Innovative Varied-Fidelity Simulation Mobile Teaching Cart and Education Project

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The use of a varied-fidelity simulation mobile teaching cart is a teaching tool that offers unique advantages in the acute care setting. The cart is used to demonstrate the use of patient monitoring devices, and there are a variety of software tools available with the monitoring technology to ensure that the outputs, including electrocardiographic waves, are analyzed appropriately by nursing staff using this varied-fidelity simulation mobile teaching cart. Bringing varied-fidelity simulation to the nurses' work area is a unique application setting.

Using electrocardiogram (ECG) rhythm strips on paper or on PowerPoint slides (Microsoft, Redmond, WA) is a traditional method for assessing a nurse's ability to interpret ECGs. An opportunity to provide an enhanced innovative simulation using the ECG monitors and affiliated technology available at a community health system in the nurses' work area, not in the classroom or an off-campus simulation laboratory, was pursued. A process of a product development partnership was used with a manufacturer. A best-practices teaching modality review was undertaken to meet the educational needs of registered nurses responsible for patient ECG monitoring. This article will review the product development and acquisition process along with the descriptive rollout of this innovative teaching modality.

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Background and Significance

Cardiology physicians brought their clinical care concerns forward to nursing administration about the nurses' ability to interpret ECGs. Although the cardiology physicians acknowledged that there was a range of nurses' capabilities to interpret ECGs, they were concerned about both over- and under-appreciation of significant ECG abnormalities. Education for nurses responsible for ECG rhythm monitoring included a 3-day basic ECG telemetry class on orientation to the unit, the American Heart Association Basic Life Support program, the American Heart Association Advanced Cardiac Life Support program, annual computer-based learning modules for ECG telemetry rhythm interpretation, annual in-services on cardiology medications, and mock codes. Despite this solid foundation of cardiac dysrhythmia education, there was an added consideration by the interprofessional team to develop increased proficiency in cardiac monitoring by using cognitive, technical, psychomotor, and interactive skills with the equipment through case-based scenarios.

Patient Safety

Since 2000, Institute of Medicine publications have focused on patient safety. In the pivotal report *To Err Is Human: Building a Safer Health System*,[1] the needed emphasis on patient safety was detailed in the authors' reports of numerous fatal medical errors involving hospitalized patients. In the report summary, simulation training was specifically recommended to mitigate harm to patients.[1]

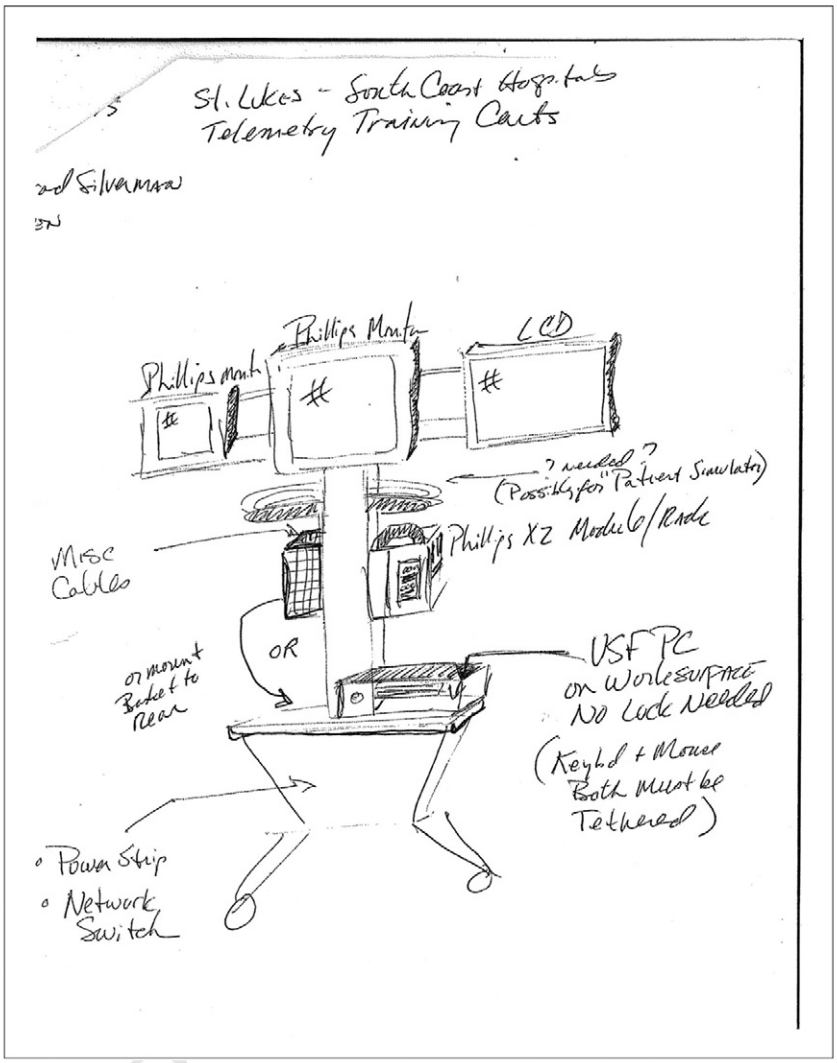

FIGURE 1
Initial sketch of mobile teaching simulation cart. (Source: Gary Brayton, JACO.)

The health system and nursing administration responded to the physicians' concerns and fulfilled its obligation to assess staff competence.[2] In brainstorming to determine better ways to teach nurses about ECG interpretation and the use of the technology available within the hospital system, a vision for a mobile cart that would contain these devices was promoted, developed, and implemented (Figure 1). The on-site unit-based educational action plan was collaboratively developed and subsequently executed.

The use of mobile teaching carts allow for in-the-moment in-services using the equipment that staff nurses currently use to monitor their patients' ECG, therefore making the education timely, accurate, and immediately applicable. Using this teaching strategy allowed the nursing educators to include simulation of a critical event within the framework of a case study, incorporating familiar and potential scenario elements that would require the nurse to identify, interpret, and explore the critical thinking needed to deal with the clinical dilemma described in the case