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The Beat Stops Here: A Nurse-Driven Protocol to Manage Telemetry Orders

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Abstract

At a large midwestern healthcare organization, cardiac telemetry monitoring orders are not aligned with clinical guidelines developed by the American Heart Association (AHA). A nurse-driven protocol, based on AHA guidelines, to manage cardiac telemetry orders may reduce telemetry usage. Donabedian's quality improvement framework of structure-process-outcomes was utilized as the theoretical framework for this project, with the purpose to reduce telemetry days within 30 days on a selected acute care unit utilizing AHA guidelines. Project objectives included developing an assessment tool based on AHA guidelines, educating pertinent stakeholders on the nurse assessment tool and implementation of the tool on the chosen acute care unit for 30 days.

Pre- and post-implementation data that included the date telemetry was started and stopped was obtained from the organization's Central Monitoring Unit (CMU). Upon commencement of the implementation, submitted assessment tools were reviewed for completion accuracy and paired with post-implementation data provided by the CMU resulting in 14 patients with complete data for analysis. Data analysis indicates a potential 30.5% decrease in telemetry monitored days and a potential savings of over \$2 million annually to the identified healthcare organization.

Introduction

Inappropriate cardiac telemetry monitoring persists within a large midwestern healthcare organization due to lack of alignment with clinical guidelines developed by the AHA and the electronic medical record's (EMR) inability to place stop-gaps on telemetry orders so that orders are reviewed and renewed during a patient's hospitalization. Inappropriate monitoring due to no framework for order management leads to increased costs, alarm fatigue, and reduced quality of care.

Noncardiac indications account for 20.2% of all orders telemetry orders with 65% of telemetry patients remaining monitored until they were discharged from the hospital (Chen, et al., 2017). A nurse-driven protocol to manage cardiac telemetry orders has decreased inappropriate telemetry usage by 9%, reduced monitored days by 0.53 days and led to an overall decrease of telemetry usage and daily cost by 70% (Chen, et al., 2017).

Problem Statement

Will a nurse-driven protocol to discontinue telemetry improve compliance with AHA guidelines for telemetry for acute care patients at the large midwestern healthcare organization

Significance

Up to 99.4% of telemetry alarms may be false (Chen, et al., 2017). Artifact, clinically irrelevant or nuisance alarms and technical issues, such as leads off, are among the highest contributors of alarm fatigue (Ruppel, 2018). Alarm fatigue and alarm response is a concern nationally as The Joint Commission (2018) has developed a National Patient Safety Goal to "make improvements to ensure that alarms on medical equipment are heard and responded to on time." Audible alarms from telemetry and other hospital equipment as well as phone call notifications of telemetry alarms by monitor technicians from the organization's CMU can be overwhelming for nurses.

Nurses have an ethical responsibility to protect and advocate for patients' rights, safety and their health (Haddad & Geiger, 2020). Inappropriate telemetry monitoring may conflict with the Code of Ethic for Nurses by instigating patient physical and emotional harm. Monitoring patients with a noncardiac indication may "reveal clinically unimportant abnormalities that obligate physicians to work them up, just by virtue of having seen them on monitor. The work-up then results in unnecessary cost and anxiety" (Najafi, 2019, para. 3). Further, patient movement may be restricted because the telemetry leads may fall off requiring replacement. Reduced exercise, even if minimal during hospitalization, may lead to muscle atrophy (Najafi, 2019). Patients may experience disruptions with sleep cycles due to lead placement or as a result of reduced physical activity, which may lead to hospital-induced delirium requiring testing, psychiatric consults, additional medications (Harvard Medical School, 2018).

Project Description and Design

Project Purpose

To reduce telemetry census within 30 days on a selected acute care unit within a large midwestern healthcare organization using AHA guidelines (Sandau, et al., 2017) in determining the need to continue telemetry monitoring.

Objectives

To develop a nurse-driven protocol assessment tool based on AHA guidelines to be used by nurses on an acute care unit. To educate the leadership team, including the Chief Nursing office (CNO), of the selected acute care unit and its nursing staff on the implementation of the AHA-based assessment tool. To implement the tool on the chosen acute care unit for 30 days.

