

2020

Increasing Compliance of Chlorhexidine Wipes to Prevent Hospital-Acquired Infections

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Walden University

College of Nursing

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Kelly Dunn

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Walden University
2020

Abstract

Increasing Compliance of Chlorhexidine Wipes to Prevent Hospital-Acquired Infections

by

Kelly Dunn

MS, Walden University, 2014

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

November 2020

Abstract

Healthcare-acquired infections (HAIs) are complications of healthcare linked to increased mortality, morbidity, and length of stay. Assiduous surveillance and constant reeducation can decrease HAI incidence and reduce the healthcare burden caused by these events. Evidence has demonstrated that using 2% chlorhexidine wipes instead of bathing with soap and water greatly reduces the bacteria on the skin and prevents infections such as catheter-associated urinary tract infections and central line-associated bloodstream infections. The practice-focused question for this quality assurance doctoral project was to evaluate if an educational intervention improved compliance of chlorhexidine wipe use among ICU nurses with the hope of improving HAIs over 3 months. Information processing theory helped produce educational interventions for staff while preparing to implement the project. The quality health outcomes model was used as a basis for the project, and findings showed a significant increase in compliance with chlorhexidine gluconate bathing after reeducating staff ($z = -1.96, p < 0.05$). While the results of the quality improvement educational project showed a significant spike in compliance following the educational intervention, the number of documented chlorhexidine gluconate baths decreased with time. This decrease in compliance supports the notion that education should be ongoing and surveillance closely monitored to avoid downward trends. Future projects addressing these important issues should continue and stakeholders need more involvement to maximize sustainability. HAIs have a significant effect on the hospital, staff, and the community it serves; continued surveillance must be a part of further studies of infection control.

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Dedication

For my husband and family, who encouraged me to believe in myself and never to stop trusting that I could achieve my goals. In dedication to my brother, who was taken from this world far too soon.

Acknowledgments

It is with great appreciation that I would like to acknowledge and thank Dr. Lostly for her continued support and assistance in helping me to achieve my goals. The gratitude I have for her emotional support during some difficult times throughout this journey is genuine and deeply felt.

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Section 1: Nature of the Project

Introduction

Traditionally, healthcare organizations have been under a fee-for-service (FFS) payment structure where providers were reimbursed based on the number of services provided or the number of procedures completed. Services were unbundled and reimbursed separately; thus, providers were rewarded for the volume and complexity of services regardless of the outcome of the service provided (Tooker, 2005). As a result, the FFS payment structure incentivized providers to limit coordinated or integrated care structures and overutilize functions as there was no incentive to control healthcare costs (Lawrence, 2005). In 2010, the Affordable Care Act (ACA) attempted to replace the FFS structure with the concept of value-based care to mitigate rising healthcare costs. Specifically, in 2018, Health and Human Services Secretary Alex Azar shared that the current administration “is committed to transitioning away from a fee-for-service system” (Dickson, 2018, p.1). As a result, organizations were encouraged to identify ways to reduce healthcare spending as the payment structure shifted from FFS to value-based care.

Focusing on the transition from FFS to value-based care, rising healthcare costs and poor quality healthcare, the Centers for Medicare and Medicaid Services (CMS) began holding providers accountable for poor practices and costly care by denying Medicare reimbursements for the cost of treating eight complications of hospital care, known as *never events*. Never events are severe reportable prevented events, thus should never happen (CMS, 2006). The purpose behind the never events was to help

organizations focus more resources on preventing the events rather than on reimbursement when the event occurs (Deutsch, 2008). One never event on the list was hospital-acquired infections (HAIs). According to the World Health Organization (2011), HAIs are a global concern that creates a significant hindrance to the healthcare system. The Institute of Medicine (2003) has determined a great need for a reduction of HAIs and placed this quality metric as a high priority because research has indicated HAIs are one of the most common hospital care complications.

Problem Statement

HAIs develop from various pathogens introduced during a patient's hospital stay that was not present on the patient's admission. An HAI can result in increased length of stay, avoidable injury, and increased mortality, but they are preventable. Relating evidence-based practice (EBP) to the delivery of healthcare proliferates the probability of favorable patient outcomes and reduces preventable events such as HAIs (Tooker, 2005; Tripathi, 2014). Nationwide quality improvement efforts have reduced the incidence of HAIs, but HAIs continue to affect approximately one in every 25 hospitalized patients each day (Wolter Kluwer, 2018). Stone (2009) found the incidence of HAIs to be more than two million, with more than 85,000 cases resulting in death. Moreover, the economic burden accompanying HAIs is anticipated to cost the United States \$40 billion per annum in hospital admissions, readmissions, increased length of stay, and mortality (Stone, 2009). HAIs affect further costs such as the indirect cost of non-reimbursement for never event, social cost related to loss of work and legal claims, and the unintended

cost concerning antibiotic resistance, which propels the per annum cost to reach more than \$140 billion (Becker's Healthcare, 2015).

