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The Impact of Nurse-Led Initiative Interventions on CAUTI

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NURS 670: Quality Improvement and Outcomes Management

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The Impact of Nurse-Led Initiative Interventions on CAUTI

Section I. Abstract

Problem: National Healthcare Safety Network (NHSN) has reported U.S. hospitals having 0.2 to 4.8 per 1000 catheter-days for adult inpatient units. The insertion of a catheter and delay in removal have a significant impact on morbidity, mortality, length of stay, and reimbursement.

Context: Post-Acute Care Unit (PACU) is a microsystem that provides rehabilitation services for a patient with various post-surgical procedures. The staff of this unit was well aware of policies of catheterizations that led to prolonged use of urinary catheters and an increased rate of CAUTIs in the last quarter of this year. This project aims to increase staff knowledge, remove catheters per policy and decrease the rate of CAUTI by 90% during the project timeline.

Intervention: The quality improvement project approaches the PACU unit by implementing nurse-led interventions. The nurse-led interventions include monthly staff in-services and education competencies, adding HOUDINI-PROCESS form in new admission bundle, CAUTI auditing binder, weekly auditing by (Clinical Nurse Leader) CNL student and making random rounds on the unit for a patient with Foley Catheter (F/C).

Measures: The project had three process measures, including enhanced communication among physicians and staff, decreased utilization of foley catheter and decreased CAUTIs rate on the unit. The primary outcome measure for this project is to calculate the number of hospitals acquired CAUTI events and utilization of foley catheters during the project timeline.

Result: By the end of this project, the PACU unit remained CAUTI free and succeeded in its aim to decrease the CAUTI rate in the unit.

Conclusion: Implementation of evidence-based practice of nurse-led interventions met the expected outcome with a 100% decrease in the unit's CAUTI rate. Since the interventions are

incorporated in the new admission bundle and daily routine of the report; therefore, the quality improvement project will maintain sustainability in this unit.

Section II. Introduction

CAUTIs are one of the most common types of nosocomial or hospital-acquired infections (HAIs) (Gesmundo, 2016). As denoted by its acronym, CAUTIs are a type of urinary tract infection (UTI) associated with catheter use. It is estimated that 40% of HAIs are UTIs, 80% of which can be attributed to indwelling catheters. The leading cause of CAUTI is the transmission of bacteria to the urinary tract via F/C, typically inserted during surgery because the patient cannot control bladder function. The placement of an indwelling catheter also enables close monitoring of the patient's urinary output and function. However, indwelling catheters increase patients' risk of infection. The catheter damages mucous membrane of the bladder, increasing susceptibility to bacterial infection (Gesmundo, 2016).

Patients with CAUTI may suffer complications including urethritis, urethral strictures, and sepsis. Pasknik et al. (2017) reported that CAUTI ranks as the leading cause of secondary nosocomial bloodstream infections, thus accounting for 17% of hospital acquired bacteremia, which has a 10% mortality rate. CAUTI adversely affect hospitals in terms of reputation, reimbursement, and costs. Treatment costs for CAUTI and other HAIs are non-reimbursable under Centers for Medicare and Medicaid Services (CMS). Patients who develop CAUTI have longer length of stay and costly complications. Once the patient has developed this hospital-acquired infection, the hospital must cover all costs for treatment and for additional length of stay (Gesmundo, 2016).

Problem description

The Post-Acute Care Unit (PACU) at Seton Medical Center (SMC) is located

on the ninth floor and has a capacity of 39 beds. The purpose of the PACU is to provide a broad range of post-acute care services including post-surgical rehabilitation, palliative care, and treatment of chronic or acute disease exacerbation to SMC patients admitted to the unit (SMC, 2020). The recent influx of COVID-19 patients has impacted the unit's workflow and patient mix. In recent months, medical (80%) patient admission rates have been higher than admission rates for surgical (20%) patients because the COVID-19 pandemic has delayed patient surgeries (Jabir et al., 2020). Lack of staff has adversely impacted routine activities and registered nurses (RNs) complain of burnout. The charge nurses have pointed out that responsibilities are not equally divided. The workload pressures and staffing shortages are associated with an increased incidence of foley catheter-associated urinary tract infections, and other preventable adverse events.

One of the most common patterns noted on the unit was that nurses had communication gaps with physicians to initiate removal of F/C, no indication of F/C, secure device not in place, and nurses forgetting to remove F/C, despite having an order in place. In addition, the staff was not well-versed in foley catheter protocol and policies. When asked how often the F/C should be changed in the unit, the majority of staff members were unable to answer correctly. Staff reported that they had in fact questioned management about foley catheter protocol, but managers had not provided any clear answers. Overall, the unit staff remain uninformed or misinformed about F/C policies and procedures. Additionally, the unit's display data wall indicates that three patients on the post-acute care unit developed CAUTI during the last quarter, a rate that exceeds the national benchmark (SMC, 2020). Thus, CAUTI infections do not bode well for patient safety on the unit.

Available knowledge

PICOT Question

The PICO statement guided the literature search for evidence-based knowledge to support the implementation of the nurse-led interventions in this project, which aimed at improving the utilization of Foley Catheters (F/C) and prevent CAUTI in the post-acute care unit (PACU). The PICOT question guiding the inquiry was:

In Post-Acute Care Unit adult patients with indwelling urinary catheters (P), how does Nurse-Led Initiative Interventions (I) compare to usual care affect (C) incidence and rate of CAUTIs (O) within six months (T)?

Search Strategy

A review of the available data including the quarterly CAUTI report and the results of the unit assessment of inappropriately utilized F/C on PACU prompted the author to search for evidence-based practice information that nurses can implement to decrease the CAUTI rate on the unit. Currently, the unit is utilizing HOUDINI Tools (see Appendix C) for CAUTI prevention. A search was conducted for evidence on how nurses might use this tool more effectively to decrease the CAUTI rate. Cochrane/DARE, CINAHL, PubMed and other relative databases within the USFCA library system were searched for systematic reviews, meta-analyses, clinical practice guidelines, and critically appraised peer-reviewed primary research studies using search terms including CAUTI OR prevention, CAUTI AND protocol, and CAUTI AND nurse-driven protocols research with limits set to English language, adults-only, and publication from 2010 to present.

Appraisal of Evidence

Meneguetti et.al. (2019) conducted a quasi-experimental study performed in a 9-bed general intensive care unit over 12 years. The study authors, infectious disease specialists,

developed the protocol for insertion and maintenance of indwelling catheters. The protocol was implemented through four phases (baseline, biannual training, checklist plus biannual training, checklist and initial training). Rates of urinary catheter use and incidence density of CAUTI were evaluated monthly following the Centers for Disease Control and Prevention (CDC) criteria throughout the study period. The results of the study revealed a decreased rate of CAUTI from phase I to phase IV (73.1%, 74.1%, 54.9%, and 45.6%, respectively). Similarly, the incidence density of CAUTI decreased from phase I to phase IV (14.9, 7.3, 3.8, and 1.1 per 1000 catheter days, respectively), (Menegueti et.al., 2019). The study results provided strong evidence that evidence-based healthcare worker education and checklist-driven daily evaluation of indwelling urinary catheter indications were highly effective in reducing both the rates of catheter utilization and, more significantly, the incidence density of CAUTI.

Another quasi-experimental study with an interrupted time series design (two phases) to examine the effects of multiple preventive interventions to reduce the incidence of CAUTI was performed by Marra et. al. (2011) in 38-bed medical-surgical intensive care unit and two 20-bed step-down units (SDUs). The result of the study demonstrated a statistically significant reduction ($p < .001$) in the rate of CAUTI in the ICU from 7.6 per 1,000 catheter-days pre-intervention to 5.0 per 1,000 catheter-days post-intervention. There also was a statistically significant reduction ($p = .014$) in the rate of CAUTI in the SDUs, from 15.3 per 1,000 catheter-days pre-intervention to 12.9 per 1000 catheter days post-intervention. The results of this study suggest that multiple interventions and a zero-tolerance approach towards CAUTI can be effective in significantly reducing CAUTI both in ICUs and in the step-down units.

