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# Nurse-Driven Protocol to Reduce Urinary Catheter Infections: A Quality Improvement Project

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Nurse-Driven Protocol to Reduce Urinary Catheter Infections: A Quality Improvement Project

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## NURSE-DRIVEN PROTOCOL TO REDUCE INFECTIONS

### **Abstract**

The costs of healthcare have become astronomical, not only in the financial sense of the meaning, but in many aspects of life for both the patients and healthcare providers. Costs include those accompanying healthcare associated infections (HAI), where as a result of environmental factors, acquires an infection while admitted. Since 2008, Medicare and Medicaid no longer reimburse hospitals for infections deemed ‘reasonably preventable.’ The biggest offender of this type of HAI is overwhelmingly, catheter associated urinary tract infections (CAUTI) (Kennedy, Greene & Saint, 2013). With approximately 31% of the inpatient population requiring an indwelling catheter at some point throughout their stay, risk of infection increases daily (Adams, Bucior, Day & Rimmer, 2012). Outcomes of this infection can be attributed to bloodstream infections (BSI), and increased morbidity and mortality (Kennedy, Greene & Saint, 2013). This quality improvement project aims to implement a nurse-driven protocol for indwelling catheter removal, based on evidence that the duration of the time a catheter is in place is directly proportional to the risk for infection. By revising current protocol, an intensive care unit (ICU) at an acute care hospital will pilot this nurse-driven protocol, prompt frequent reassessment of the indication for removal, and if no longer in need, remove the catheter. The outcome and process measures collected will allow for analysis of pre and post-intervention rates of CAUTI in an effort to increase nurse autonomy, satisfaction, positive patient outcomes, as well as decreasing patient risk of infection and mortality. The National Healthcare Safety Network lists reduction of CAUTI by 25% as one of their goals by 2020 (CDC, 2017).

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### **Introduction**

#### **Problem Description**

Catheter associated urinary tract infections (CAUTI) have been identified as one of the most common healthcare associated infections (HAI) and carry deadly risks of bacteremia, higher morbidity and mortality (Adams, Bucior, Day & Rimmer, 2012). Not only does the risk of infection increase proportionally to the length of indwelling time, but the costs associated with these nosocomial infections negatively impact the financial state of hospital reimbursement. The greatest risk factor for patients developing CAUTI is prolonged use of the indwelling urinary catheter (AACN, 2016).

In the intensive care unit setting, at an average acute care hospital, up to 90% of hospitalized patients receive an indwelling urinary catheter at some point (AACN, 2016). Studies show that often, after indications are no longer present, catheters remain in place, increasing the risk of developing CAUTI by 3-7% each day the catheter remains in place (CDC, 2017). Similarly, when assessing hospitalized patients in non-ICU settings, approximately 50% with indwelling urinary catheters in place no longer had the initial indication. When frequent reassessment is not performed, or is done so improperly, catheters may remain indwelling for days, increasing the risks of infection (CDPH, 2018).

Current practice at the clinical site this quality improvement project will be performed at, prompts nurses to document certain criteria each shift for the continued indication of catheter, however, no hard stop exists. This means that if a nurse continues to chart the same indication that previously existed, even when this indication is no longer valid, there is no secondary assessment or 'hard stop' mandated (as there is for other elements of required charting) before moving on, and opportunity for discontinuation may be missed. A second look with the ICU

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manager, revealed an independent screen (Appendix G), with a bubble to click on that had further checklist information, and prompted the nurse to reassess indication for the catheter, but if the documenter did not click this bubble, continued charting on original indication for insertion was likely, and reassessment for indication may be skipped.

Improvement of this problem is important as there are a high percentage of ICU patients with indwelling catheters, placing them at great risk for infection, therefore decreasing numbers of days catheters were left in place could potentially decrease rates of infection, and theoretically deadly sequella.

### **Available Knowledge**

Health care costs for Medicare and Medicaid patients continue to grow, and since 2008, hospitals are no longer reimbursed for HAI, deemed ‘reasonably preventable’ (Kennedy, Greene & Saint, 2013). As UTIs are the most common HAI, with approximately 80% of UTI linked to indwelling urinary catheters, pressure has mounted to reduce infection rates (AACN, 2016). One study by Kennedy, Greene and Saint (2013) estimates that between five and ten percent of all hospitalized patients are affected by HAIs and the associated costs result in a \$45 billion financial loss for hospitals.