Several quality initiatives have been incorporated into hospital dashboards to remain vigilant in the ongoing efforts to achieve zero incidences of never events and HAIs. Examples of never events include catheter-associated urinary tract infections, ventilator-associated pneumonia, and central line-associated bloodstream infections.

Despite these best efforts and EBP guidelines, continuous education to nursing staff regarding hand hygiene and antimicrobial bathing in the intensive care unit (ICU) is a significant preventable action against infection (Edmond, Landon, Larson, & Price, 2014). Recently, research supporting the use of 2% chlorhexidine wipes for daily bathing of ICU patients has shown a significant impact on decreasing bacteria and microbes on the skin and, as such, can reduce the incidence of HAIs (Wang & Layon, 2017). Further, EBP puts nursing professionals in the front line of the prevention of HAIs. As a result, implementing practice guidelines has the potential to decrease HAIs. For professional nurse scholars, there is a professional responsibility to encourage and support EBP, quality care initiatives, and pay-for-performance indicators to reduce waste and promote efficient patient care. As demonstrated, infection control is a measure that all nursing scholars should be involved with as it has a trickle-down effect on all standards of care.

Nursing practitioners must persistently query their practice and attempt to identify reasons for outcomes and theorize on methodologies to advance care (White, Dudley-Brown, & Terhaar, 2016). Promoting EBP to frontline nursing staff is vital for successful implementation processes that produce quality improvement. However, the best efforts to

strengthen guidelines and workflows often fall short despite research showing results from actions. Therefore, it is crucial to evaluate the process of current workflows to find discrepancies that inhibit nursing staff buy-in and the use of research and EBPs.

Purpose

The issue of infection prevention in the ICU was of interest to me and my facility of employment. The incorporation of chlorhexidine wipes exclusively in the ICU has been a struggle and previous attempts at adoption have failed. As a result of this struggle, an avoidable infection developed that put a patient at risk. This presented an opportunity to evaluate previous methods, advance education, identify strategies for successful implementation, and evaluate the processes for improvement.

Although the idea of EBP and meeting quality measures govern much discussion with administrative staff, frontline nurses are not always as educated on what the standards are or the need to follow protocols. Furthermore, protocols often are hard to find after the initial onset of a project, and new staff is not always given the information; instead, new staff members are expected to figure it out on their own. Because of this, quality measures and EBP baselines can peak and trough. There must be constant education and engagement from the nurses to drive best practice and safe patient care continuously (Perry, 2009). Joshi, Ransom, Nash, and Ransom (2014) posited that quality improvement projects are still lagging, and although quality has improved, there is still a long way to go.

The small rural hospital in this project has limited nursing staff. Nursing leaders work in many different roles and perform several various tasks that multiple people at a

more prominent institution would undertake. Therefore, there was a need to identify ways to engage nursing staff to take ownership of quality measures and drive their professional practice forward. I completed an educational intervention with all nursing staff focused on the use of chlorhexidine wipes as a preventive measure of reducing HAIs within the unit. Thus, the purpose of this quality assurance project was to evaluate if an educational intervention improved compliance of chlorhexidine baths for patients among ICU nurses with the hope of improving HAIs over 3 months and make recommendations for the sustainability of this practice.

Nature of the Doctoral Project

The nature of this doctor of nursing practice (DNP) quality assurance project was to provide an educational intervention that improved compliance of chlorhexidine wipes among ICU nurses and engaged nurses in ownership of this quality metric. Part of the DNP project included the understanding as to why previous methods of educating nurses to comply with bathing solely with chlorhexidine wipes in the ICU produced unfavorable results and increased risk of HAIs. Thus, a quantitative methodology will perpetuate scientific inquiry and data to support findings with both observed and collected data (Goertzen, 2017).

Significance

Years after the initiation of healthcare reform and patient safety practices, the United States continues to lag in standardizing a culture of high-value care. Djulbegovic (2014) posited that contributors to this falling system lie with a lack of trustworthy studies that support safety initiatives and how they will work in real-time workflows and

a lack of follow-through with implementing such initiatives. Moreover, according to the World Health Organization (2011), HAIs are a global concern that creates a significant hindrance to the healthcare system. The Institute of Medicine (2003) determined a great need for HAI reduction and placed this quality metric as a high priority; research has indicated HAIs are one of the most common hospital care complications.

Researching the literature supporting the use of chlorhexidine wipes to reduce HAIs involves scientific-based research and theoretical underpinnings to set forth a framework to guide nursing practice. Once the research structure was established and graded for use, I focused on the culture of the facility and the nursing units that would be incorporating the guidelines. With strong support from the administration, nurses are more likely to find value and accept a change in practice (Jefferis et al., 2013). Using information processing theory as a framework, I produced educational interventions for staff in this project. Furthermore, including staff to help with ideas of preparing their unit for promoting change can increase buy-in and empower them to feel that the change in practice is within their control (Balakas, Sparks, Steurer, & Bryant, 2013).