Durant (2017) conducted an integrative review of research literature without meta-analysis to systematically evaluate the effectiveness of nurse-driven protocols for the prevention

of CAUTI. A total of 29 U.S.-based studies met eligibility criteria and were included in the review. All studies reported reductions in clinical predictors of CAUTI, especially indwelling urinary catheter utilization and CAUTI rates.

Yatim et al. (2016) conducted an evidence-based practice (EBP) project on CAUTI reduction in the medical units of a 75-bed acute tertiary care hospital. The EBP-based intervention led to a dramatic decline in the units' CAUTI rates from 4/1000 to 0/1000 catheters per day. Yatim et al. (2016) found a significant difference between the pre- and post-implementation rates of the nurse-driven intervention for timely removal of F/C and reduction CAUTIs rate.

Rationale

Conceptual Framework

The Plan-Do-Study-Act (PDSA) cycle tests a change or proposed improvement through a cycle of planning new interventions (Plan), implementing the changes (Do), observing the results (Study), and then learning from the results (Study) (Institute for Healthcare Improvement [IHI], 2020). Frequently, the observed results after implementing the initial change indicate the need for further changes/improvements or modifications and then the cycle is repeated. The PDSA cycle is selected as the conceptual framework to guide this project. The PDSA cycle was repeated as needed, with improvements in each cycle to reduce the rate of CAUTIs.

Lewin's Change Theory

This project used Lewin's change theory help change the behavior of staff to further the efforts to reduce the CAUTIs rate on the unit. Lewin's change theory states that change occurs in the three phases of unfreezing, change, and refreezing (Wojciechowski et al., 2016). During

the unfreezing phase, the staff was involved in the project development, and made aware of the need for change based on the evidence that the status quo practices are contributing to an increased rate of CAUTI on the unit. During the change phase, efforts was made to engage staff and to involve them in project planning. Staff was encouraged to practice open communication related to patient care, their opinions was respected, and they were involved in the decision-making process. Staff was trained and educated on F/C insertion with sterile technique and on F/C maintenance through mandatory in-service training. In the last phase, stabilization and assessment took place. The newly implemented CAUTI interventions was assessed, and adjustments made as required (Wojciechowski et al., 2016).

Specific Project Aim

The specific aim of the project is to decrease utilization of F/C and decrease or eliminate the rate of the CAUTI by 90% on the unit within six months of the implementation of nurse-led interventions.

Section III. Methods

Context

The high performing microsystem approach can create an effective work environment, improve patient safety, and provide cost-effective care to patients (Johnson & Sollecito, 2020). The Clinical Nurse Leader (CNL) plays a vital role in system effectiveness and the improvement of patient outcomes. The CNL can fill one of the critical gaps in a complex system by identifying problems and by analyzing and evaluating possible solutions to promote patient safety and improve outcomes (Harris et al., 2018). A comprehensive assessment of the microsystem was conducted utilizing a “5Ps” assessment to identify existing practice problems and find potential solutions to improve nursing practice and patient safety.

Purpose

The purpose of the PACU is to provide a broad range of post-acute care services including post-surgical rehabilitation, palliative care, and treatment of chronic or acute disease exacerbation to SMC patients admitted to the unit. The aim is to provide guidelines to nursing staff about F/C care to prevent CAUTIs by removing unnecessary catheter placement, minimizing duration of catheterization, and providing optimal care and maintenance to those patients needed a urinary catheter (SMC, 2020).

Patients

Older adults comprise most of the patient population. The PACU receives post-surgical or post-treatment transfers from other acute SMC units as well as transfers from other hospitals. The unit daily census is thus influenced by the census on other floors and in other hospitals as well as by patients' insurance status and the availability of beds.

Professionals

Healthcare professionals on the PACU include licensed nurses, case managers, MDS coordinator, physicians, unit clerk, unit manager, physical therapist, and occupational therapist. The unit is divided into two teams. Each team includes one Registered Nurse (RN), Licensed Vocational Nurse (LVN), and Certified Nurse Assistant (CNA) ratio per daily census. The staff, especially LVNs and RNs, are not aware of the hospital's urinary catheter use, maintenance and removal policies.

Processes

The staff engage in a variety of tasks and procedures to provide care to patients. In most instances, routine tasks are completed on a daily basis without much review or reflection or consideration of different perspectives. As a result, staff may fail to notice existing problems that

compromise patient safety. During new patient admissions, the intake nurse communicates with other units or hospitals for confirmation of the transfer. The charge nurse takes the report from the discharging nurse. The charge nurse performs a head-to-toe assessment, orients the patient to room, call light, unit, and other aspects of the care environment. Patients who are admitted with a F/C usually have it left in place until the time of discharge. Sometimes there are doctor orders for removal of the F/C and then the RN will remove the F/C.

Patterns

The pattern of work is influenced by many factors, including staffing level, daily task designation, and patient acuity. Every day has its own pattern of workflow because designated tasks and unanticipated challenges and events can interrupt the workflow. One of the most common patterns noted on the unit concerned problems surrounding foley catheters. The problem begins with newly admitted patients when the admitting nurse fails to get the report of foley catheter use from the discharging nurse and fails to enter foley catheter indication orders in the EMR. Moreover, nurses have communication gap with doctor to initiate removal of foley catheter (F/C), secure device not in place, and nurses forgetting to remove F/C despite an order for removal being in place.

SWOT Analysis

A Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis was undertaken to examine internal strengths and weaknesses and external threats and opportunities that may positively or negatively impact the project. The SWOT analysis provided the project team an ability to identify and understand potential weaknesses and obstacles that might serve as a barrier to change. In addition, the SWOT analysis helped the team to identify problems that need to be given priority attention to facilitate success in the project (Harris et al., 2018). Most of the staff

have a positive attitude toward the project. They are eager to learn and want to be part of it. It was also encouraging that staff provided feedback on foley catheter care problems and concerns. This level of concern and participation was an advantage as we strived towards quality improvement and reaching the goal of reducing CAUTI in the unit. The staff are experienced, competent, and take patient care seriously. The staff are willing to accept the changes entailed in the project and understand that they will be needed to participate in the new strategies to provide a higher quality of patient care (Agency for Healthcare Research and Quality [AHRQ], 2014).

Also, involved in the project had all disciplines related to patient care, including staff, nurse managers, and physicians. The supportive role of management and physicians is important to the success of the project (AHRQ, 2014). The project implementation was affected by the COVID-19 pandemic, which has drastically impacted staff and unit operations. The floater had been helping the unit to provide quality care to patients. Identified weaknesses of the unit include ineffective/poor communications, poor compliance among the floating staff, communication gaps, and overwhelming workload as detailed in Appendix C. As O'Daniel and Rosenstein (2008) noted, ineffective communication among health care professionals can put patients' safety at risk due the failure to relay critical information, conveying inaccurate or incomplete information, and/or failing to note important changes in patient status.

Moreover, Staff was encouraged to practice open communication related to patient care, their opinions were respected, and they were involved in the decision-making process. Staff resistance to change posed challenges to project implementation. Poor attitudes among the floater staff and some regular staff posed a potential threat to the project. Some resistance to change is expected and must be overcome. Resistance sometimes occurs because people worry that the new procedures or strategies will be too time-consuming or likely to increase the

workload. Resistance was overcome by showing staff how the changes were going to take place and by involving them in the decision-making process supported to implement the changes (Gesme & Wiseman, 2010).

Cost Benefit Analysis

Financial analysis was utilized to determine whether the Nurse-Led CAUTI intervention will be cost-effective and beneficial for the post-acute care unit. As Penner (2017) stated, financial analyses are a checkpoint to evaluate if the plan is achievable or requires a further correction. It is anticipated that cost savings were achieved by auditing the staff and providing them in-services to improve in foley-catheter care in the unit. It is projected that the cost of project implementation was significantly less than the cost of CAUTI per patient.

As detailed in Appendix D (Table-a), first year project costs are projected to be \$4,398. Pashnik et al. (2017) stated that estimated CAUTI costs for 2.4 patient care days is \$7200 (or \$3,000 per patient per day). Three patients on the post-acute care unit developed CAUTI during the last quarter. Thus, if an average of 12 patients developed CAUTI each year, hospital costs was \$86,400. After conducting a Cost-Benefit Analysis (CBA), it was determined that the implementation of Nurse-Led CAUTI intervention will help the hospital to save about \$82,002 (86,400- 4398) in the first year. Additionally, the CNL student worked as an unpaid volunteer for 200 hours, which helps to save \$13000 ($\65×200) during the first year as detailed in Appendix D (Table-b). The implementation of Nurse-Led CAUTI intervention provides an opportunity to the post-acute care unit staff to bring about positive change for patient safety. The improved care provided to the patients with foley catheters likely result in improved patient satisfaction scores which provide the key measure of hospital quality of care to the CMS.