The PICO statement used for this project to research the literature is as follows: In the intensive care unit (ICU) patient population, how does nurse-driven protocol to remove indwelling urinary catheters, versus the current method of obtaining discontinuation orders from the doctor, decrease the incidence of catheter associated urinary tract infections (CAUTI)?

Current literature, pertaining to the concept of nurse-driven protocol as standardization of practice initiatives, is recommended by the AACN (2016). The AACN agrees that nurse-driven

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protocol is a step towards promoting positive patient outcomes and adds that frequent reevaluation is a necessary practice to decrease risk of acquiring CAUTIs (AACN, 2016).

Fusion database was utilized, through University of San Francisco's library database, and key words: CAUTI prevention, nurse driven and protocol were used. Selection criteria was limited to English articles only, published within the last ten years, scholarly and peer-reviewed, and available in full text pdf. This resulted in 190 articles to research.

Synthesis of this material revealed similar statistical findings in respect to CAUTI rates, varying from 3-7% risk increase daily with each day of an indwelling catheter in place (Maxwell, Murphy & McGettigan, 2018). A systematic review of 29 studies was performed regarding CAUTI prevention related to nurse-driven protocol, and revealed positive predictors of CAUTI, however a high risk of bias and low use of quality indicators used was revealed (Durant, 2017). All but one study found a reduction in CAUTI rates, using predictive factors, and recommendations for quality improvement study design were given (Durant, 2017).

Quality improvement has garnered itself as a top priority both for patients and staff alike at the practicum site where this project will take place. Credos have been developed to guide the cultural caregiving implored by this clinical education site. One such credo is dedicated to safety and high levels of cleanliness. Not only does this project closely align with the cultural goals of the hospital, but the National Patient Safety Goal 07.06.01 directly relates to prevention of UTI related to indwelling catheters (Joint Commission, 2019). Prevention of harm to patients, reduction of non-productive nursing hours, and reducing financial burden of non-payment for preventable HAI costs incurred as a result of urinary catheters and UTIs, are of high priority to the clinical site institution.

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Healthcare costs relating to CAUTI have also been found in some studies to be a result of secondary bloodstream infections (BSI), with CAUTI as the leading cause of this occurrence (CDPH, 2018). Kennedy, Greene and Saint (2013) agree that costs associated with these secondary infections could diminish with clinical reduction in catheter use and lead to an average of a 50% decrease in total CAUTI related costs. A tool was created to assist healthcare organizations in estimating the potential savings per reduction of CAUTI, after intervention. This tool relied on the concept that one of four outcome would present after urinary catheter insertion (1) no infection would be present, (2) bacteriuria, (3) bacteriuria and symptomatic UTI (SUTI) or (4) bacteriuria and BSI or (5) bacteriuria, BSI and SUTI (Kennedy, Greene & Saint, 2013). Each outcome was calculated as a per-patient cost factor, and able to be used as a tool to multiply each type, for hospitals to determine the resulting costs of infection. Costs for SUTI were found to average approximately \$911 while costs for BSI averaged \$3842. The major limit with this tool, although useful and applicable currently, is that the costs are from 2013, and updated medical costs to reflect inflation are likely indicated. Conceptually, this tool aids in calculation of results of HAI and how prevention is absolutely in the best interest of all parties involved.

### **Rationale**

To instill change in the unit, the process of indwelling catheter insertion, maintenance, indication and removal needed to be examined. Using a plan-do-study-act (PDSA) method, the information obtained was be plugged in to these elements of the model for improvement and improvements measures (Nelsen, Batalden & Godfrey, 2007). The first question considered during this phase was the aim, or what exactly the project was trying to accomplish. In this case, it was a reduction of indwelling catheter days by means of a nurse-driven protocol for removal when no longer indicated. The measures used in this project were quantitative; the average

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number of catheter days pre and post-intervention, and the percentage of CAUTI infections in 2019, compared to 2017-2018. The ultimate goal of using these measures was reduction of harm, CAUTI, as measured in the quantitative, retrospective analysis of CAUTI rates of hospitalized patients. The changes made, would be nursing intervention-based, and prompt nurses to reassess indications during each shift, for continued need of the catheter. Changes to the current CAUTI prevention policy will add a nurse-driven protocol for catheter removal, will need medical board approval, be published, and be able to be viewed by all nurses on the company's PolicyStat web links. This will allow nurses more autonomy in removing catheters without needing to obtain a physician's order to do so, as long as proper assessment findings indicate, per protocol, removal is warranted.