Opportunity to Change

Altering the bathing routine for patients in the ICU and the progressive care unit from the standard soap and water bath to the use of chlorhexidine wipes seemed like a straightforward task without much need to address the end-users. However, overlooking the importance of this step proved to be an unfortunate result of noncompliance. The initial reaction to the educational intervention from the staff was that the bathing was unnecessary and did not provide value to their patient care. The staff did not obtain

proper education or reasoning for the change, nor were they given time to adjust to the change in the process. The transition was not smooth and the change became a source of contention. Therefore, there was a need to reevaluate the process of compliance.

Change management requires open communication with the members of the organization that support the change and those the change will directly affect. Including the ICU staff in discussions of the need for change and the end goal can prevent communication silos. It is imperative to present ideas and goals to staff for a clear understanding of the need for change and the benefits that the change has on patient outcomes (White et al., 2016).

Further, taking the time to speak with the staff to understand why the prior method failed helped to understand what mistakes to avoid in the future. Therefore, education to the staff for the evidence-based benefit of the change took place, and all questions answered. The staff took part in a sampling of products to determine which they preferred and which they felt the patients would prefer as well. Education and communication had been the two most significant barriers to implementing this change in process in the ICU. However, the nursing staff was not opposed to making the change once they were informed of the reasoning and benefits to patient care.

Summary

EBP requires a constant commitment to change and diligence in maintaining knowledge of research. The project's focus—using research to guide a quality initiative—should be constant across the healthcare spectrum to ensure all macro- and microsystems embrace the collaboration of patient-centric outcomes.

Section 2: Background and Context

Introduction

The focus for this doctoral project was an adult ICU in a rural hospital. This unit has eight private rooms and is used to care for a variety of patients. The chief executive officer confirmed the feasibility of this project based on the timeline, available resources, and administrative support. Therefore, process changes were underway to develop education for nursing staff, mainstream documentation, and generate a report to track compliance.

Concepts, Models, and Theories

An evidence-based model that fits this organization's culture and that would complement its quality plan-do-study-act cycle was the clinical nurse scholar model. This model would use DNPs as mentors to guide bedside nursing staff on how to use EBP to improve patient outcomes (English, 2016). The CNSM model uses an interprofessional collaborative team approach to make decisions about patient care. The use of this model identified evidence-based nurse champions who attended mentor-based education sessions on research techniques, educational guidance for EBP, implementation, and evaluation (English, 2016). Each step of the process was supported by a DNP mentor to assist the EBP nurse champion. This model has intertwined with the current plan-do-study-act cycle that nursing staff was already familiar with, making small changes to practice and evaluating the results in less time.

Similarly, the model of advancing research and clinical practice through close collaboration was used to assess the culture of the facility and the readiness of the

practitioners to adopt EBP (Schaffer, Sandau, & Diedrick, 2013). Determining the culture of administration was equally important as the administration is vital in substantiating the effort of bringing EBP to frontline nursing staff (Pryse, McDaniel, & Schafer, 2014). Pryse et al. (2013) examined the usefulness of the nursing leadership scale and found in favor of using this scale to measure the support from leadership and their understanding of EBP.

Relevance to Nursing Practice

Nursing practice is the epicenter of patient care, and unlike any other profession, it can make the most significant impact toward improved outcomes. Nursing theory, founded on providing holistic care and years of research and hard work, has propelled the nursing profession as advocates for quality and champions for change. Nurses develop an innate sense of critical thinking and are often visionaries in the methodology for determining conditions and variables that contribute to fluctuations in a patient's condition (Rosa & Iro, 2019). Therefore, nursing science leads to quality initiatives and must be considered essential when developing, implementing, and evaluating projects to improve patient care.

Local Background and Context

Through a review of the literature, I identified research and peer-reviewed articles on HAIs that were current and provided best practices for the focus of data collection, and that supported the project. A literature search conducted using the Walden Library produced a plethora of reliable sources of scholarly information. Terms and phrases for searching were *chlorhexidine wipes*, *healthcare-acquired infections*, *reducing infections*

in the ICU, and never events. I categorized the data collected from researching the literature by the level of evidence and the date of publication to organize and optimize a smaller group of publications. Furthermore, collecting information from government-funded sites was of the highest consideration.

Research and Evidence

Nursing research is rooted in social science and general science. Although understanding the body and how the body works is an excellent factor for treating disease and illness, the nursing practitioners pride themselves on caring for patients holistically and understanding how illness affects social dynamics, and understanding how social dynamics can affect health. Therefore, nursing research can rely on both qualitative and quantitative data. Additionally, research requires rigorous efforts, whether qualitative or quantitative. Achieving validity and reliability in either form of research is laborious.

Qualitative Research

The U.S. Department of Health and Human Services (2009) developed guidelines for rigorous testing for patient-related outcomes. Researchers must ensure validity, reliability, and reflexivity in qualitative research by providing transcripts used for the interview and transparency in the development of the focus group and the development of the interview questions. Furthermore, the U.S. Department of Health and Human Services (2009) guided qualitative research to construct validity by testing the hypotheses for logical relationships and algorithms to score responses. Skeptics of qualitative research question the reliability, and therefore robust research methods for coding and categorizing the conceptual framework of a study are essential.