Interventions

It is important to clearly identify the health needs of the target population prior to designing and implementing changes. After identifying the staff's general needs as previously described, the focus is narrowed to the most critical educational needs (Stanhope & Lancaster, 2018). The CAUTI prevention and quality improvement project had the following nurse-led initiative interventions implemented on the PACU unit.

Monthly staff in-services and education competency were initiated for LVNs and RNs on the "HOUDINI" nurse-driven urinary catheter removal process as well as on sterile F/C insertion technique, urine sample collection, proper indication for catheter, F/C maintenance, and F/C removal. The staff had an opportunity to watch a video on catheter insertion, maintenance, taking urine samples, and removal of F/C. Following the video, an educational PowerPoint was presented on the hospital's F/C policies and procedures. Sharing visual information gave them the opportunity to process the information and provided different perspectives to give meaning to newly provided information so they can modify previous knowledge. The staff had a chance to demonstrate and practice of insertion of F/C by using sterile technique in group activities. They had an opportunity to receive and give feedback as well as to share opinions and feelings about the process.

The simplified "HOUDINI PROCESS" form (Appendix B) was added to the new admission bundle to ensure patients had an appropriate indication of F/C insertion upon arrival to the unit. The admitting nurse would take the report from the discharging nurse for proper indication and fill out this form. If the patient doesn't meet the criteria, then the admitting nurse will follow through the HOUDINI process and will contact the physician to remove F/C if appropriate.

The CAUTI auditing binder was created to keep a record of patients with F/C, date of insertion, indication, and the plan of care. This binder is part of the handoff report of RNs who pass it on to next shift. The CAUTI auditing binder is updated daily by admitting nurses.

The auditing nurse does random rounding on the unit for F/C audits, which includes checking proper indication for urinary catheter, observing CNA for perineal cleansing, keeping the urinary catheter bag below the bladder level and off the floor, monitoring close system intact, maintaining an unobstructed urine flow, and ensuring securement device in place. In addition, the auditor nurse provides feedback to the staff.

Study of the Intervention

Teach-back methods and techniques allowed the CNL to assess what the participants learned from teaching by asking them to demonstrate or recall/repeat teaching points from the session during and immediately following the session (Stanhope & Lancaster, 2018). Right after sharing video and education PowerPoint Presentation, the staff were asked to complete a quiz and then the correct answers were shared during discussion (Appendix D). In addition, the sterile foley catheter insertion technique competency was performed. If staff failed to perform the sterile technique, they were re-educated in the process and asked to re-perform the activity until they successfully demonstrated the procedure. Staff feedback and recommendations were collected and used to fine-tune future education sessions to make further progress in reaching the goal of decreasing and eventually eliminating CAUTI on the unit.

The simplified “HOUDINI PROCESS” form is part of the admission process for new patients. The AM shift charge nurse checks and audits the admission bundle. If the form is not completed properly or if the admission is still pending, then the AM shift charge nurse completes it as well as notifying the unit manager. The data are discussed during daily huddle with the

frontline staff and unit manager. During the Weekly audits, the CNL student goes over the completion of “HOUDINI PROCESS” to ensure it is done properly and that staff are in compliance with it. The CAUTI audit binder was created to keep track of patients with F/C, including the indication and the plan of care. The CNL student tracked the CAUTI audit binder data and presented it in the monthly interdisciplinary meeting.

Measures

The primary outcome measure for this project is to calculate the number of hospitals acquired CAUTI events and utilization of foley catheter during the project timeline (February to July 2021). The project had three process measures, including enhanced communication among physician and staff, decreased utilization of foley catheter, and decreased CAUTIs rate on the unit. The completion of the “HOUDINI PROCESS” upon new patient admission tracked and recorded for staff compliance. The daily CAUTI binder audit data helped to evaluate the number of F/C utilized and removed on time. Performance on the expected outcome of decreased CAUTI on the PACU being evaluated during the post-intervention period and follow-up by calculating the monthly CAUTI rate and comparing it to the CAUTI rate during the pre-intervention period.

Ethical Considerations

The project was approved by the faculty of the University of San Francisco as an evidence-based change of practice project, and it met the criteria of Non-Research Determination Form as stated in Appendix-E. The project was entirely a non-research-based project and consequently, Institutional Review Board (IRB) approval was not required. The quality improvement project support ethical principles of beneficence and non-maleficence for patients. Its motive was to evaluate and remove the obstacles in the microsystem that contributed in order to promote patient safety and help to avoid adverse events related to F/C and CAUTI.

The unit staff, management, and the infection prevention department played a major role in the successful implementation of the project. This project also resonates with the university's Jesuit core values that includes that "a culture of service that respects and promotes the dignity of every person" (University of San Francisco, n. d). Moreover, the staff worked collectively by establishing, maintaining, and continuing to improve clinical practice to provide optimal patient care as stated in fifth provision of American Nurses Association (ANA) code of ethics (ANA, 2015).

Section IV

Results

The PACU unit remained CAUTI free during the evidence-based improvement project timeline. The project succeeded in its aim to decrease the CAUTI rate in the unit. The baseline first quarter 2021 CAUTI rates were 3.5 CAUTI's/ 1000 catheter days in January 2021 and 10.2 CAUTI's/1000 catheter days in February 2021 (see Figure , Appendix I). As a result of the implementation of the nurse-led intervention, zero CAUTIs occurred during the project period from April to June 2021, well above the expected goal (90% reduction) for the project.

The overwhelming majority (80%) of patients had medical diagnoses such as AKI, urinary retention, daily intake, and output monitoring, while 20% of patients had undergone some operative procedure (Appendix J). The percentage of patients with operative surgery on the unit was lower than usual as a result of COVID-19. All CAUTI patients present on the unit during the pre- to post-intervention period were adults between ages of 50 and 75 years or older.

All PACU staff members (100%) completed the monthly staff in-service and post-quiz (see Table 4, Appendix B). The evaluation of the staff in-service post quizzes indicated that staff who provided the highest percentage of correct answers were those who indicated that they

learned about CAUTI prevention as a result of the in-service education. In another positive result, communication regarding following-up with physician to allow removal of F/C increased from 10% in January of 2021 to 100% in June 2021 (see Figure 3, Appendix I). As a result, Foley catheter utilization declined significantly on the unit during this period. The F/C was removed upon new admission if the criteria for utilization were not met on the same day of admission, following the post-F/C removal protocol as stated in Appendix E.

The CNL student will continue to conduct weekly audits, including CAUTI binder audits, random rounding on the floor, the provision of feedback to staff. The audit results are communicated with the unit manager during daily huddles and with the Director of Infection prevention during monthly meetings.

Section V

Discussion

The nurse-led CAUTI intervention used in this project has been tested in many studies and found to decrease the incidence of CAUTIs in hospitalized patients. As Tyson et al. (2018) noted, one of the most effective ways to prevent CAUTIs is to decrease utilization of F/C and to remove F/C as soon as the patient no longer requires it. Staff education on the utilization of F/C and on evaluating patients for early removal of catheters helped the PACU unit decrease its CAUTI rate. Also, Tyson et al. (2018) stated, physicians are responsible for ordering the insertion and removal of F/Cs. However, studies have shown that physicians tend to keep F/C in place for longer than needed or inappropriately, in some cases because they are unaware that the patient has a F/C. During the present project, we found incidents on the unit of this problem. Some of the providers were not even aware of patient had catheter in place.

Nurses are better situated than physicians to monitor catheter care. Nurses provide close care to patients and are responsible for performing catheter care. Compared to physicians, nurses are more aware of the patients who have a catheter and the patients who do not have a catheter. Nurses are good fit to provide F/C care. They can assess the patient on a daily basis to see if the patient still needs continued catheterization, and they can ask physicians for an order of catheter removal, if the patient does not require continued catheter care (Tyson et al., 2018). In this project, nurses had the responsibility to evaluate patients with F/C on the criteria for continuing or removal of the catheter. As a result of implementing this protocol, patients' catheters were removed if they didn't meet F/C utilization criteria as soon as patient arrived on the unit. After removal of the catheter, a bladder scan was done per the HOUDINI PROCESS.