Rationale to indicate this project would be successful in reduction of CAUTI rates relies on reducing indwelling catheter days. One study showed that with a cultural shift in CAUTI prevention, focus on indwelling catheter discussion during daily rounds in an ICU setting revolved around planning the discontinuation (Maxwell, Murphy & McGettigan, 2018). The highlight would not be about how many days the catheter was in, but when the catheter was expected to come out. This element of discussion is one that is planned to be implemented with this project, as this study revealed an 87.5% reduction in CAUTI rates. Another method using the model for improvement, in addition to the PDSA cycles, was the cultural behavioral change of 'make it easy to do the right thing.' Additional equipment, such as ultrasound bladder scanners were purchased by the hospital to be used in the unit to facilitate the interventions.

Similarly to how the cultural shift of this study promoted easier access to needed equipment, the transtheoretical model and stages of change were utilized to assess readiness for participation. Within the PDSA cycle, when assessing the planning phase, who would carry out



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the cycle was determined to be the staff nurses. One obstacle identified was support and availability of equipment to further the goal of early discontinuation for catheters. The stages of change assess a participant's readiness to seek new information, or in the study referenced, therapy, however the similar concept of buy-in to an idea can be applied to this project. Nurses in this project will be asked to alter a current step in their normal process of reporting during rounds, but if the tools and support are ensured, according to this study, they will have enhanced readiness to participate in change (Krebs, Norcross, Nicholson & Prochaska, 2018).

### **Specific Project Aim**

We aim to improve management of the process in which indwelling urinary catheters are utilized, inserted, managed, reassessed for indication, and removed, reducing number of catheter days, and subsequently CAUTI rates, at this clinical site, using an updated, nurse-driven, evidence-based protocol.

The process begins with comparing current policies, procedures to national standards of practice guidelines, in regard to indwelling urinary catheter indications, and rates of catheter associated urinary tract infections (CAUTI). The process ends with implementing and evaluating a new policy and procedure for managing indwelling urinary catheters of the inpatient population using nurse-driven protocol. By working on the process, we expect (1) to clarify staff roles in regard to indwelling urinary catheter indications for insertion and removal, (2) increase staff awareness of risks and sequella to CAUTIs, (3) decrease CAUTIs within the inpatient population at the clinical practicum site. It is important to work on this now because we have identified the need to improve (1) rates of CAUTIs within the organization (2) the need for a more standardized process of indication/need for continuing this treatment, amongst nursing staff, (3) reduction of the financial burden CAUTIs have on the hospital.

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The HOUDINI method of screening for indication of continued catheter use, was cross referenced with current hospital policy, as studies have shown after implementation of this 17% fewer CAUTI were subsequently reported (Adams, Bucior, Day & Rimmer, 2012). Elements of each letter stand for indications for continuation of catheters respectively, spelling out ‘HOUDINI’: gross hematuria, obstruction, urology surgery, decubitus ulcer, input and output measurements, nursing end of life care, and immobility (Adams, Bucior & Rimmer, 2012). This method was chosen to reference as it does not provide a new means to how to perform nursing duties, but simply a tool with an acronym to encourage optimal performance in the current process of assessment.

### **Methods**

#### **Context**

Assessment of the clinical microsystem using the 5 P’s method, allowed information pertinent to this project to be revealed. This process included analyzing the purpose, patients, professionals, processes and patterns within the department: this information sets the framework for developing the clinical microsystem quality improvement project (King & Gerard, 2016). The critically ill patient population, cared for by the nurses as the professionals in this assessment, revealed that this 28 bed ICU was typically about 50% occupied, and usually had one resource nurse to assist with tasks. Potential obstacles and patterns noted within the department included encumbered staff who may not receive added tasks to their workload with full enthusiasm and compliance. To mitigate this, the current process of charting an indwelling catheter will simply be altered, not added, and the discussion of indication will occur in rounds, versus simply reporting ‘catheter days’ can occur. This allows for more of a unified front, where ‘peer coaching/checking’ from interdisciplinary team members can assist with compliance

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(Smith, 2015). Peer coaching allows for team members to discuss topics during rounds in a productive and more supported way, in this case, in the best interests of the patient.