Quantitative Research

The nature of quantitative research is to explain a phenomenon. The data used to collect the research explains rather than explores a theory. Quantitative research is grounded in numerical value to support the validity of the research. Just as qualitative research uses rigorous methods to explain the results of the study, so too must quantitative research. Furthermore, quantitative research must be rigorous in methodology and reproducibility. These studies are peer-reviewed to examine the design of the research and the empirical support of the research question; this research finds the truth and only one truth to the question (Claydon, 2015).

Outcomes

Theory-based frameworks such as the quality health outcomes model (QHOM), define, evaluate, compare, and communicate usability, functionality, clinical value, testing, education, open communication of protocols, and sustainability of the project (White et al., 2016). The QHOM highly encourages looping back to test the intervention to ensure adherence and buy-in. As a result, this opened the door for barriers to the initial process that may have prohibited compliance and moved toward the outcome goals.

Clearly defined outcomes set the stage for the project goals and keep everyone working toward the same outcome objectives. Therefore, the following were expected outcomes within the scope of the project to use chlorhexidine:

- Increased knowledge of prevention of HAI with using chlorhexidine wipes
- Increased compliance of utilization of chlorhexidine wipes for every bath

- Increased utilization of correct documentation of chlorhexidine bathing in the daily assessment

Alignment

The purpose of this project was to evaluate if an educational intervention improved compliance of chlorhexidine wipes among ICU nurses with the hope of improving HAIs over 3 months. The evaluation period evaluated the metric by data collection of compliance before the intervention and post-implementation to ensure compliance and determine opportunities that risk success. The strategic alignment of this project supported the hospital's business model of Doing What is Best.

This staff quality project aligned with best practice by:

- developing and evaluating care delivery approaches for healthcare-acquired infections,
- analyzing data for documentation compliance of CHG and determine barriers for the use of the best practice,
- evaluating current compliance for charting chlorhexidine baths and create education to make changes for documentation to improve compliance of charting,
- developing an interprofessional team with management and staff to change a process for inpatient ICU patient care and promote safety.

Centers for Medicare and Medicaid Services Driven Incentives and Disincentives

Pay for performance is a buzz word in healthcare that drives providers and administration to invest in quality improvement initiatives to promote the reduction of preventable events, reduce waste in healthcare spending, and increase patient safety

(CMS, 2005). Under these guidelines, hospitals and eligible providers received incentives to adopt and report thresholds of deemed objectives and clinical quality measures (Lubell, 2008). However, starting this year, the initiative to offer incentives now changes to disincentives for not having practices in place that support CMS guidelines for Promoting Interoperability (formally known as Meaningful Use).

Furthermore, CMS drives value-based care from models of payment such as; The Hospital Value-Based Purchasing Program in 2012, Hospital Readmissions Reduction Program in 2012, and Hospital-acquired Condition Reduction programs in 2014. According to CMS (2018), cost savings for disincentives for HAC alone average over \$38 million annually.

Quality and Safety

The pay-for-performance model for reimbursement and the Institute of Medicine's report in 2001 Crossing the quality chasm is holding providers accountable for poor practices and costly care and taking an honest look at billing for conditions caused by low quality and safety practices. Furthermore, this call for change in payment structure looked for ways to pay for the quality of care rather than quantity (Deutsch, 2008). In addition to the billing and pay-for-performance re-structuring of CMS, the implementation of ICD-10 took place that reimbursed payment based on the quality of documentation and a better understanding of the provider's practice in care in conjunction with the patient's medical condition and severity of illness. Therefore, ICD-10 coding will illustrate a better picture of the plan of care and create data points for process improvement (Manchikanti, Falco, & Hirsch, 2011). Furthermore, nursing

documentation would also need to show specific assessments that documented care accurately in alignment for reducing HAIs and closer attention to documenting if a condition was present on admission (Carter, 2016).

As a result of implementing best-practice initiatives and guidelines to coincide with pay-for-performance, nursing quality indicators have assisted in a cost reduction for patient care and an increase in patient safety (Carter, 2016).

Role of the DNP Student

This student has been an employee of this organization for almost 19 years and has witnessed opportunities to improve nursing practice that have fallen short based on staffing and failure to hold staff accountable. After meeting with the current administration and asking how, as a DNP student, a focused project would best serve the facility, expounding on infection prevention seemed the best use of this student's knowledge and skillset. Using quantitative statistics reduced bias in the project and measured the increase or decrease in compliance for documentation of chlorhexidine bathing.

Role of the Project Team

The project team consisted of the chief executive officer, director of nursing, infection preventionist, and this doctoral student. This doctoral student presented the purpose of the project to the team to support the project goals and interventions on how to achieve goals. Once the team approved the project, this doctoral student collaborated with the infection preventionist to move forward with a timeline, educational materials, and a plan to prevent failures based on previous attempts. As postulated by Caniels, Chiochio,

and Van Loon (2018), the project team must be fully engaged in supporting the goals and timeline of the initiative, and by doing so, active engagement creates a sense of ownership and pride in producing favorable outcomes.

