Poster

Technology and Dynamic Pathways: How to Improve Nursing Care, Documentation, and Efficiency

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Abstract

Background: Approximately 60% of adverse events in skilled nursing facilities are likely preventable. This provides an opportunity to improve care and decrease costs for ill, and especially aged, patients. The primary line of defense against adverse events in these facilities are the nurses caring for these patients each day. Nurses are responsible for recognizing early warning signs of illness and preventing falls and other complications. The care of patients with multiple comorbidities requires nurses to attend to an often overwhelming set of interacting details.

Objective: Our goal is to operationalize standards of care that can be implemented by nursing staff at skilled nursing and long-term care facilities in a manner complementing their natural workflow and facilitating patient interaction and shift documentation. To improve point of care patient management, nurses require a mobile solution that can guide their patient care unobtrusively.

Methods: Nurses at a Boston-area 100-bed skilled nursing/long-term care facility used our solution consisting of an app on a mobile device together with a Web-based administration and reporting system. Our custom software running on an iPod Touch device implements an adaptive methodology for succinctly guiding nurses through a systematic review of systems, a physical exam, a fall risk protocol, and other assessments suitable to their roles in the nursing facility. Dynamically created checklists that prescribe appropriate and immediate nursing interventions are automatically presented to the nurses following each assessment based on the data collected. The software utilizes behavioral “nudges” to nurse-users to minimize errors and improve speed of data entry. Additionally, a custom content creation system allows for high-level abstraction of protocol logic, enabling real-time improvement and customization of complex protocol algorithms without the need for error-prone software programming. These methods facilitate automated reporting that aids the structured thought processes of providers and caregivers.

Results: Pilot results were acquired using qualitative surveys and free-form interviews. Nurses reported a high facility after only an initial 15-minute training session. All nurses confirmed that having access to an efficient and mobile care facilitation device improved the likelihood of identifying patient complications. They also felt that a mobile documentation system lowered error rates by encouraging real-time documentation. Furthermore, systematic data gathering provided an improved level of documentation both in terms of comprehensiveness and clarity. Nurses claimed the system increased efficiency and lowered the overall time required for combined patient assessment and documentation. Most importantly, staff satisfaction was highly positive, encouraging continued usage of the intervention.

Conclusions: Technological interventions at skilled nursing facilities, when implemented to address the point-of-care needs of nursing personnel, can positively impact quality improvement goals, empower nursing staff, and improve patient care. The suite of tools developed here enables the operationalization of standards of care with sufficient comprehensiveness to address a sufficient portion of the complexity faced in daily nursing duties. We conclude that access to real-time protocols has a highly beneficial effect on nursing care.

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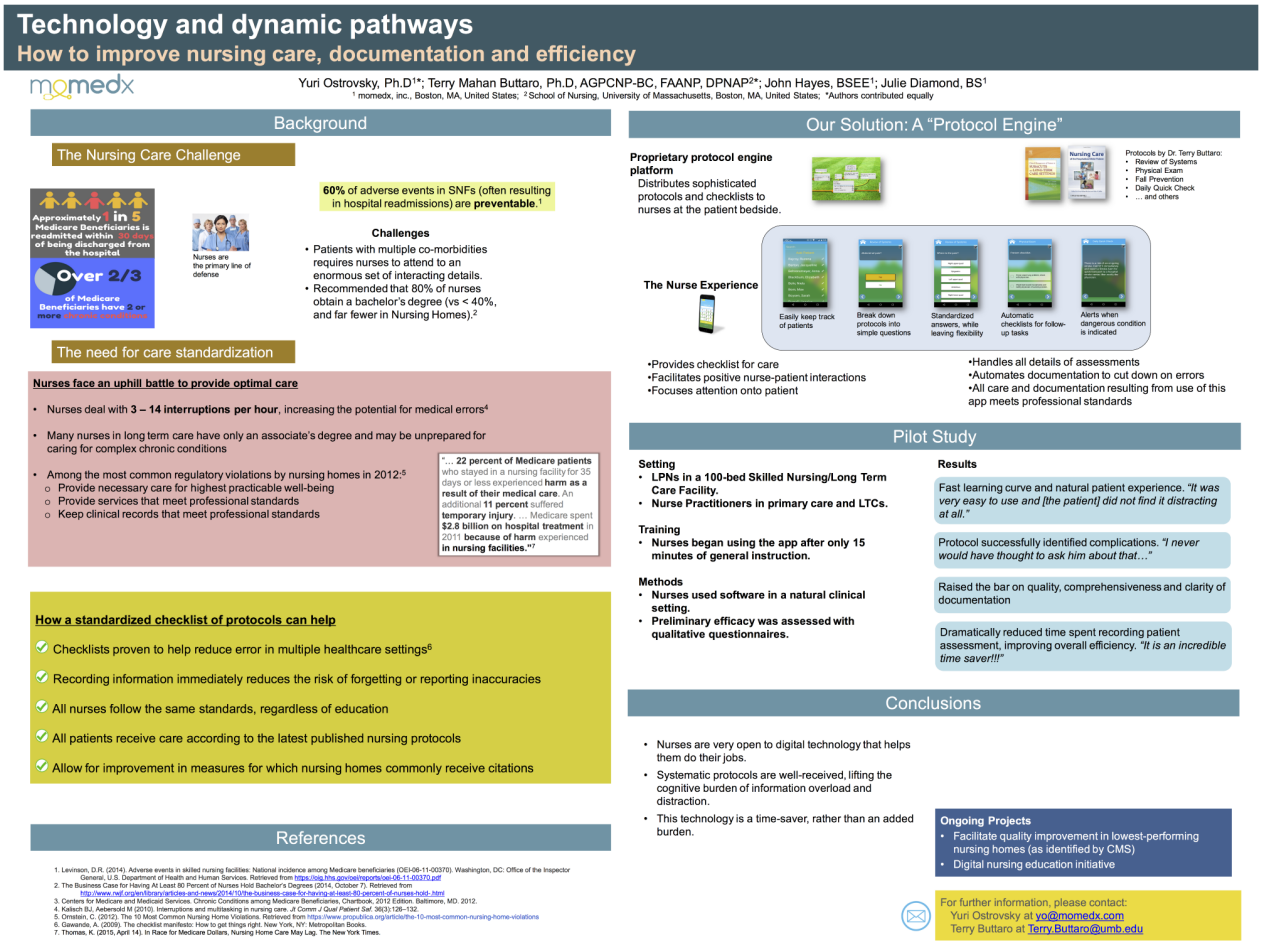
KEYWORDS

medical informatics; mHealth; nursing; standard of care

This poster was presented at the Connected Health Symposium 2016, October 20-21, Boston, MA, United States. The poster is displayed as an image in Figure 1 and as a PDF in Multimedia Appendix 1.

Figure 1. Poster.



Multimedia Appendix 1

Poster.

[PDF File (Adobe PDF File), 3MB-Multimedia Appendix 1]

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