Improving Workflow and Timeliness of Documentation in the Acute Care Setting through the Use of Mobile Clinical Assistants with Device Integration

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Abstract
The University of California San Francisco Medical Center (UCSF) committed substantial financial and human resources to implement electronic nursing documentation across adult and pediatric acute care units. This project spanned a total of nine months in 2005-2006 and involved 16 acute care units, more than 400 beds, 1,100 nurses and 15,000+ hours of training and support. Additionally, more than 300 new fixed workstations and hundreds of “computers on wheels” were deployed throughout the facility. Despite these investments, the accuracy, completeness and timeliness of documentation remained essentially unchanged compared to the previous pen and paper system. Integration of the technology into nursing workflow was especially problematic with increased nursing time spent on documentation. This presentation will describe the collaboration between UCSF and Motion Computing, along with Intel and GE Healthcare to improve the efficiency and availability of documentation by deploying the Motion C5, an easy to use mobile clinical assistant (MCA) including device integration with the GE Dinamap for wireless vital signs acquisition in the acute care setting. We will describe how users’ needs were considered in designing the device and how its deployment has positively impacted time from data acquisition to data availability, patient safety and RN work satisfaction.

Description and Outline
This presentation will describe the successful partnership between industry (Intel and Motion Computing) and an academic medical center (UCSF) in the development and deployment of the Motion C5 mobile clinical assistant (MCA), including device integration with the GE Dinamap for vital signs capture and immediate wireless upload to the electronic medical record. Design of the Motion C5 was informed by findings from field studies conducted by ethnographers from Intel’s Digital Health Group who observed acute care clinicians, using earlier (pre-C5) prototypes of the MCA in hospitals in the United States, Europe and Asia. Motion Computing partnered with UCSF in an evaluation project to study nursing workflow before and after deployment on a post-surgical unit after numerous attempts at streamlining electronic documentation had failed to yield acceptable results using fixed devices and “computers on wheels.” The Motion C5 MCA runs the full GE Centricity EMR as well as a custom built applet to support vital signs capture and validation. The learnings from this partnership include new information about the infrastructure requirements and challenges related to mobile computing, acceptability of the MCA form-factor for deployment in a hospital setting, the improvements that MCAs, along with device integration, can have on the efficiency and availability of documentation, and the positive impacts on patient safety and RN work satisfaction.

Specific content will include:
1. Overview of the electronic documentation project at UCSF Medical Center with an emphasis on challenges and opportunities for mobile computing and device integration in acute care
2. A description of user centered design and ethnography employed by Intel Digital Health and Motion Computing to create this truly mobile and easy to use MCA
3. Results from the pre- and post-implementation workflow studies with the Motion C5 performed at UCSF Medical Center and implications for the future

Educational Goals
At the end of this presentation, the attendee will:
1. Identify problems inherent in traditional vital signs acquisition and documentation which may persist even with online nursing documentation
2. Describe the benefits of user-centered design in developing health information technology workflow solutions

3. Describe how one academic medical center worked with industry partners to improve the timeliness and efficiency of vital signs acquisition and nursing documentation in the acute care setting

4. Name at least two ways in which patient safety and RN work satisfaction were impacted by implementing a truly mobile computing platform with device integration in the acute care setting

Who should attend

Clinicians, informatics specialists, those interested in quality improvement and mobile computing solutions for healthcare.