Nurse-driven protocols for early catheter removal have shown good results in decreasing CAUTI rates (Tyson et al., 2018). In some cases, patients who came to the PACU were post knee surgery, hip surgery, and/or had abnormal kidney function. These patients do not need to have prolonged use of a F/C since they can have a temporary catheter placed. When the patients' physical mobility and kidney function improves, they may no longer need a catheter. The unit staff had been hesitant to remove F/Cs because it was assumed that the patient had surgery and needed a catheter. If patients came to unit with postoperative surgery and had limited physical mobility and needed a F/C, then the catheter was left in place. Tyson et al. (2018) said prolonged postoperative catheterization without any other indication is inappropriate as an indication for catheter utilization. The staff education, the implementation of the HOUDINI process upon admission, and the daily CAUTI audits encouraged the early removal of catheters. Overall, the nurse-led CAUTI prevention quality improvement project has increased staff's knowledge

related to the unit's HOUDINI PROCESS, improved communication with providers, and improved on-time catheter removal.

Conclusion

In conclusion, the nurse-led interventions on the PACU unit had a positive impact on CAUTI incidence and the rate of CAUTI on the unit. The evidence-based studies used in this project have showed that a nurse-led CAUTI intervention, including staff education on catheter utilization protocol, policies and protocol regarding catheter utilization, and on the maintenance and removal of catheters leads to a decrease in CAUTI rates and a decrease utilization of catheterization. Staff members' involvement and engagement as well as the strong support from the unit manager and the director of infection prevention played important roles in the success of this project.

The sustainability of the quality improvement project will be contingent on staff compliance with the implemented interventions, annual staff education, and the ongoing incorporation of staff nurse feedback into changes. As Chaghari et al. (2017) noted, training is a critical factor for enhancing the quality of patient care. Specifically, an empowering education model designed for in-service training of nurses has been shown to improve the occupational skills, competency, and professional skills among the staff (Chaghari et al., 2017). The projected costs of the project are significantly less than the likely realized cost-saving from decreased CAUTI rates on the unit following the implementation of the nurse-led CAUTI prevention intervention.

The implementation of the project in the context of evidence-based practice increased the likelihood that the project would meet the expected outcome of a 100% decrease in the unit's CAUTI rate within six months of project implementation. Overall, the proposed nurse-led

CAUTI prevention project succeeded in improving patient quality of care in the unit, improving patient safety, and reducing CAUTI-related hospital costs.

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Appendix A

Evaluation Tables

PICOT Question

In Post-Acute Care Unit adult patients with indwelling urinary catheters, how does Nurse-Led Initiative Interventions compare to usual care affect incidence and rate of CAUTIs within six months?

Study	Design	Sample	Outcome/Feasibility	Evidence rating
<p>Durant, D. J. (2017). Nurse-driven protocols and the prevention of catheter-associated urinary tract infections: A systematic review. <i>American Journal of Infection Control</i>, 45(12), 1331–1341. https://doi.org/10.1016/j.ajic.2017.07.020</p>	Systematic review	29 U.S.-based studies using a pre-post case-control approach	<p>The qualitative synthesis of results concluded that nurse-driven protocols appear to be effective in preventing CAUTI as assessed by reductions in CAUTI indicators and CAUTI rates.</p> <p>The reviewed studies seemed to indicate that nurse-driven protocols are highly useful for CAUTI prevention project.</p>	Level III, B rating
<p>Marra, A. R., Sampaio Camargo, T. Z., Gonçalves, P., Sogayar, A. M. C. B., Moura, D. F., Guastelli, L. R., Alves Rosa, C. A. C., da Silva Victor, E., Pavão dos Santos, O. F., & Edmond, M. B. (2011). Preventing catheter-associated urinary tract infection in the zero-tolerance era. <i>American Journal of Infection Control</i>, 39(10), 817–822. https://doi.org/10.1016/j.ajic.2011.01.013</p>	Quasi-experimental with 2-phase interrupted time series design	Inpatients in intensive care unit (ICU) and step-down units. 38-bed medical-surgical ICU and two 20-bed step-down units (SDUs) in a private tertiary hospital in São Paulo, Brazil.	<p>Before interventions CAUTIs rate in the ICU was 7.6 per 1,000 catheter-days After interventions CAUTIs rate 5.0 per 1,000 catheter-days. Before intervention CAUTI in the SDUs =15.3 per 1,000 catheter-days After intervention CAUTIs rate in SDU= 12.9 per 1,000 catheter-days.</p> <p>Study with clear measurements, low bias, and statistical analysis of results indicates that information will be most useful in CAUTI prevention rates.</p>	Level II, B rating

<p>Meneguetti, M. G., Ciol, M. A., Bellissimo-Rodrigues, F., Auxiliadora-Martins, M., Gaspar, G. G., Canini, S. R. M. da S., Basile-Filho, A., Laus, A. M., & Bakir., M. (2019). Long-term prevention of catheter-associated urinary tract infections among critically ill patients through the implementation of an educational program and a daily checklist for maintenance of indwelling urinary catheters: A quasi-experimental study. <i>Medicine</i>, 98(8), e14417. https://doi.org/10.1097/MD.00000000000014417</p>	<p>Quasi-experimental study</p>	<p>Critically-ill patients in a 9-bed intensive-care unit (ICU) over a 12-year period (January 1, 2005 – December 31, 2016). 9-bed general ICU in a public-affiliated tertiary care hospital in Southwest Brazil.</p>	<p>Incidence/density of CAUTI decrease from Phase I to Phase IV (14.9, 7.3, 3.8, and 1.1 per 1,000 catheter days, respectively).The study results provided strong evidence that evidence-based healthcare worker education and checklist-driven daily evaluation of indwelling urinary catheter indications were highly effective in reducing both CAUTIs rate and catheter utilization.</p> <p>Useful evidence based practice will help implement interventions to reduce CAUTIs rate.</p>	<p>Level II, B</p>
<p>Tyson, A. F., Campbell, E. F., Spangler, L. R., Ross, S. W., Reinke, C. E., Passaretti, C. L., & Sing, R. F. (2018). Implementation of a NURSE-DRIVEN protocol For Catheter removal to Decrease catheter-associated urinary tract infection rate in a SURGICAL Trauma ICU. <i>Journal of Intensive Care Medicine</i>, 35(8), 738-744. doi:10.1177/0885066618781304</p>	<p>Retrospective, cohort study</p>	<p>29-beds Surgical Trauma Intensive Care Unit (STICU) at Carolinas Medical Center and 827-bed urban level 1 academic trauma center at Western North Carolina region</p>	<p>All components of CAUTI multimodal strategy showed improvement in the postintervention period. CAUTIs rate declined from 5.1 to 2.0/1000 catheter-days in the pre-vs postimplementation of interventions.</p> <p>The nurse-driven protocol highly compatible with Post-Acute Care Unit. The available resources and support of administration will help to reduce CAUTIs rate and catheter utilization in the unit.</p>	<p>Level 1, A</p>
<p>Quinn, P. (2015). Chasing zero: A nurse-driven process for catheter</p>	<p>Evidence Based</p>	<p>301-bed non-academic</p>	<p>The facility saw a dramatically decline in CAUTIs rate from 4.9/1,000 catheter days in 2008</p>	<p>Level</p>

<p>associated urinary tract infection reduction in a community hospital. Nursing Economics, 33(6), 302-325. www.journaldata.com/journal/nursingeconomics.html</p>	<p>Project (EBP)</p>	<p>community hospital in New York City</p>	<p>to 3.9/1,000 catheter days in 2009 during EBP project. Also, CAUTIs rate continued decrease from 2009 to 2013 where the rate was only 0.2/1,000 catheter days.</p> <p>The evidence based project has strong evidence and effective result indicate that information will be most useful in CAUTI prevention rates.</p>	<p>1, A</p>
<p>ç</p>	<p>Retrospective Process Improvement Prospective Study</p>	<p>N-75 acute tertiary care hospital Medical units with various medical conditions in Singapore</p>	<p>CAUTIs rate decreased from 4 to 0 /1000 catheters days which revealed significant difference between pre and post implementation period.</p> <p>Significant findings from this study indicate that information will be most useful to decrease utilization of F/C and CAUTI rates.</p>	<p>Level 1, A</p>

Appendix B. Project Charter

Title

The Impact of Nurse-Led Initiative Interventions on CAUTI

Global aim

The Global aim of this project to decrease or eliminate the CAUTI, increase patient safety and save costs by reducing or eliminating Centers for Medicare and Medicaid Services' (CMS) penalty payments (Pashnik et al., 2017).