Summary

Healthcare acquired infections are a result of missed opportunities and a failure to stay up to date in research and best-practice guidelines. Multiple factors contribute to the risks of HAIs, such as; decreased staffing, lack of resources, communication silos, and a lack of administrative support. Focusing on quality initiatives affords opportunities to develop teams that sole purpose is to evaluate how care is delivered and develop infection prevention. Quality projects are imperative for healthcare systems to sustain government funding and accountability to the public. Transparency in healthcare delivery resulting from electronic medical records provides greater surveillance of problem identification, process improvement, healthcare trends, and sustainability of project outcomes (Wong et al., 2020).

Section 3: Collection and Analysis of Evidence

Introduction

In recent years, healthcare has transitioned from a fee-for-service structure to a value-based care model. As a result, healthcare organizations are being held accountable for their spending to reduce healthcare costs and poor quality outcomes. Under these guidelines, hospitals and eligible providers received incentives to adopt and report thresholds of deemed objectives and clinical quality measures (Lubell, 2008). However, starting in 2019, the initiative to offer incentives now has changed to disincentives for not having practices in place that support CMS guidelines for *promoting interoperability* (formally known as *meaningful use*).

Practice Focused Question

The purpose of this quality improvement project was to evaluate if an educational intervention improved compliance of chlorhexidine wipe use among ICU nurses to help prevent HAIs over 3 months and make recommendations for the sustainability of the practice.

Sources of Evidence

Researching the literature supporting the use of chlorhexidine wipes to reduce HAIs involved using scientific-based research and theoretical underpinnings to set forth a framework to guide nursing practice. With strong support from the administration, nurses are more likely to find value and accept a change in practice (Jeffs et al., 2013). Also, it can prove beneficial to conduct a review of nurses' current understanding of EBP with tools such as the Evidence-Based Practice Questionnaire (EBPQ).

The Centers for Disease Control and Prevention (CDC) have set forth guidelines for the prevention of catheter-associated urinary tract infections (CDC, 2009), prevention of health-care-associated pneumonia (CDC, 2003), prevention of intravascular catheter-related infections (CDC, 2011), and management of multidrug-resistant organisms in healthcare settings (CDC, 2006) with strong recommendations for the use of antimicrobial agents to prevent infection. However, these guidelines do not give recommendations aimed explicitly toward the use of chlorhexidine wipes. Researchers conducting studies specifically aimed at the reduction of HAIs (see Abbas & Sastry, 2016; Carman, Phipps, Raley, Li, & Thronlow, 2011; Frost et al., 2016) have supported the use of chlorhexidine wipes over soap and water for bathing patients at high risk for infection.

Published Outcomes and Research

A review of the literature to identify research and peer-reviewed articles on chlorhexidine wipe use and prevention of HAIs involved seeking current and best practices to support this project. I conducted a literature search using the Walden Library databases to produce a reliable source of scholarly information, including peer-reviewed scholarly journals, government publications, periodicals, and academic research articles. Furthermore, I used websites operated and sustained by organizations that focus on healthcare quality measures and reporting significant for guidelines and best practices. Examples of these organizations include the Institute of Medicine, Leapfrog, the CMS, Agency for Healthcare Research and Quality, National Quality Forum, U.S. Department of Health and Human Services, and the Commonwealth Fund. Terms and phrases used

to search the literature were *healthcare-acquired infections, chlorhexidine wipes, never events, catheter-associated urinary tract infections, central line-associated bloodstream infections, ventilator-associated events, nosocomial infections, and infection prevention in the intensive care unit*. I categorized the data collected from researching the literature by the level of evidence and the date of publication to organize and optimize a smaller group of publications. Furthermore, I collected information from government-funded sites.

Archival and Operational Data

Administrative support to move forward with data collection, such as the total of patient days in the ICU and charting chlorhexidine gluconate (CHG) baths, gave merit to this project. Furthermore, the stakeholders deemed it necessary to begin data collection as the initiative had already begun, but with poor compliance. Therefore, diligence included research on the process before and recognition of the barriers (Hutchinson, Bioeth, Wilkinson, Kent, & Harrison, 2012). This step may have been the most critical part of this project so that the prior attempt was used to learn from for moving forward.

The Promoting Action on Research Implementation in Health Services (PARIHS) was a useful tool to refine the process and move toward a successful reimplementation (Hutchinson et al., 2012). The method of collecting factual data required an understanding of the terminology used in literature and determining the validity of the data collected (Fineout-Overhold, Melnyk, Stillwell, & Williamson, 2010a). Once data had been collected and validity recognized, the researcher must determine if the content

has sufficient merit to apply to individual nursing practice (Fineout-Overhold, Melnyk et al., 2010b).

