

Enhancement of Critical Care Response Teams Through the Use of Electronic Nursing-Mediated Vital Signs Surveillance

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Critical Care Response Teams (CCRTs), a component of a Rapid Response System (RRS), bring critical care management and resources to in-hospital patients, educate staff, and create a culture of patient safety with emphasis on early intervention for patients. RRS tracks patient vital signs and triggers an alert to CCRTs if a patient demonstrates deterioration in their clinical status. In our study, we are developing an electronic vital sign capturing and automated alert system to enhance the CCRT program by supporting more timely recognition of deteriorating patients.

A user-centered design approach is being implemented in the development of this system in hopes of lowering the entry barrier and increasing the end-user adoption of the technology. Through Human Factors Engineering principles, we analyzed nursing culture and workflows at three major Toronto hospitals. Data collected in the ethnographic study provides a rich source of information for understanding the nurses' requirements at the point-of-care. Results of the workflow analysis have directed us to two potential mobile solutions that are currently under development. The first option utilizes the Apple iPhone, which provides a user-friendly interface and allows manual vital signs entry by a clinician. The second is a handheld computer that includes an integrated barcode scanner for patient identification and Bluetooth connectivity that would allow for automatic capture of vital signs from a physiological monitor. The iterative design and development of these two modalities in parallel will provide a broader understanding of the features best suited to a ward environment.