An Institute for Healthcare Improvement cultural assessment was performed, using the statistics and perceived traits of the clinical practicum site of the ICU. The unit scored between a 15 and 30, which was considered to be in a 'strong start' category for the unit. The advantages of this level of scoring were that the unit seemed to value inclusion, respect, trust, and seemed to be in a formal state of teamwork ability. Some areas noted for improvement were in the alignment of policies and developing metrics for 'Just Culture' (IHI, 2019). Enforcing nurse-driven protocol to improve workflow and decrease risks of infection may allow these elements to develop and assist in mitigating non-compliance of the new process resulting in a positive improvement strategy.

Similar to the IHI safety cultural assessment, a strengths, weaknesses, opportunities and threats (SWOT) analysis was performed. This assisted in determining readiness for implementation of this quality improvement, and offered potential obstacles to prepare for (King and Gerard, 2016). Strengths in this pilot unit were noted to be the fact that the high level of thinking, and critical awareness for the patients' best outcomes, were already in place. This level of care demands staff nurses that understand the sometimes tediousness of seemingly simple tasks that can alter the course of treatment, as these tasks may be best practice, and impact outcomes. Weaknesses were found to be linked to recent turnover in senior staff members, and leadership having implemented a new policy of 'investigating' chart discrepancies. Increasing tension throughout the department was evident in conversation. Adding another liable element could potentially add to the already high stress levels. Opportunities for change presented as the entire organization was undergoing a cultural shift. This 'cultural compass' was geared towards

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treating not only the patients, but other staff members with the respect and dignity that is deserved. This project's goals and vision align closely with that and would depend on this type of interdisciplinary respect to be accomplished. Lastly, the threats, noted previously, were the fact that there was a way of doing that existed for the seasoned nurses. Morning rounds begin at 1000 and this is when all issues, deemed non-urgent, are addressed with the intensivist and care team. Nurses may feel intimidated to begin performing a task, such as catheter removal, that was recently outside of the scope to do. The need for an order was in place, and the new way of doing would provide the nurse with a protocol, essentially a standing order, to remove the catheter if it was no longer indicated. Nurse driven protocols have been shown to increase confidence in staff nurses, allowing them to perform optimally and decrease risks of infection in the specific case of indwelling catheters (Adams, Bucior, Day & Rimmer, 2012).

A cost benefit analysis revealed hospital savings due to decreased rates of infection would potentially be much greater than the cost to implement the new process. The process of removing indwelling urinary catheters exists already and would only require two additional productive nursing hours monthly, to monitor and continue progression of this project, once in place. In fact, decreased resources, due to less productive nursing hours spent phoning the physician to obtain removal orders for the catheter could be necessary, saving the hospital money. Productive nursing hours during the pilot would not be increased either. In the current planning stage, the infection prevention and clinical excellence directors are in favor of implementing a nurse-driven protocol bundle to prevent CAUTI, as there have been multiple successful bundle-type processes are already in place that have shown a decrease in infection rates for other bundles, such as sepsis, stroke and ST elevated myocardial infarction (STEMI). This project will further established the principle goals, without increasing costs of productive

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hours for paid staff, as this MSN project will be carried out unpaid, and implemented into the regular workflow of nurses.

With CAUTI being the most common HAI, costs that could potentially be avoided from infections would be greater than the cost to implement the nurse-driven protocol (Adams, Bucior, Day & Rimmer, 2012). One study that considered only symptomatic UTI and blood stream infections (BSI) as a result of indwelling catheters, estimated hospital costs per patient infection to be \$37,868 (Kennedy, Greene & Saint, 2013). Even a minimal 10% reduction in CAUTI rates from this would result in a \$3,786 savings per patient, equaling total savings, as investment does not cost anything up front.

The plan of communication involves finalizing the protocol which will then be posted to the PolicyStat website, where all staff can have access. This easy access from any computer in network allows for information sharing and quick reference. Lead nurses, the ICU director and manager have agreed to pilot the new changes in utilizing the nurse-driven protocol, and have the results of rate of infection closely analyzed by the infection prevention director. The clinical excellence director is also closely aligned with this project and the mission of reduction of preventable harm to patients. Morning huddles, which are now a mandatory element to the start of each shift, will allow for information sharing of the protocol, instructions and clear expectations. Multiple areas for fliers, such as the main nurses' station and the staff break room are available to post flyers to remind staff of the importance of the project as well as metrics that are being monitored for analysis.

