

ABSTRACT:

STREAM: **ENGAGING THE HEALTH CARE CONSUMER**

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Point-of-Care Vital Sign Capture and Surveillance For the Enhancement of Critical Care Response Teams (CCRTs)

Failure to recognize changes in a patient's clinical condition is a barrier to the effectiveness of CCRT outreach programs. The development of a vital signs capture and decision system could alert care providers and CCRTs when a patient's status deteriorates. However, vital sign capture and documentation at the point-of-care is often delayed in practice.

Ethnographic research with twenty-four Registered Nurses (RNs) at three tertiary care hospitals was conducted to understand the difficulties of replacing pen and paper charts and barriers to electronic documentation systems. Analysis of clinical workflows directed the design of two mobile solutions;

- 1) an Apple iPhone application, designed through a user-centered process to optimize the user interface facilitated manual vital signs entry, and
- 2) 2) a Motorola MC55 platform, included a barcode scanner and Bluetooth, to automatically capture vital signs from physiological monitors.

Twelve RNs participated in high-fidelity usability testing to evaluate the solutions compared to traditional paper charting. The overall mean performance time in mm:ss (\pm SD) for collecting and documenting a set of vitals was 03:42 \pm 00:51, 04:15 \pm 02:33, and 03:47 \pm 00:54 (n=12) for the paper charting, MC55, and iPhone method, respectively. As a result of the user-centered design process, both electronic solutions were comparable to the efficiency of traditional pen and paper method and were found acceptable to clinical end-users. We anticipate that these electronic data collection systems could be successfully incorporated into current nursing workflow and improve patient outcome through more timely notification of the CCRTs.

BIO:

Melanie Yeung, BAsC., MHSc. Melanie recently completed a Masters of Health Science in Clinical Engineering from the Institute of Biomaterials and Biomedical Engineering at the University of Toronto. She holds a Bachelors of Applied Science degree from the University of Toronto through the Division of Engineering Science specializing in the Biomedical Engineering.

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