Specific Aim

The specific aim of the project is to decrease utilization of F/C and decrease or eliminate the rate of the CAUTI by 90% on the unit within six months of the implementation of nurse-led interventions.

Background information/rationale for project

Catheter-associated urinary tract infections (CAUTI) are one of the most common types of nosocomial or hospital-acquired infections (HAIs) (Gesmundo, 2016). It is estimated that 40% of HAIs are UTIs, 80% of which can be attributed to indwelling catheters. The leading cause of CAUTI is the transmission of bacteria to the urinary tract via Foley catheter, typically inserted during surgery because the patient cannot control bladder function. Pashnik et al. (2017) reported that CAUTI ranks as the leading cause of secondary nosocomial bloodstream infections, thus accounting for 17% of hospital acquired bacteremia, which has a 10% mortality rate. One study found that in patients with CAUTI, the number of days hospitalized increased from 0.5 to 2.4 days (Pashnik et al., 2017). The implementation of and compliance with effective CAUTI prevention measures reduced the incidence CAUTI and improve patient safety. Hospital able to

reduce CAUTI through modifications to catheter policies and procedures. One important first step is to avoid all unnecessary insertion of indwelling catheters (Gesmundo, 2016).

Sponsors

Table 1

Sponsors and Preceptors

Names	Roles
Maykel Alanjo	Director of quality improvement
Kerianne Caligiure	Chief Nursing Officer (CNO)
Mark Feltt	Administrator of PACU
Gina Witter	Nursing Manager
Regin Chan	Director of Staff Development

Goals for the project

To decrease utilization of F/C and decrease or eliminate the rate of the CAUTIs by 90 % on the unit by following interventions:

- Educating staff regarding CAUTIs and hospitals policies and protocols
- Educating staff on the “HOUDINI PROCESS”
- Ensure adequate indication for foley catheter use upon patient’s admission
- Decrease utilization of Foley catheter
- Decrease CAUTI rates on unit
- Decrease hospital length of stay
- Decrease financial burden associated with CAUTIs
- Improve patient’s health outcome, quality of care, and safety

Table 2

Measures: outcome, process, balancing

	Data source	Target
Outcome		
Adequate indication for Indwelling Foley Catheter	EMR (Electronic Medical Record), Patient chart	100%
Decrease CAUTI rates on Post-Acute Care Unit (PACU)	EMR, Infection prevention quarterly report	90%
Process		
% Staff who received educational In-services on CAUTI prevention and HOUDINI process	Reviewing In-services' attendance roster	100%
% HOUDINI process assessment performed upon admission	Daily and Weekly audit	100%
Balancing		
Remove Foley Catheter when appropriate or not needed.	Internal audit	100%
No increase in CAUTI rates on PACU	Weekly audits, infection prevention report	<6 months

Table 3

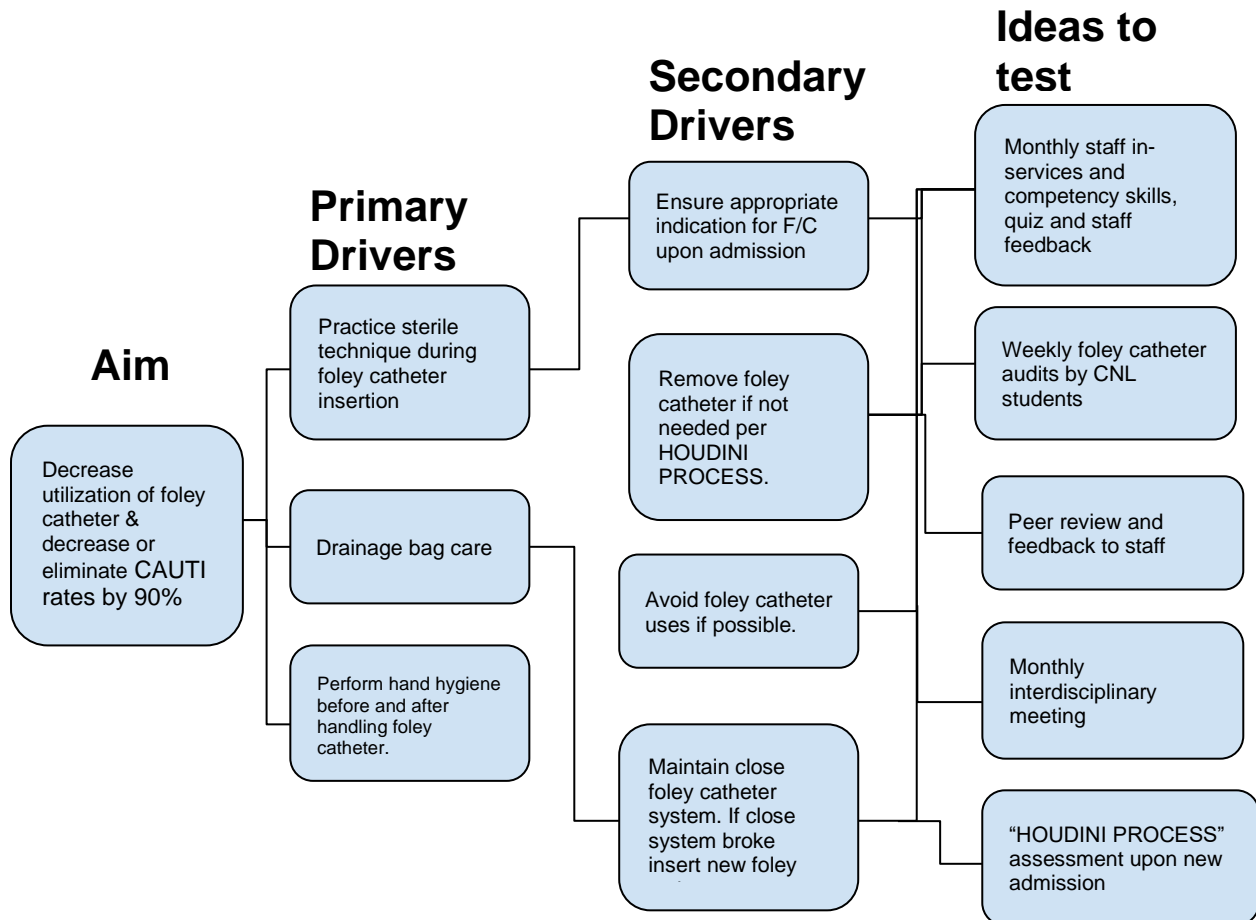
Microsystem Team

Medical Director	Dr. Hazlehurst John
Nurse Manager	Gina Wittert
Director or Staff Development (DSD)	Regin Chan
Registered Nurses	All PACU RNs
License Vocational Nurses	All PACU LVNs
Certified Nurse Assistants	All PACU CNAs
Infection prevention coordinator	Maykel Alanzo

Table 4
Measurement Strategy

Measure	Measure Definition	Data collection source	Goal
Indication for Indwelling Foley Catheter	Number of patients with proper indication/ Total number of patients with f/c x 100	MD order, EMR, patient Chart	100%
Decrease CAUTI rates	CAUTI rates will be compared with pre and post implementation of interventions.	Weekly audits, infection prevention report	90%
% HOUDINI process assessment upon admission	Number of HOUDINI PROCESS assessment/ total number of patients with F/C x100	Weekly audits	100%
% Staff who received educational In-services on CAUTI prevention and HOUDINI process	Number of staff attended in-services/ total staff members x 100	Review In-services' attendance roster	100%

Figure 5 Driver Diagram-design



Changes to test-List 2-3 interventions to test







- A. Staff in-services, skills competency training on F/C insertion, maintenance, and removal.
- B. Making “HOUDINI PROCESS” part of new admission bundle to ensure patient have appropriate indication of F/C insertion.
- C. Auditing nurse reviewed the patients with existing foley catheter, visiting each patient, inspecting, and reviewing the medical record.
- D. The auditor nurse provided feedback to the staff.
- E. Recorded data presented in the monthly interdisciplinary meeting.
- F. The education material was prepared based on the auditing data and staff had competency training in scheduled mandatory in-services.

