Optimizing Usability of Electronic Medical Record To Meet and Measure Quality Initiatives

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Clinical Issue/Current Practice

- An opportunity to improve usability in the Electronic Medical Record (EMR) through embedded risk assessments, orders, reminders, and better design for chart review.
- Focus of project venous thromboemoblism (VTE) and heart failure (HF) quality measures

Literature Review

- Hebda & Czar define usability as "specific issues of human performance in achieving specific goals during computer interactions within a particular context" (2013, p. 173).
- The Healthy People 2020 Objective Health Communication and Health Information Technology objective states, "Use health communication strategies and health information technology (IT) to improve population health outcomes and health care quality, and to achieve health equity" (U.S. Department of Health and Human Services, 2013).
- Clinicians must implement best practice solutions for safe and effective EMR utilization (Middleton et al., 2013).

Evidence-Based Practice Question

- Will the interventions implemented improve perceived usability of the Electronic Medical Record (EMR) related to meeting and measuring venous thromboembolism (VTE) and heart failure (HF) Core Measures?

Interventions

- Developing and activating EMR pop-up reminders for nurses and nursing assistants to document VTE interventions.
- Developing a comprehensive view screen that makes all VTE compliance data visible in one place to allow more efficient review by quality nurses

Outcomes Measured

- Nurses complete System Usability Scale (SUS) to measure perception of usability in the EMR related to quality measures before and after configuration changes in EMR (pre- and post-test). A Z-test will be used to compare mean pre- and post-intervention SUS scores.
- Time tests to compare time to review specific quality measure information in EMR pre and post EMR configuration changes.

System Usability Scale

- 10 questions with Likert scale responses.
- SUS yields a single number representing a composite measure of the overall usability of the system being studied.
- Questions alternate between positively-worded and negatively worded syntax, with scoring assigned based on positive or negative response.
- Any score greater than 50 considered positive.
- As the score increases from 50, the responses is considered positive in ordinal increments.
- Lewis & Sauro (2009) found correlations to be .985 for Usability and . 784 for Learnability (both $p < .001$). They found for 324 cases, coefficient alpha for reliability of SUS was .92 and coefficient alpha for Usability .91 and Learnability .70.

Results and Conclusions

Results expected to clarify impact of interventions aimed at increasing perception of usability. Potential implications include:

- Maintain compliance with specified quality measures
- Improve efficiency of meeting quality measures through documentation of interventions in EMR
- Improve efficiency of measuring quality measures in real-time
- Results may lay foundation for future study – reasons for perceptions, opportunities to improve perception of usability, direct impact on patient outcomes

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