and wait times, occupancy and average length of stay, number of boarding patients and boarding times.

Status report: The system has been operational since 2003 and supported 24x7 ED care for >300,000 patients. Direct savings netted >$1M for capturing real-time facility level charges. Historical views support the regular review of appropriateness for ED diversion and the enterprise data warehouse facilitate the analysis of patient workflow improvement initiatives and staff productivity. The whiteboard has also supported the implementation of the CMS pneumonia quality measures. Whiteboard information assisted in averting legal and government agency inquiries, and in addressing patient complaints. Research activities include the validation of crowding measures, the real-time prediction of diversion episodes, simulation studies, and a workload study associated with ED staff stress.