CNL Competencies-list top 3 and describe succinctly

1. Perform a comprehensive microsystem assessment to provide the context for problem identification and action (King et al., 2019).
2. Collaborate with healthcare professionals, including nurse manager, physicians, nurses and others to plan, implement and evaluate an improvement opportunity (King et al., 2019).
3. Use evidence to design and direct system improvements that address trends in safety and quality (King et al., 2019)

Table 6

Project Timeline (Gantt Chart)

Tasks	February	March	April	May	June	July
Identify the problems and prioritize the tasks						
Education material according to collected data						
In-services and competency training						
CNL will perform weekly audits						
Monthly interdisciplinary meeting						
Evaluation						

Appendix C**SWOT Analysis****Strengths**

- Staff willing to improve in patient safety.
- Staff is encouraged to participate in shared decision-making process.
- Experienced and skilled staff.

Weakness

- Shortage of staff.
- Communication gap among different disciplines.
- Lack of consistency to follow policies and procedures.
- Floater staff non-compliance.
- Staff Turnover.

Opportunities

- Staff will be involved in decision-making process
- Free education training
- Free auditing by CNL will lighten the workload.
- Decrease CAUTI & increase patient outcome
- Increase unit revenue

Threats

Staff resistance toward to the changes

Appendix D

Table 1a.

Estimated cost for CAUTI (length of stay)

Average increase in length of stay	Estimated Cost for 2.4 patient care day	Estimated daily cost for each patient care day
2.4 patient care day	\$ 7200	\$ 3000

Table 1b

Cost for implementation of project

Total number of staff	Estimated costs of three hours in-service	Total estimated costs of 1 st year	Total estimated costs of 2 nd year
RN 12 + LVN 8+ CNA18	$(\$62 \times 12 + \$34 \times 8 + 18 \times 25) \times 3$	\$4398	
RN 12 + LVN 8+ CNA 18	$(\$62 \times 12 + \$34 \times 8 + 18 \times 25) \times 2$		\$2932
CNL - (volunteer to work as Auditor)	\$ 64X 200hours (\$12800)	\$0	\$0
Total costs		\$4398	\$2932

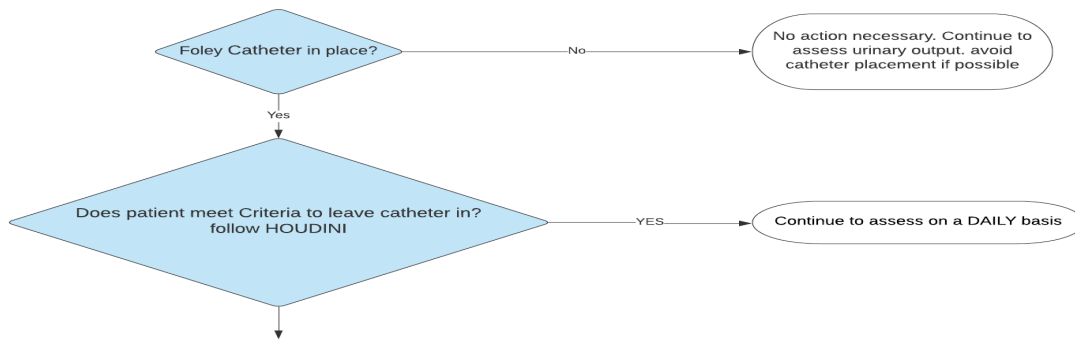
Total two years budget= (first year budget +second year budget) (\$4398+2932) = \$7330

Appendix E

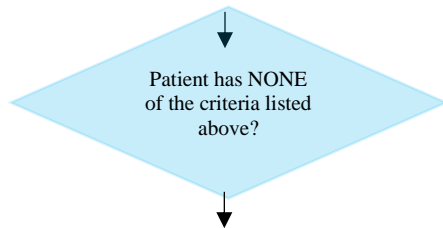
AHMC Seton Medical Center (Post- Acute Care Unit)

“HOUDINI” Nurse Driven Urinary Catheter Removal Process

Indwelling Urinary Catheter Day: _____ **Unit** _____



	Indication	YES	NO
H	Hematuria		
O	Obstruction/retention/ catheterized by urologist		
U	Urology surgery		
D	Decubitus Ulcer		
I	Input and output measurement		
N	Nursing end of life care		
I	Immobility due to physical condition		



<p>ACTION: Remove catheter and assess for voiding within 4hrs x3: Scan bladder If > 400cc, straight catheter If < 400cc, nursing measures to promote voiding Repeat at 8hrs</p>	<p>No bladder scanner available in unit: Palpate bladder for distention, assess patient’s comfort level; straight catheterize patient as determined by assessment.</p>
--	--

Order for New Foley? _____

RN Name _____ **Date/Time** _____

Appendix F

Quiz (staff In-services)

- | | True | False |
|--|--------------------------|--------------|
| 1. The bladder is sterile (circle correct response) | | |
| 2. The urethra is usually sterile in healthy non-catheterized people | True | False |
| 3. In healthy non-catheterized people urine flow flushes out any invading bacteria | True | False |
| 4. A urinary catheter is a foreign body | True | False |
| 5. Reflux of contaminated urine from collecting bag is not an infection risk | True | False |
| 6. A urinary catheter: (tick all correct responses) | | |
| a. is a foreign body allowing potentially harmful uropathogens to enter the bladder | <input type="checkbox"/> | |
| b. disrupts the protective mechanisms against infection – e.g., urine flow | <input type="checkbox"/> | |
| c. causes damage during insertion that exposes the urinary tract to colonization and infection | <input type="checkbox"/> | |
| d. can result in incomplete voiding of urine from the bladder because of retention of residual urine due to catheter balloon providing a medium for bacterial growth | <input type="checkbox"/> | |
| 7. Bacteria can only ascend into the urinary tract on the outside of the catheter (i.e. extraluminal route) – between catheter and ureter epithelial surface | True | False |
| 8. CAUTI can only be caused via contaminated equipment and/or the hands of health care workers (exogenous infection) | True | False |

Appendix G

CNL Project: Statement of Non-Research Determination Form

Student Name: Dalveer Kaur

Title of Project: The Impact of Nurse-Led Initiative Interventions on CAUTI

Brief Description of Project: The proposed solution for the problem of high rates of CAUTI at the Post-Acute Care Unit is the implementation of nurse-led initiative interventions to decrease or eliminate CAUTI. The nurse-led initiative interventions used a Plan-Do-Study-Act (PDSA) cycle and include the involvement of the Clinical Nurse Leader (CNL), other unit leadership, unit staff, and infection control management. Infection control provided training to one staff member, the CNL student, to conduct weekly audits in the unit. The audit data was incorporated into monthly interdisciplinary staff meetings. The project was implemented over six months to allow adequate time to evaluate its effectiveness and to consider the feasibility of hospital-wide implementation. The primary objective of the project is to decrease the unit CAUTI rate by 90% within six months of project implementation. It is anticipated that the proposed nurse-led initiative interventions decreased the incidence of infection and decrease utilization of foley catheter, increase patient safety, and save costs by reducing or eliminating Centers for Medicare and Medicaid Services' (CMS) penalty payments

A) Aim Statement: The specific aim of the project is to decrease utilization of F/C and decrease or eliminate the rate of the CAUTI by 90% on the unit within six months of the implementation of nurse-led interventions.

B) Description of Intervention:

- G. Staff in-services, skills competency training on F/C insertion, maintenance, and removal.
- H. Making "HOUDINI PROCESS" part of new admission bundle to ensure patient have appropriate indication of F/C insertion.
- I. Auditing nurse reviewed the patients with existing foley catheter, visiting each patient, inspecting, and reviewing the medical record.
- J. The auditor nurse provided feedback to the staff.
- K. Recorded data was presented in the monthly interdisciplinary meeting.
- L. The education material was prepared based on the auditing data and staff had competency training in scheduled mandatory monthly in-services.

