Nurse Led-Redesign of an Electronic Incident Reporting System

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Introduction

- Medical errors and harm are global phenomena and a top ten leading cause of death, accounting for over 251,000 annual U.S. deaths (Makary & Daniel, 2016; World Health Organization [WHO], 2019).
- Harm causes 6% of hospital bed days and more than seven million admissions worldwide annually (WHO, 2020).
- The Salzburg Global Seminar (2019) statement emphasizes analyzing real-time incident data to identify and prevent harm.
- Nurses report information related to harm and near-miss events, through incident reporting systems (Kim & Kim, 2019; WHO, 2020, 2021).
- Nurses fail to submit 34-70% of patient harm and near-miss events due to system complexity and lack of usability (Chen et al., 2018; Dirik et al., 2019; Mansouri et al., 2019).
- Project site nurses event report submission barriers of time and complexity (D. Evans, personal communication, June 24, 2022).
- Underreporting incidents compromises learning opportunities, risk mitigation, and efforts to improve systems and practices (National Steering Committee for Patient Safety, 2020; WHO, 2020).

PICO

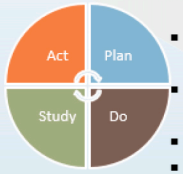
- P: Rural acute care registered nurses
- I: Nurse-led redesign and Common Formats integration
- C: Existing and redesigned incident reporting system
- O: System Usability Scale (SUS) scores and event report rates

Aim of Project

The quality improvement (QI) project aimed to integrate nursing input to enhance the usability of an organization's electronic incident reporting system.

Intervention & Methods

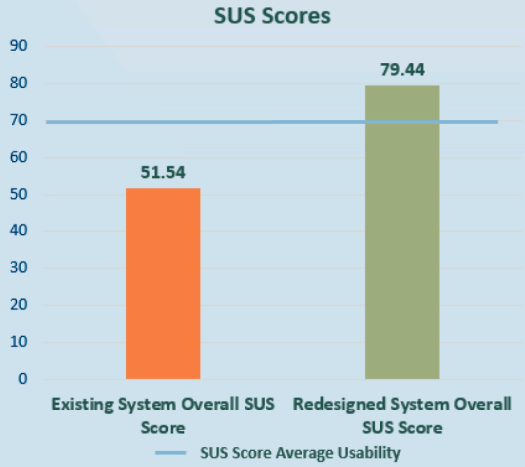
- A quantitative QI approach using the Plan-Do-Study-Act model supported iterative changes to the incident reporting template and integration of Common Formats (The W. Edwards Deming Institute, 2023).
  - Common Formats, a standardized set of incident reporting question, allows data aggregation and analysis through Patient Safety Organizations, federally protected platforms for participating healthcare organizations' event data, and nationally through the Network of Patient Safety Databases (Agency for Healthcare Research and Quality, 2020a, 2020b, 2022; Patient Safety and Quality Improvement Act, 2005; PSO Privacy Protection Center, n.d.).
- Sampling strategy: Nurse convenience sampling with voluntary participation

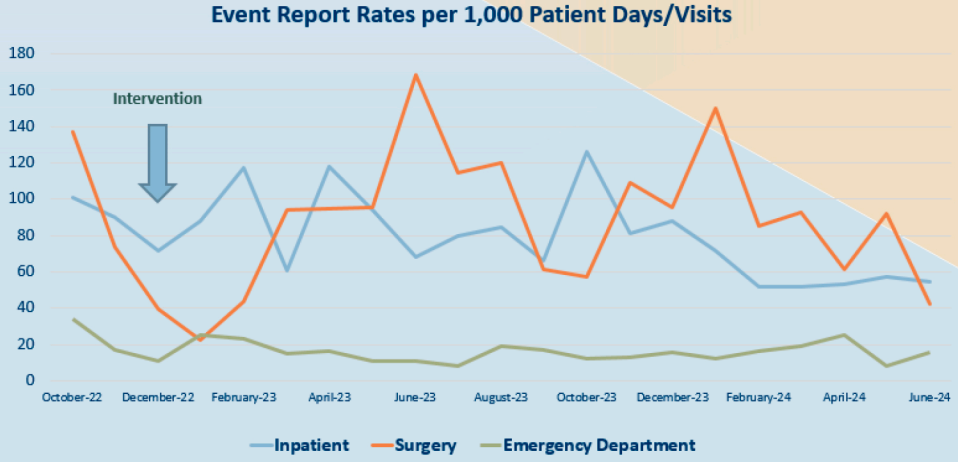


- Plan: Literature review identified nurses experience system complexity and usability issues as reporting barriers (Archer et al., 2019; Asgarian et al., 2021; Dirik et al., 2019; He et al., 2020; Rutledge et al., 2018)
- Do: Nurse collaborative redesign sessions focused on event reporting templates and Common Formats review with feedback summarized and submitted to the incident reporting system vendor for build.
- Study: Nurse testing of template changes identified additional improvement opportunities
- Act: Redesigned incident reporting system implementation
- An educational video and tip sheets were distributed to managers and staff prior to implementing the redesigned incident reporting system.

Results

- 13 nurse participants completed a demographic survey: 85% were female with a mean age of 39.62. 77% held a bachelor's degree, 69% were staff nurses with a mean of 11.77 years of nursing experience and a mean of 5.83 years working at the project site. A mean of 8.08 incident reports were submitted by participants in the prior year.
- Mann-Whitney U test found the overall SUS score was greater for the redesigned incident reporting system (*Mdn* = 78.75) than for the existing incident reporting system (*Mdn* = 51.46, U = 11.00, $p = .003$) exhibiting a statistically significant difference in usability.
- Redesigned incident reporting system's average SUS score was 79.44, indicating above-average usability (Brooke, 2013).
- Comparing rates two months before and two months post-implementation did not reveal an increase in incident report submissions. However, an implementation dip was apparent with post-intervention recovery occurring within three months. There is stabilization in the Emergency Department and ongoing variability in the Inpatient and Surgery departments.





Implications for Practice

- Engaging nurses
  - Supports identifying and reporting patient harm and unsafe conditions that signify performance failures and system breakdowns (WHO, 2020).
  - Increases advocacy and escalation of concerns that support a culture of patient safety.
  - Promotes problem-solving and reducing unsafe conditions.
  - Offers opportunities for usability testing inclusion (Ali et al., 2021; Hamann & Bezboruah, 2020; He et al., 2020).
  - Enhances participation in QI initiatives and change processes to address practice and patient care issues mitigating patient risk and reducing harm (WHO, 2020).

References