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THE EFFECTIVENESS OF NURSE-DRIVEN INTERVENTIONS IN REDUCING HEALTHCARE-ASSOCIATED INFECTIONS

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Abstract

Abstract Problem and Purpose: Despite the commitment of several hospitals to implementing evidence-based strategies for the prevention of nosocomial infections, there are still existing gaps in their implementation. Catheter Associated Urinary Tract illness (CAUTI) is a frequently occurring illness that may be prevented and is acquired by patients during their hospital stay. CAUTIs may lead to adverse health outcomes including patient anguish, discomfort, pain, extended hospitalization, sepsis, and heightened expenses. The objective of this quality improvement initiative was to introduce a Nurse-Driven Protocol for adult patients with indwelling foley catheters. This protocol includes a routine order, guideline, flowchart, and algorithm, and allows for the discontinuation of foleys without requiring an order from a healthcare practitioner. Approach: A nearby medical facility introduced a Nurse-Driven Protocol to handle urine catheters. The protocol granted nurses the authority to cease the use of catheters. All adult patients who were admitted to the Intermediate Care Unit (IMCU) and received indwelling foley catheters throughout the twelve-week implementation period were included in the study. Champion leaders and registered nurses were chosen and provided with in-service instruction about the Nurse-Driven Protocol. Nurses were provided with algorithmic guidelines, posters, and infographics. Champion leaders were engaged via a combination of in-person and virtual meetings, in-services, phone calls, and email reminders. The process measurements consisted of the Device Utilization Ratio (DUR) and staff compliance. The outcome measures consisted of data collected before and after the occurrence of CAUTIs, as well as the number of CAUTIs per 1,000 catheter days. Chart audit instruments were used, and data were gathered every two weeks. CAUTI rates were obtained before and after deployment. A run chart was used to present the data. Outcome: The staff training about the procedure was deemed effective with a success rate of 92%. Following the 12-week implementation period, the DUR (Drug Utilization Review) reduced to 19.2%, compared to the baseline DUR of 31%. Similarly, the incidence of Catheter-Associated Urinary Tract Infections (CAUTI) was successfully decreased to nil,

compared to a baseline rate of 4. The compliance rate of the nursing personnel was 92%. Findings: The implementation period resulted in decreased rates of DUR (device utilization ratio) and CAUTI (catheter-associated urinary tract infection) in the IMCU (intermediate care unit). The Nurse-Driven Protocol proved to be a successful intervention in decreasing rates of Drug Utilization Review (DUR) and Catheter-Associated Urinary Tract Infection (CAUTI). One potential future use for this approach is to put it in the organization's process manual in order to enhance patient outcomes.

Term: Catheter-associated urinary tract infections (CAUTI), nurse-driven protocol, preventing, controlling, Catheter-Related Infections, Enhancement of Quality

1. Introduction

As per the Centers for Disease Control and Prevention (CDC), 12-25% of adult patients who were admitted to the hospital were given foley catheters, and 75% of urinary tract infections were associated with the use of these indwelling foley catheters (CDC, 2019). According to the American Nurses Association, more than 500,000 people get CAUTI, which leads to a 45% decrease in quality of life and lengthier hospital stays (ANA CAUTI Prevention Tool, n.d.). The Centers for Medicare and Medicaid Services has prioritized the reduction of CAUTI (Catheter-Associated Urinary Tract Infection) due to its rising costs and negative impact on patient outcomes (Institute for Healthcare Improvement, n.d.). According to the Agency for Healthcare Research and Quality, the yearly healthcare cost of CAUTI in America exceeded $450 million. This condition also resulted in lengthier hospital stays ranging from 2 to 4 days and higher rates of death and morbidity.

The Maryland Hospital Association reported that in 2015, the average incidence of Catheter-Associated Urinary Tract Infections (CAUTI) at Maryland hospitals varied from 0.6 to 1.3, which exceeded the national target of 0.48 (Maryland Hospital Association, 2020). Based on the internal record audit conducted by the Infection Department, the current rate of Catheter-Associated Urinary Tract Infections (CAUTI) in the Intermediate Care Unit (IMCU) of an acute care hospital is 4 per 1000 patient days. The objective of this quality improvement initiative was to autonomously terminate foley catheters without the need for a provider's order by implementing a Nurse-Driven Protocol, such as a routine order, guideline, flowchart, or algorithm. It is expected that implementing this adjustment in practice would result in a drop in the ratio of catheter usage and eventually lead to a reduction in rates of catheter-associated urinary tract infections (CAUTI).