After thoughtful consideration of the culture, workflow, case-index mix, and the availability of resources to support the change in practice; the next steps of dissemination of collected data was provided to appropriate supportive staff/administration to move forward toward the goal of applying research to practice (Fineout-Overhold, Melnyk et al., 2010c; Fineout-Overhold, Gallagher-Ford et al., 2011). This project used the Quality Health Outcomes Model (QHOM) as one of the frameworks. The premise of this framework was to focus on the people of the intervention, look at the task of the intervention to see possible barriers, identify the tools needed for successful implementation, the technology for documenting the intervention, how the intervention would work in the environment and ensuring administrative support to carry out the intervention (Holden et al., 2013).

After discussing the issue with staff, the finding was that they were not satisfied with the kits, and there was a gap, in theory, to practice for the benefit of chlorhexidine. Staff discussed that using the kits was time-consuming and that patients complained about the product feeling sticky and cold. Using chlorhexidine wipes instead of the kits is an option for further review to exam the potential for increased compliance, the ability to place prepackaged wipes in the warmer for patient comfort, and including staff in the future discussions to gain their support. Furthermore, before starting any intervention, education to reduce the evidence-to-practice gap was applied.

The cost of compliance and decreasing the chance of an HAI greatly outweigh the price to change the product for bathing. A patient diagnosed with MRSA cost the hospital approximately \$14,000 for the initial visit (Healthcare Cost and Utilization Project [HCUP], 2016). An additional value of increased compliance of chlorhexidine bathing includes; value-based purchasing and marketing decreased infection rates.

To overcome potential barriers to implementing EBP at the bedside, one must have the current proposed evidence on hand and use it as a tool to avoid a misunderstanding of the goal (Andermann et al., 2016). Preparing for presenting the idea of change develops trust and credibility when the subject is well developed, understood, and supported (American Association of Colleges of Nursing [AACN], 2006). Furthermore, the quantity of evidence is not as important as the quality of evidence provided (Andermann et al., 2016). The responsibility belongs to the leader proposing the change to do their due diligence in evaluating the literature for guidelines that are of a high standard and ensuring that the EBP fits the organizational needs (Malterad, Bjelland, & Elvbakken, 2016; Rehfuess et al., 2016).

Using the AACN (2006) guide validated the importance of engaging in organizational and policy improvements to promote quality evidence-based care. In addition to avoiding behavioral barriers from administration and frontline staff, engaging as a subject matter expert on the proposed change assisted in a smoother transition from idea to policy (Catallo & Sidani, 2016).

Analysis and Synthesis

Data was collected retroactively 3 months before the project implementation as well as 3 months after postimplementation. Statistical analysis was used to support the hypotheses of quality improvement by employing the reeducation of bedside staff. To accurately portray the validity of the intervention, the following are steps were performed:

- 1) Implementation of an educational intervention.
- 2) Tracking compliance of chlorhexidine bathing using organizational data three months prior and three months post-intervention.
- 3) Using Excel, the creation of two-run charts used the extracted data to determine if the improvement had taken place over time. Run charts are graphic portrayals of enactment over time and ascertain compliance.
- 4) Following the creation of the run charts, each analyzed chart produced recommendations for the sustainability of the practice.
- 5) Provide the results to all stakeholders and celebrated the efforts of staff and project wins.

Summary

Data collection of research that supports the project goals and implementation was of the utmost importance. Project managers must ensure the validity and reliability of data to support best-practice and guide the nursing process. Utilizing the research collected helped to develop a sustainable plan for quality improvement and evaluation of project success. Without executing significant research and careful planning of potential

barriers that may affect project goals, quality projects may get derailed, and as a result, patient care may suffer.

Section 4: Findings and Recommendations

Introduction

In recent years, healthcare has changed from a fee-for-service structure to a value-based care model. As a result, healthcare organizations are being held accountable for their spending to reduce healthcare costs and improve patient outcomes. Starting in 2019, the initiative to offer incentives changed to disincentives for not having practices in place that support CMS guidelines for *promoting interoperability* (formally known as *meaningful use*). The CMS denies Medicare reimbursement for treating eight complications of hospital care, known as never events, including HAIs. The Institute of Medicine (2003) has determined a great need for a reduction of HAIs and placed this quality metric as a high priority because research has indicated that HAIs are one of the most common hospital care complications.

Nationwide, quality improvement efforts have reduced the incidence of HAIs, but HAIs continue to affect approximately one in every 25 hospitalized patients each day (Wolter Kluwer, 2018). Nursing practitioners must persistently query their practice and attempt to identify reasons for outcomes and theorize on methodologies to advance care (White et al., 2016). Promoting EBP to frontline nursing staff is vital for a successful implementation process that produces quality improvement. Best efforts to strengthen guidelines and workflows often fall short despite research; therefore, it is crucial to evaluate the process of current workflows to find the discrepancies for use of research and best practices.

The purpose of this quality improvement project was to evaluate if an educational intervention improved compliance of chlorhexidine wipe use among ICU nurses with the hope of decreasing HAIs and to make recommendations for the sustainability of the practice. A literature search conducted using the Walden Library produced reliable sources of scholarly information that were used to create an educational intervention. Terms and phrases for searching for the information included *chlorhexidine wipes*, *healthcare-acquired infections*, *reducing infections in the ICU*, and *never events*. The data collected from researching the literature were organized by the level of evidence and the date of publication for more manageable sources of evidence; furthermore, government-funded sites received the highest consideration.