Target Population and Sample

The target population were patients on one acute care unit within the large midwestern healthcare organization. The selected unit had a monthly average telemetry census of 127 medical-surgical, oncology or palliative care patients. Participants were registered nurses (RNs) employed by the unit. All patients admitted to the unit with a telemetry order at were to be evaluated using the assessment tool. No other inclusion criteria were required. A convenience sample of 72 patients were included in this project.

Procedure

Training to the RNs on the selected unit was provided during two unit meetings. The RNs were instructed to assess every telemetry patient with the tool by 1600 daily and place the completed tool into a locked box inside the nurse manager's office. RNs were informed during training that participation was voluntary, and completion of the forms was anonymous. The RNs reviewed and signed a consent form.

The CMU manager provided pre-phase data reporting number of patients monitored for 30 days prior to implementation of the assessment tool. The CMU manager also provided post-implementation data collected for 30 days simultaneously with the collection of the assessment tool from the selected acute care unit.

Timeline

The assessment tool, based on AHA guidelines to identify patients appropriate for early telemetry discontinuation, was adapted from a similar tool used by Johns Hopkins Hospital (2014). The tool was completed on September 18, 2019.

The Otterbein University Institutional Review Board (IRB) application, RN education, assessment tool, RN consent form and data collection form were submitted to the Otterbein University IRB on September 19, 2019. Approval from the Otterbein IRB was obtained on September 24, 2019. Approval from the healthcare organization's Office of Research Affairs to proceed as a quality improvement project was obtained on October 7, 2019.

Education of the nursing staff from the selected unit included handouts of the assessment tool, a brief synopsis of the project and was completed during staff meetings conducted in two sessions in October 2019. The project was reviewed with the CNO of the selected unit on October 16, 2019. Mock-up and reference versions of the assessment tool were provided to the RNs on the selected unit based on the recommendation of the CNO.

Collection of pre-implementation data from the CMU patient database was from September 29, 2019 to October 27, 2019. Implementation of the assessment tool on the selected unit was from October 28, 2019 to November 27, 2019.

Budget

Development of the assessment tool and educational handouts creation and duplication and presentation creation were completed within seven hours. Education of the nursing team was completed with two in-person presentations for each team of practitioners, approximately one hour each session for a total of two hours. Education was also provided to the CNO, lasting 30 minutes. Supplies required for the project were paper, ink and office equipment required to develop, present and duplicate educational materials and the paper assessment tool.

Project Outcomes

A total of 14 patients had correctly completed assessment tools that were also paired with CMU-provided data. The 14 patients were monitored for a mean 4.2 monitored days. The completed assessment tools indicated that these patients had a mean of 2.92 potentially monitored days.

The project demonstrated a potential reduction in telemetry monitored days by 1.28 days or a potential 30.5% decrease in telemetry monitoring at this site. Results are higher than indicated in the literature as Chen, et al. (2017) found that nurse-driven protocols for telemetry order management reduced utilization 9% or 0.53 monitored days.

One completed assessment tool was utilized by an RN during a discussion with the patient's physician about appropriateness of telemetry monitoring. The physician reviewed the assessment tool, agreed with the recommendation and discontinued the telemetry order.

Conclusions and Recommendations

The recommendation is to implement the assessment tool on similar units. RN education may need to be more robust for greater understanding of the AHA guidelines and include practice scenarios to assist in understanding of how to accurately complete the assessment tool. The returned tools were completed with wide variability regarding bundle requirements and acute versus chronic arrhythmia monitoring. The selected acute care unit utilizes bundles of orders for admission to the unit. Some of the forms indicated that telemetry was indicated due to admission, which is not an indication based on AHA guidelines. Further, clarification to the nursing staff on AHA guidelines for acute versus chronic arrhythmia monitoring is required. Some returned tools were completed with atrial fibrillation as an indication. While new-onset of atrial fibrillation may require cardiac monitoring, chronic atrial fibrillation is not automatically monitored under AHA guidelines. The assessment tool would be limited to only acute care or intermediate care units that use cardiac telemetry. Patients in a critical care setting are not appropriate for the assessment tool as telemetry is a standard of care in critical care settings (Sandau, et al., 2017).

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Potential Cost Savings		
Organization	Annual savings	\$684,566
Throughput Costs	Reduction in lost opportunity cost (annual)	\$1,488,996
Nurse wage	Annual savings	\$145,649
Total cost savings to the organization (annual)		\$2,344,048



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