C) How will this intervention change practice?

The Clinical Nurse Leader student, other unit leadership, unit staff, and infection control

management is part of the project to implement the changes in the unit to improve foley catheter care. The CNL student educated staff regarding hospital “HOUDINI PROCESS” by using available resources, evidence-based practice, and strategies to teach the patient and the staff to decrease the CAUTI rate. The new technology and the changes to the system may create a knowledge gap among the healthcare workers. The CNL student helped to fill in that gap by designing, implementing, evaluating, and revising the continuing education programs for nurses. The staff was encouraged and educated to adopt the changes and incorporate evidence-based practice to promote patient safety and achieve reductions in CAUTI.

D) Outcome measurements: During the monthly meetings, the auditing data was discussed with infection prevention management and unit management. Performance on the expected outcome of decreased CAUTI on the PACU was evaluated during the post-intervention period and follow-up by calculating monthly CAUTI rate and comparing it to the CAUTI rate during the pre-intervention period.

To qualify as an Evidence-based Change in Practice Project, rather than a Research Project, the criteria outlined in federal guidelines will be used:

(<http://answers.hhs.gov/ohrp/categories/1569>)

S This project meets the guidelines for an Evidence-based Change in Practice Project as outlined in the Project Checklist (attached). Student may proceed with implementation.

This project involves research with human subjects and must be submitted for IRB approval before project activity can commence.

Comments:

*EVIDENCE-BASED CHANGE OF PRACTICE PROJECT CHECKLIST **

Instructions: Answer YES or NO to each of the following statements:

Project Title:	YES	NO
The aim of the project is to improve the process or delivery of care with established/ accepted standards, or to implement evidence-based change. There is no intention of using the data for research purposes.	P	
The specific aim is to improve performance on a specific service or program and is a part of usual care . ALL participants will receive standard of care.	P	
The project is NOT designed to follow a research design, e.g., hypothesis testing or group comparison, randomization, control groups, prospective comparison groups, cross-sectional, case control). The project does NOT follow a protocol that overrides clinical decision-making.	P	
The project involves implementation of established and tested quality standards and/or systematic monitoring, assessment, or evaluation of the organization to ensure that existing quality standards are being met. The	P	

project does NOT develop paradigms or untested methods or new untested standards.		
The project involves implementation of care practices and interventions that are consensus-based or evidence-based. The project does NOT seek to test an intervention that is beyond current science and experience.	P	
The project is conducted by staff where the project will take place and involves staff who are working at an agency that has an agreement with USF SONHP.	P	
The project has NO funding from federal agencies or research-focused organizations and is not receiving funding for implementation research.	P	
The agency or clinical practice unit agrees that this is a project that will be implemented to improve the process or delivery of care, i.e., not a personal research project that is dependent upon the voluntary participation of colleagues, students and/ or patients.	P	
If there is an intent to, or possibility of publishing your work, you and supervising faculty and the agency oversight committee are comfortable with the following statement in your methods section: <i>“This project was undertaken as an Evidence-based change of practice project at X hospital or agency and as such was not formally supervised by the Institutional Review Board.”</i>	P	

ANSWER KEY: If the answer to **ALL** of these items is yes, the project can be considered an Evidence-based activity that does NOT meet the definition of research. **IRB review is not required. Keep a copy of this checklist in your files.** If the answer to ANY of these questions is **NO**, you must submit for IRB approval.

*Adapted with permission of Elizabeth L. Hohmann, MD, Director and Chair, Partners Human Research Committee, Partners Health System, Boston, MA.

STUDENT NAME (Please print): DALVEER KAUR

Signature of Student: Dalveer kaur DATE 04/16/2021

SUPERVISING FACULTY MEMBER NAME (Please print):