Findings and Implications

Findings

The use of electronic medical records created a challenge in documenting a monthly census of patients in the ICU. The current system ran without any updates for more than 3 years and the software no longer received support from the vendor. After running several reports, I used a charge code report to provide visit identification for any patient charged for an ICU day or ICU observation hours. Thus, a cross-reference of the finding code and the charge code reports delivered a numerator and denominator for patients in the unit and documentation of CHG baths. Monthly data entered into an Excel spreadsheet produced a table for the stakeholders to measure the project's results (Table 1). The average percentage of CHG baths over 3 months was 30.6% before the intervention. Following the intervention, the average percent of CHG baths was 48.3%.

Using a Mann-Whitney U test to estimate the data, there was an increase in the average number of CHG baths postintervention compared to the average CHG baths preintervention ($z = -1.96, p < 0.05$), as shown in Figure 1.

Table 1

ICU CHG Documentation Compliance

	June	July	August	September	October	November
CHG baths	14	13	12	27	19	15
ICU census	52	37	40	45	46	35
% Compliance	27	35	30	60	41	43

Note. Average quality improvement of 17.4% after project kick-off.

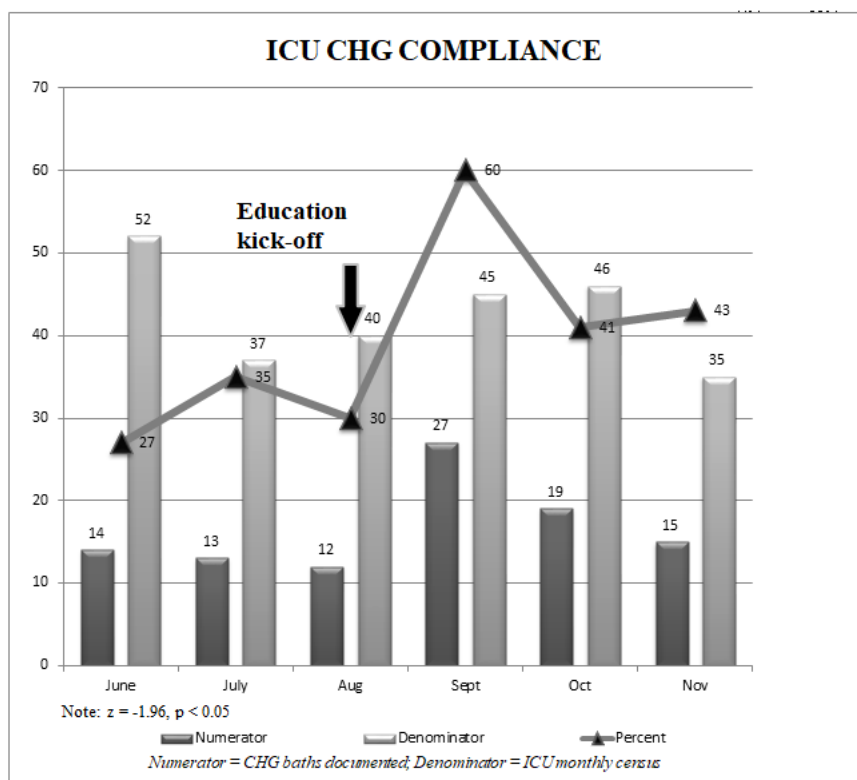


Figure 1. ICU CHG compliance.

Implications

The project to reeducate the ICU nursing staff proved successful with an increase in the number of CHG baths documented. While the results of the quality improvement educational project showed a significant spike in compliance following the educational intervention, the number of documented CHG baths decreased with time. This decrease in compliance supported the notion that education should be ongoing and surveillance closely monitored to avoid downward trends.

Further, human nature is an uncontrolled variable when it comes to motivation and desire to comply with recommendations. Adult Learning Theory proposes that students retain information at a higher rate when they feel the material is valuable and relate the task as relevant (Curran, 2014). The culture of the facility can be another variable that may affect the results of compliance. Therefore, it is challenging to determine if the intervention took place, but documentation of it did not. Moreover, the project education stressed the importance of using CHG wipes for every bath until discharge to achieve the maximum benefit of a build-up on the skin to protect from infections. Nevertheless, due to the limitations of the current EHR, bathing documentation is not a hard-stop requirement and may not be documented at all. As such, the correlation between infection rates and bathing routines necessitates cross-examination to conclude efficacy.

Recommendations

The nursing staff is a prodigious commodity that promotes patient care and health while reducing preventable harm and advocates for best-practice. Also, the nursing staff

makes up the largest cost-center in the hospital with the most considerable mobility across the macro system. Nevertheless, once the culture of nursing is not sustainable and professionalism not promoted, nursing philosophy abates, the profession turns into a job, and conflict supersedes conformity.