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### **Intervention**

Implementation of this project will have two parts. The current non-published nurse-driven protocol for indwelling urinary catheter removal is in revision and will be published to PolicyStat to be used in the ICU setting as the pilot test unit. Once published, part of each nurse's shift duties will include reassessment of indication for catheter, and the nurse-driven protocol would allow for removal if no longer indicated. Part of a standing order set, removal of the catheter would prompt careful monitoring for patient's ability to urinate independently, with ultrasound bladder scanning to assess for urinary retention, as well as reinsertion of the catheter if still unable to urinate, after a specified period of time. All of this will be done without needing to contact the physician, however they would still be alerted to any changes in a patient's urinary status during morning rounds. Decreasing the need for extra phone calls, productive nursing hours spent on the phone, and the chance that the nurse did not realize there was no longer an indication for the catheter, could contribute to better outcomes, and greater efficiency with nurse productivity.

Currently, ICU physician rounding happens daily at 1000, and again, if they are not encumbered at 1600. This is primarily when CAUTI related issues would be addressed, as 'catheter days' are measured by the number of days an indwelling catheter has been in place. Assessment of usual practice indicates indwelling catheters are rarely discontinued during the night. During the interdisciplinary rounds, the nurse only states, per the current round report checklist (Appendix F), the number of days the catheter has been in place, but not the indication for continued use. Typically, reporting continues after stating the number of days in place.

The second part of this project would alter the current rounding checklist, filled out by the night shift nurse to prepare for 1000 rounds, to include not only number of days, but a

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mandatory stating of the continued indication for the catheter remaining in place. Prolonged use is the highest risk factor for infection, and guidelines that are developed to reduce catheter days, with protocols for removal having shown to decrease preventable infections (AACN, 2016).

The team members involved in this project include the management team of the clinical practicum ICU site, the clinical excellence director, the infection preventionist, all staff nurses working in the ICU, and this MSN student. Eventually the intended goal is that with a positive correlation of decreasing days catheters are left in place, a decrease in the number of recorded CAUTI will result in this hospital. Ideally, this protocol will be introduced to all nursing units throughout the hospital.

### **Measures**

Measures chosen to be analyzed during this project are derived from the outcome and process families (IHI, 2019). The outcome measures will be counted as both the number of indwelling urinary catheter days within the specified timeframe of piloting this intervention, versus the same time period prior to intervention, as well as the CAUTI infection rates for this same time frame. CAUTI infection meets specific criteria, is based on both new urinary symptoms an inpatient population may experience, and requires the presence of bacteria in the urine. This measure is valid and reliable, as criteria are clearly defined, and is current practice for this measurement process.

The family of measures that involves the process will be how the nurses will now utilize the newly revised catheter removal protocol. This process may have less reliability and there are many human factors that could cause errors in data collection, such as nurses not reporting when they utilize the protocol, not reporting accurate catheter days, and simply not utilizing the protocol at all. As a measurement of outcome we will compare the previous numbers of CAUTI

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infection within the ICU setting to the post-intervention numbers of CAUTI and know the intervention may be deemed an improvement if the infection rates decrease by 25%, which is the standard goal set forth by the CDC, by 2020 (CDC, 2017). Sample size within the piloted project is expected to be small, contributing to a statistically insignificant, and less reliable sample size.

### **Ethical Considerations**

Current status of removing indwelling urinary catheters should not change with implementation of this project, other than utilizing a standing order set, which is current practice for many other interventions and within the nursing scope of practice. With this concept, there seems to be no need for formal ethical considerations for any parties involved, as a result. The subjects, patients in the ICU, are subjected to the same standard of care they would be normally. One consideration of implementing this protocol, is that if a catheter is preemptively removed for an incorrect indication, a resulting retention of urine, or further risk of infection or trauma caused with reinsertion could be considered as a consequence. This protocol is on track to be implemented regardless, as high level leadership is on board, as sees this as aligned with similar other standing protocol order sets, therefore a formal ethics board review is unnecessary. This project is meant to facilitate nurse-driven protocol and guide principles of risk reduction, and infection prevention strategies that are aligned with the mission, vision and values of the institution where the pilot project will be tested. It remains within the nursing scope of practice to utilize this intervention in the normal standards of care.

