Evaluating an Electronic Protocol in a Pediatric Intensive Care Unit

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Project Description & Significance
A team of clinicians at Children’s Hospital and Medical Center (CHMC) developed a standard protocol in 2018 for the care of patients needing sedation. This protocol is ordered through the EPIC electronic health record system for patients in the pediatric intensive care unit (PICU). When used, electronic protocols reduce the variation in clinical decision making which can ultimately improve patient outcomes (Bartlett et al. 2016). The goal of this project is to evaluate this technology, how the protocol is being used, and how it may be improved.

PICU Sedation Protocol
The PICU sedation protocol was created for the management of sedation of pediatric patients. The updated protocol was released in August 2018. The goals of the revised protocol was to use less sedation medications, update the limits of medications, and give nurses more autonomy when caring for sedated patients. Patients who have the sedation protocol order must be on both sedative and narcotic medications and be intubated.

Theoretical Foundation
The Unified Theory of Acceptance and Use of Technology (UTAUT) was used in this study (Venkatesh et al. 2003). UTAUT is a validated instrument to measure a user's behavioral intention to use an information technology system. The UTAUT survey asks on performance expectancy, effort expectancy, social influence, facilitating conditions, behavioral intention, and experience based on the construct seen in figure 1.

Research Questions
1. How can technology enhance use of the sedation protocol?
2. How does technology prevent use of the sedation protocol?
3. What are other facilitators to using the sedation protocol?
4. What are other barriers to using the sedation protocol?

Research Design
The research consists of two phases:
Phase I:
• Observations and interviews with subject matter experts and super users.
• Helpful for designing phase II of the study.
Phase II:
• UTAUT survey sent out to the PICU staff.
• Interviews with nurses and providers.
Figure 2 displays the study flow.

Pre-Patient Care

Phase I
Researcher observations & interviews
Subject matter experts & super users

Phase II
Researcher conducts UTAUT survey
All PICU providers & nurses

Patient Care

Phase I
Researcher observations & interviews
Subject matter experts & super users

Phase II
Providers & nurses complete patient care
All nurses & patients with qualified patients

Post-Patient Care

Phase I
Researcher interviews providers
All providers who completed care of qualified patients

Phase II
Researcher interviews nurses
All nurses who completed care of qualified patients

Preliminary Findings
Demographics
Actual users of the sedation protocol were the subjects including:
• PICU Physicians
• Physician Assistants and Nurse Practitioners (APPs)
• Residents
• Nurses
32 subjects completed at least 50% percent of the survey. Subjects’ roles can be seen in the figure 3. Subjects’ experience with EPIC can be seen in figure 4.

Themes
Interface Interaction Improvement:
• Reassess SBS reminder
• Weaning medication reminder
Data Presentation:
• Reorganize Worklist display
Data Access:
• Link to the sedation protocol
EPIC Documentation Procedures:
• Training
Decision Support Tools:
• Built-in calculator
• Sedation application

References

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