Nursing staff need encouragement to own their professional practice, become leaders of change, drivers of quality, and the voices of safety. By encouraging nursing staff to participate in policy development, research studies, and professional practice organization, nurses will hold each other accountable, learn from one another, support their colleagues, create departmental policy, and value the details involved in quality improvement.

Recommendations for Future Projects

Future projects as this should continue and stakeholders need higher involvement should projects succeed and remain sustainable. HAIs have a significant effect on the hospital, staff, and the community it serves. Therefore, continued surveillance must be a part of further studies of infection control. This project confirms that working together with nursing to promote change through education can achieve positive results and ultimately contribute to a decrease in never-events. The QI education brought value to the hospital and community through awareness and desire to reduce harm events, engage nurses, and promote best-practice.

Last, education and continued surveillance must be unremitting. As shown by the spike in compliance immediately after the educational intervention, followed by a decrease in compliance, without the presence of those leading the charge and promoting

wins and offering reminders, behaviors may return to the pre-education state.

Subsequently, further out from the educational intervention may result in a decrease in knowledge retention. Moving forward, the post-implementation of any project should include frequent communication to reaffirm project aims and interventions. Monthly reminders during professional practice committee, agenda topics for morning huddles, and email blast can keep desired goals in the forefront of care delivery.

Contributions of the Doctoral Project Team

The project team initially consisted of the Infection Preventionist, Director of Nursing, and the Chief Executive Officer. However, after the final approval of the QI, the team members decreased to the Infection Preventionist and this doctoral student and project champion. Notwithstanding, the CEO remained abreast of the project progress as he was the doctoral preceptor. Due to the size of the rural hospital, management teams are pulled in several different directions, making it difficult to schedule multiple meetings and require time management and lean methodology. Furthermore, comradery ensues in rural hospitals that develop trusting relationships and informal meetings to achieve faster approval and sponsorship for initiatives. As a result, project team members no longer formally involved still received progress reports and offered availability should questions arise.

Strength and Limitations of the Project

Ironically, many of the attributes of the facility that gave strength to the project also contributed to its limitations. For example, working with a smaller group offers opportunities for greater consistency with interventions. Nevertheless, smaller staffing

pools may contribute to burnout, which leads to short cuts and decreased compliance. So, extra attention to workflow efficiency became a priority. Some of the most significant limitations of the project, however, fell beyond the control of a doctoral study. Such an example denotes the fragmented culture between the nursing staff and nursing leadership. The Joint Commission (2017) advocates the healing of relationships between administration and their personnel to avoid adverse events. Safety begets safety, and feeling valued produces beneficial results. Additionally, many variables may have contributed to the results of the intervention. For example, the compliance report provided instances of appropriate intervention, but patient access did not register the patient as an ICU patient; therefore, the ICU charge did not associate that patient to the charge code report, and the intervention was considered null.

Section 5: Dissemination Plan

Project dissemination involved the data collected, educational tools, implemented interventions, and project results given to the infection preventionist and the nursing educator. Unfortunately, the opportunity to celebrate wins and discuss project improvement will take place after my involvement. I hope this project will yield continued awareness and promote ongoing opportunities in collaboration with best-practice guidelines.

Analysis of Self

Reflecting on the opportunity to be involved in such a worthy initiative conveys satisfaction in achieving goals, building relationships, learning leadership styles, and a great desire to inspire nurses to take ownership of their practice.

Role of Practitioner

Understanding nursing practice and its significance on patient care allow for project roadblocks and threats of decreased efficiency for adding tasks to an already significant workload. As a result, the facilitation of this project focused equally on making patient safety a quality and nursing initiative. The best projects are doomed to fail when mandated without reasoning, collaboration, and teamwork. I feel successful regarding the attention and consideration given to the end-user.

Role of Scholar

As a scholar, I feel pride in the ability to translate evidence into practice and share the reasoning for the importance of making simple changes that can have a cascading effect on patient care and outcomes. As a result, a continued desire to educate nursing

professionals emerged and changed the focus from administration to academia after graduation. I am passionate about nursing professional practice and igniting the spark within each nurse to propel our profession as equals in healthcare.

Project Completion

The commencement of the project is bittersweet. After devoting so much time, energy, and commitment to the intervention, it seems anticlimactic to not follow-up, reassess, and assist with sustainability. However, I am confident that the efforts and data will be used to maintain and enhance nursing practice to promote patient outcomes. I wish all the nursing team success and humbly thank everyone for the lessons they taught this grateful student.

Summary

Preventing healthcare-acquired infections is the responsibility of everyone across the macro-system of healthcare. Nevertheless, when best-practice guidelines become a requirement without reasoning, education, and efficiency, even the best intentions may fall short. The power of successfully reducing patient harm comes from empowering the nursing profession to be change agents, own their practice, and be the voice of the patient. This project showed how failed efforts to implement a quality initiative improved by a simple act of involving bedside nurses as champions. To improve the quality of care, hospitals must expand on providing meaningful educational opportunities more frequently and investigate failed attempts to improve outcomes. Nurses that produce valuable results are a result of feeling valued.

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