### **Results**

Initial steps during intervention began with meeting stakeholders to explain project goals and proposed action items. The department of clinical excellence had great buy in to this concept and agreed with the need to alter the current process. The timeline for intervention would need to



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involve regional leadership as well, with alteration of policy and procedure, so evolution of this project is listed as projected, as it is currently in process of completion (Appendix A).

Researching current evidence based guidelines for CAUTI prevention, as well as newer research highlighting benefits of nurse-driven protocol allowed for elements of this project to follow suit. Standing order sets are common, especially in emergency services, and allow for pre-determined orders to be followed, without the extra step(s) of obtaining an order each occurrence, as these order sets are approved by the medical review board, prior to implementation. Evidence points to reduction of indwelling urinary catheter time as the single most effective way to decrease infection, other than never placing one at all, and this benefit was seen to outweigh the risk of user error, in reference to nursing judgement and critical decision making with discontinuation of the catheters (AACN, 2016). The HOUDINI method was chosen as a template for revision of the current policy in place, as the indications for removal are highlighted with a memorable acronym and studies to back its effectiveness in reduction of infection rates in post-intervention groups (Adams, Bucior, Day & Rimmer, 2012). Cost benefit analysis was performed, with overwhelming indication of stakeholder buy in and worth.

Educating caregivers, staff who would benefit from revisiting proper utilization, insertion, maintenance and duration of indwelling urinary catheters, was encouraged by the department of clinical excellence. A poster presentation was given by this MSN student during a safety fair, where over 200 participants were educated on CAUTI related topics. This initial staff educational step was meant to take place later, once protocols and policies were revised, just prior to implementation, but was found to have great benefit in taking place at this time, due to similarly themed educational opportunities. This modification of order of steps added to the usefulness of the project, as more caregivers were exposed during this process of change at an

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earlier stage, therefore making the finalized project implementation seem more familiar, once it is in place. The ICU manager on the team agreed that education prior to implementation would allow more familiarity with the concept and give the project a better introduction. Meeting with the manager revealed exactly which elements of current rounding process would need to be altered, both on paper checklists and as a template for what information was shared during rounds. Inclusion of continued indication for the catheter would be stated, along with this element appearing as a prompt on the rounding checklist (Appendix F).

A lifecycle assessment of indwelling urinary catheters in this clinical practicum site was performed by an outside vendor agency, per request of the infection control preventionist, as the 300% increase in occurrence for CAUTI from 2017 to 2018 warranted a retroactive investigation. Four major areas were identified for improvement: utilization, insertion technique, maintenance and duration. Scores for each category were based on the observations of the representatives, and ranged from 37% to 89% with the max scores possible at 100% (Appendix E). The category of 'Duration' received the lowest score, a 37 out of 100, with the benchmark being < 3 days of catheter use. The average number of days was four, with the max number of days being 11, both outside this benchmark, and indicative as an area for improvement.

Process measures initially planned to be assessed were number of catheter days and resulting number of CAUTI. Once completed, a chart audit would be performed using retroactive patient data to reveal if utilizing the nurse-driven protocol, appropriate discontinuation of catheters had occurred in the inpatient ICU population. Revisions to current CAUTI prevention protocol to include nurse-driven catheter removal is not in place at this time, therefore, this student is only able to speak to pending and potential outcomes of this intended intervention. Measures would likely be revised, after the findings of the lifecycle assessment, to include

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process measures of the four major categories listed and the percentage of compliance, compared to pre-intervention numbers. Outcomes would be able to be correlated with not only the nurse-driven protocol as a new variable, but the education and any interventions managers and directors had implemented, after seeing these results from the lifecycle assessment. Associations therefore would be unable to reliably correlate with the nurse-driven protocol as a sole intervention, seeing as there will have been multiple changes made.

Regardless, the nurse-driven protocol will be included in the recent changes and if positive outcomes are observed, may be viewed as an influencing factor in the 'CAUTI prevention bundle.' Contextually, infection prevention, decrease of patient harm, fewer HAIs, better patient satisfaction scores and even possibilities of preventing sentinel events as result of CAUTI, could be viewed as resulting outcomes of these bundled interventions.