Signature of Supervising Faculty Member

DATE _____

Appendix I

Figure 1 CAUTI rates Pre-intervention and Post-intervention

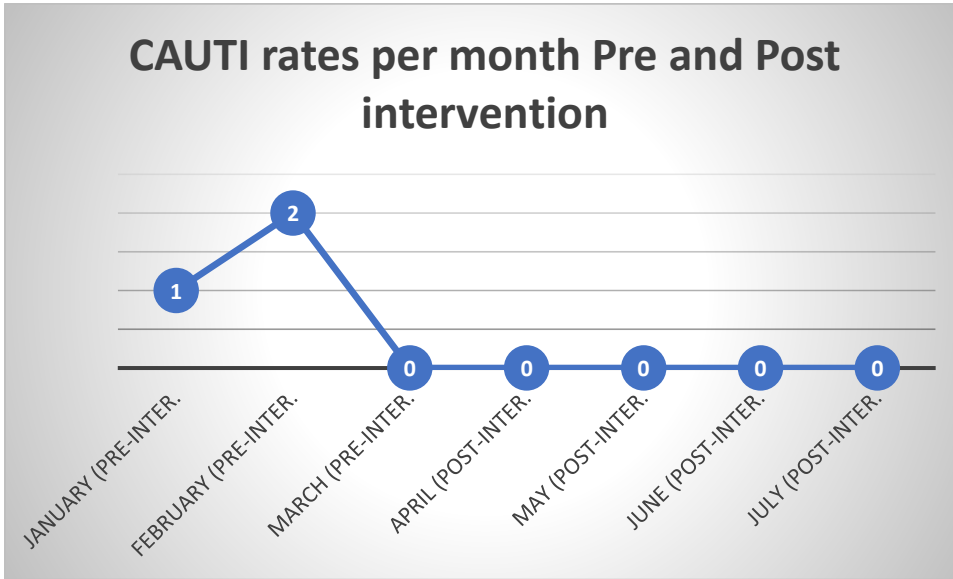


Figure 2

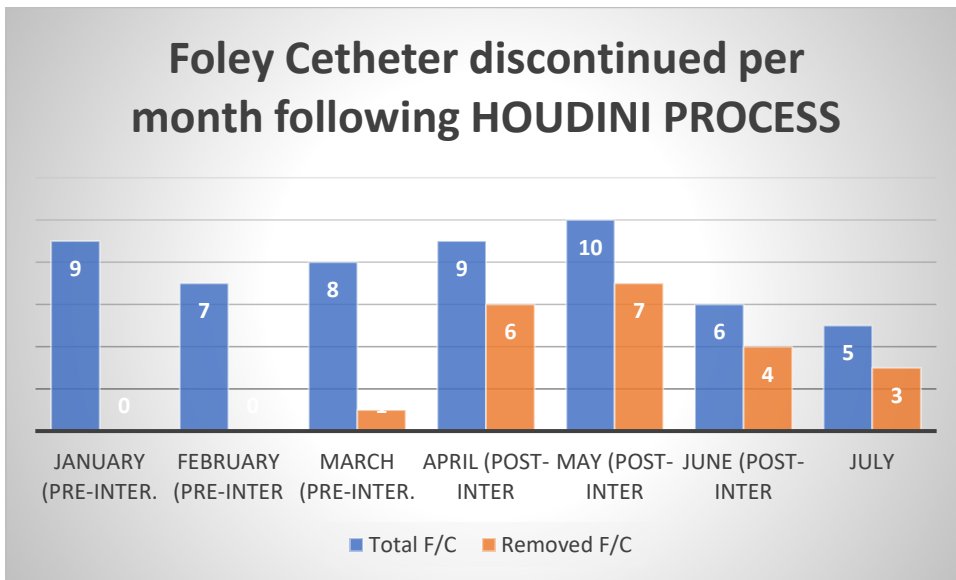


Figure 3

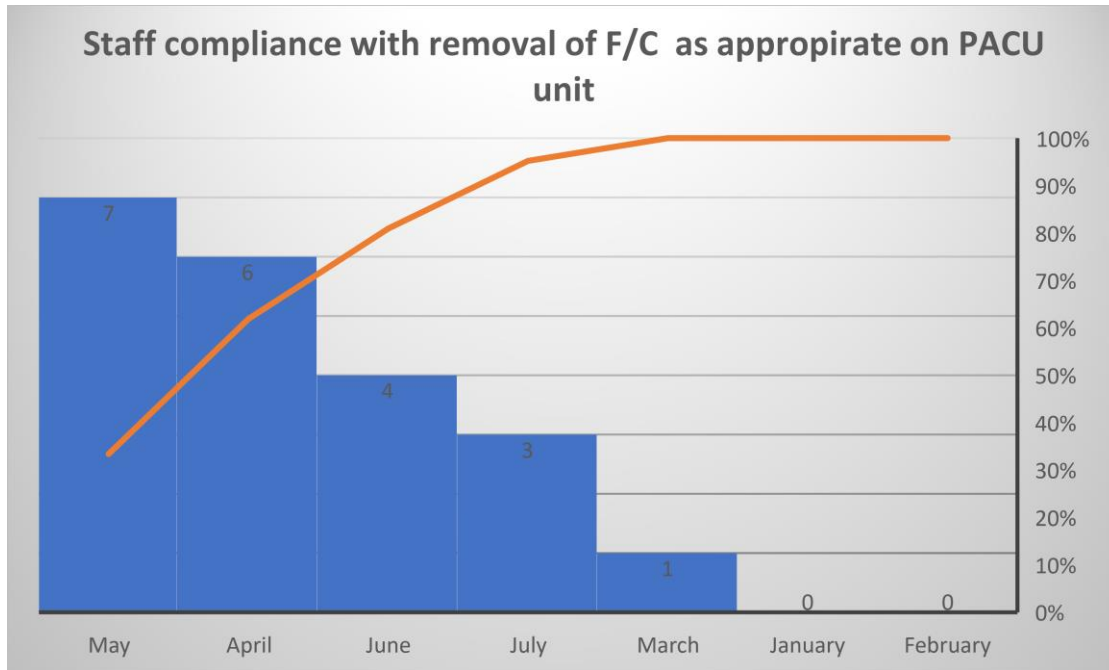


Figure 4

In addition, incidence rates can be further defined to specific medical devices. To calculate the incidence of Catheter-Associated UTI (CAUTI), use the same formula:

$$\frac{3 \text{ CAUTI's}}{600 \text{ catheter days}} \times 1000 = 5 \text{ CAUTI's per 1000 catheter days}$$

(20 residents with catheters x 30 days in April**)

****Count residents with catheters on a daily basis and then total for the month.**

The incidence rate is a way to measure the extent or frequency with which residents experience infections. The information can be displayed in charts or graphs for comparison purposes. Rates can be used to report trends, identify and implement control measures, and monitor impact of those measures.

https://healthcentricadvisors.org/wp-content/uploads/2017/03/Cal_Inf_Rates.pdf

Figure 5

<p>January CAUTI rates</p> <p><u>1 CAUTIs</u> _____ X1000= 3.5 CAUTIs per 1000 catheter days</p> <p>9 patients with F/C x 31 days in January</p> <p>February CAUTI rates</p> <p><u>2 CAUTIs</u> _____ X1000= 10.2 CAUTIs per 1000 catheter days</p> <p>7 patients with F/C X 28 days in February</p>
--

Appendix J

Inpatient Unit Profile							
A. Purpose: Why does your unit exist?							
Post-Acute Care Unit		Site Contact: 650-991-6767			Date: 1/2/2021		
Administrative Director: Jerry Burk		Nurse Director: Gina Wittert			Medical Director: Dr. Hazelhurst		
B. Know Your Patients: Take a close look into your unit, create a “high-level” picture of the PATIENT POPULATION that you serve. Who are they? What resources do they use? How do the patients view the care they receive?							
Est. Age Distribution of Pts:	%	List Your Top 10 Diagnoses/Conditions			Patient Satisfaction Scores		% Always
19-50 years	10 %	1.CHF	6. Heart surgery		Nurses	80%	
51-65 years	30%	2.Hip replacement	7. Sepsis		Doctors	78 %	
66-75 years	40%	3.Knee replacement	8. Cellulitis		Environment	90%	
76+ years	20%	4. Spine surgery	9. UTI		Pain	80%	
		5. Diabetes	10. Falls		Discharge	% 85 Yes %	
% Females	60%				Overall	% 4.2 Excellen % t	
Living Situation	%	Point of Entry		%	Pt Population Census: Do these numbers change by season? (Y/N)		Y/N
Married	40	Admissions	30		Pt Census by Hour	Y	
Domestic Partner	0	Clinic	0		Pt Census by Day	Y	
Live Alone	10	ED	0		Pt Census by Week	Y	
Live with Others	20	Transfer	70		Pt Census by Year	Y	
Skilled Nursing Facility	0	Discharge Disposition	%		30 Day Readmit Rate	Y	
Nursing Home	0	Home	15		Our patients in Other Units	Y	
Homeless	30	Home with Visiting Nurse	80		Off Service Patients on Our Unit	Y	
Patient Type	LOS avg.	Range	Skilled Nursing Facility		5	Frequency of Inability to Admit Pt	N
Medical		80%	Other Hospital		0	<i>*Complete “Through the Eyes of Your Patient”, pg 8</i>	
Surgical		20%	Rehab Facility		0		
Mortality Rate			Transfer to ICU		0		
C. Know Your Professionals: Use the following template to create a comprehensive picture of your unit. Who does what and when? Is the right person doing the right activity? Are roles being optimized? Are all roles who contribute to the patient experience listed?							
Current Staff	Day FTEs	Evening FTEs	Night FTEs	Weekend FTEs	Over-Time by Role	Admitting Medical Service	%
MD Total	7	7	4	4		Internal Medicine	80
Hospitalists Total						Hematology/Oncology	5
Unit Leader Total	3	1	0	0		Pulmonary	10
CNSs Total	1	1	1	1		Family Practice	0
RNs Total	3	4	4	6		ICU	0
LPNs Total	1	1	0	2		Other	5
CNAs Total	3	2	2	6		Supporting Diagnostic Departments	
Residents Total	10	10	10	10		(e.g. Respiratory, Lab, Cardiology,	
Technicians Total	0	0	0	0			

Secretaries Total	1	0	0	0		Pulmonary, Radiology)
Clinical Resource Coord.	1	1	1	1		
Social Worker	1	0	0	0		
Health Service Assts.	1	1	0	1		
Ancillary Staff	2	2	0	2		
Do you use Per Diems?	Yes	<input checked="" type="checkbox"/> NO	Staff Satisfaction Scores			%
Do you use Travelers?	Yes	<input checked="" type="checkbox"/> NO	How stressful is the unit?	% Not Satisfied	90	
Do you use On-Call Staff?	Yes	<input checked="" type="checkbox"/> NO	Would you recommend it as a good place to work?	% Strongly Agree	80%	
Do you use a Float Pool?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> NO				
*Each staff member should complete the Personal Skills Assessment and "The Activity Survey", pgs 10 - 12						
D. Know Your Processes: How do things get done in the microsystem? Who does what? What are the step-by-step processes? How long does the care process take? Where are the delays? What are the "between" microsystems hand-offs?						
1. Create flow charts of routine processes.	Do you use/initiate any of the following?			Capacity	# Rooms: 24	# Beds: 39
a) Overall admission and treatment process	Check all that apply					
b) Admit to Inpatient Unit	<input checked="" type="checkbox"/> Standing Orders/Critical Pathways					
c) Usual Inpatient care	<input checked="" type="checkbox"/> Rapid Response Team					
d) Change of shift process	<input checked="" type="checkbox"/> Bed Management Rounds					
e) Discharge process	Multidisciplinary/with Family Rounds					
f) Transfer to another facility process	Midnight Rounds					
g) Medication Administration	<input checked="" type="checkbox"/> Preceptor/Charge Role					
h) Adverse event	<input checked="" type="checkbox"/> Discharge Goals					
2. Complete the Core and Supporting Process Assessment Tool, pg 14						
E. Know Your Patterns: What patterns are present but not acknowledged in your microsystem? What is the leadership and social pattern? How often does the microsystem meet to discuss patient care? Are patients and families involved? What are your results and outcomes?						
• Does every member of the unit meet regularly as a team?	• Do the members of the unit regularly review and discuss safety and reliability issues?		• What have you successfully changed?			
• How frequently?			• What are you most proud of?			
			• What is your financial picture?			