2. Quality improvement initiative

This quality improvement initiative offers assistance in implementing Nurse-Driven Protocols to reduce device usage and effectively lower CAUTI rates. Prior to the establishment of the Nurse-Driven Protocol, we observed that catheter usage was a frequently used intervention in the IMCU. Most of these foley catheters were inserted without any medical justification

(Adams et al., 2012). CDC reports that 25% of adult hospital inpatients are administered indwelling foley catheters, and 75% of urinary tract infections (UTIs) are associated with catheter use (CDC, 2021). The protocol enhanced the nurses' understanding of the risk factors and preventative measures for CAUTI, as shown by the decrease in both the duration of urinary catheter use (DUR) and the incidence of CAUTI on the unit. The introduction of the strategy improved communication among nursing staff, bolstered nurses' confidence, and fostered a greater sense of collaboration in evaluating and removing unneeded catheters.

A decrease of almost 50% in the number of catheter days was obtained, which aligns with earlier studies conducted by Parry et al. (2013) and Bernard et al. (2012). This reduction is considered clinically significant. Discontinuing early led to a decrease in catheter use by a maximum of 22% and a complete elimination of CAUTI rates. These results align with earlier studies that have shown clinical importance (Bernard et al., 2012; Mori, 2014, and Parry et al, 2013). This initiative lacks generalizability since it is designed to specifically aid this particular location in enhancing quality by implementing standardized practices based on the most up-to-date research, with the aim of decreasing the occurrence of urinary tract infections. The use of this Nurse-Driven Protocol is not intended for broad application in other healthcare environments, since it is specifically tailored to address the unique requirements of this IMCU and may not be suitable for other settings. The disadvantage lies in the usage of a manual chart audit to gather data, which is both time-consuming and inefficient. This method may lead to inaccuracies in documentation, thereby compromising the dependability of the findings. The change in momentum of the unit staff to address the COVID-19 pandemic may have impacted the dynamics of the environment in which this Quality Improvement (QI) project was carried out.

Unforeseen circumstances arose at the start of the project implementation, including the conversion of the unit into a COVID-19 facility. This posed a challenge in accessing the unit during the first weeks of implementation. Additionally, the pandemic has altered the unit's personnel and led to an increase in staff turnover. Furthermore, one of the primary stakeholders temporarily departed from the unit for a few months owing to personal circumstances. In order to address these difficulties, the majority of data was gathered via virtual methods, while training and education were mostly conducted using virtual platforms such as PowerPoint presentations, emails, and training videos. By closely cooperating with accomplished leaders and clinical site representatives, some of the difficulties were alleviated.

3. Conclusion

This quality improvement initiative included the introduction of the organized Nurse-Driven Protocol for managing urinary catheters, and it was shown to be successful in decreasing the rates of device utilization ratio (DUR) and catheter-associated urinary tract infections (CAUTI). Furthermore, it is suggested that the application of the protocol led to improved communication among the nursing staff and other multidisciplinary teams. Champion leaders and nurses played

crucial roles in the effective implementation of the procedure. The execution of this quality improvement (QI) project provided an opportunity for the nursing staff and unit director to engage in a discussion regarding the necessity of quality improvement initiatives. It also highlighted the significance of Nurse-Driven Protocols in enhancing nurses' independence, enhancing patient outcomes, and reducing hospitalizations associated with complications from Catheter-Associated Urinary Tract Infections (CAUTI).
Practitioners who have been trained in DNP (Doctor of Nursing Practice) are highly skilled and knowledgeable in contributing to the progress of evidence-based quality improvement programs.

Methods for guaranteeing the long-term viability of this initiative include presenting the evidence results orally to the nursing staff and providers at the unit level IMCU. By fostering a feeling of ownership and forming a change leadership team with the change champions, we can assure the development of people who are committed to driving the ongoing implementation of this practice change.
In order to enhance patient outcomes, it is necessary to allocate time and maybe get support in order to include the protocol into the organization's procedure manual.

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