Unintentionally, multiple departments were interested and had stock in this project, as the increase of 300% for CAUTI rates from 2017 to 2018 impacted the direction of many departments. Strategies were in place for more stringent infection prevention strategies and root cause analyses being performed, resulting in a lifecycle assessment of the indwelling urinary catheter at this hospital. The annual safety fair coincided with the months this project was in process, so education was able to take place prior to when it was originally planned. Initially, the idea was to implement the changes in protocol sooner, but with the immense support and investment with multiple hospitals involved in making these edits to policy at the regional level, the timeline had to be expanded. Scheduling appointments for phone-in meetings, and revisiting working items contributed to delays, due to the busy schedules of those involved. Costs that were incurred, previously unplanned, were minimal, and mainly due to the physical poster presentation made for the safety fair, that would have been inappropriate to manufacture in the

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typical MSN presentation format, as this was to be presented to general caregivers in an expedited fashion.

Submission of revisions made to the protocol collaboratively will be finished in May, 2019, and once approved and published, education will begin in the inpatient units, beginning with the ICU as the pilot test unit. Collection of data using 2019 CAUTI rates will allow for comparison with pre and post-intervention items.

### **Discussion**

The goal of this improvement project was to take the current process of indwelling catheter management, and make revisions in order to reduce rates of infection. Promoting nurse autonomy with nurse-driven protocol, and increasing educational awareness with new evidence-based infection reducing equipment, such as external female urinary collection devices, were benefits of implementation, and supported by studies (Adams, Bucior, Day & Rimmer, 2012). Experiencing a cultural shift throughout this process, allowed for other new information to be dispersed simultaneously, with the intention of transparent positive results of other bundled initiatives increasing staff awareness. Guiding implementation of this CAUTI prevention bundle positive reinforcement of this new information will be able to be distributed in multiple steps: the safety fair, and education that will take place once the revised protocol is approved. This revision is within the scope of an evidence based change of practice, and does not require an institutional review board, as this is standard practice at other hospitals within the regional network of this clinical site this project is being implemented at (Appendix A).

Key findings in this project were illustrated in how many departments were invested in the concepts of infection prevention and reduction of patient harm. Buy in was evident from the

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start, as collaboration with interdisciplinary parties continued throughout this semester. Taking advantage of the opportunity to learn from the lifecycle assessment, allowed visualization of other potential areas that could collectively assist in the main goal of infection prevention. Reviewing the four main areas of investigation, deemed most important by the manufacturers, allowed for professional insight into ways to increase proficiency and compliance. Experiencing cultural shifts, with foci on positive words, open communication, equal and fair treatment of each other as colleagues, as well as mindful relevance as professionals with pride in our work, allowed simultaneously similar messages, vision and values to be conveyed.

Increased awareness of CAUTI prevention strategies, using both the lifecycle assessment as well as the nurse-driven protocol is intended to both identify problem areas with needs for reeducation, as well as influence the number of CAUTI in 2019. Once implemented, and data analyzed fully by the infection preventionist and this MSN student, further reevaluation of infection prevention strategies can occur, with correlation between rates from 2017 to 2019. Usefulness of this work is aligned with the multitude of studies that state the risk of CAUTI decreases when the catheters are removed earlier. This promotion of early discontinuation and proper management while in place, should assist with this goal. Reduction of risk of infection can impact the length of stay, severity of illness and even prevent sepsis-related mortality, as this is a known leading cause of secondary BSI (CDPH, 2018). Sustainability of this project will take place with quarterly and annual chart audits, infection rates and has great potential to spread to other areas where bundled interventions would benefit nursing care. Directors state that BSI prevention may be next in the full lifecycle assessment, and may have similar protocol revisions. In practice, nurses aim to aid and comfort those who need them most, and prevention of harm is one of the pillars of this concept. Reduction of risk for infection should be at the top priority of

## NURSE-DRIVEN PROTOCOL TO REDUCE INFECTIONS

nursing care, and the CNL is geared with many skills, such as information analyst, risk anticipator, educator and a member of the profession, to be able to guide this movement (AACN, 2013). With evidence to support CAUTI prevention using a nurse-driven protocol, CNLs and nurses alike should band together in solidarity, in support of the best possible outcomes for their patients, reduction of harm, and promotion of holistic healing of those who need help most.

## NURSE-DRIVEN PROTOCOL TO REDUCE INFECTIONS

## References (Annotated Bibliography)

Adams, D., Bucior, H., Day, G. & Rimmer, J. A. (2012). HOUDINI: Make that urinary catheter disappear – nurse-lead protocol. *Journal of Infection Prevention*, 13, 44-46.

doi:10.1177/1757177412436818

The authors provide an improvement strategy guided by a poster presentation for the Society for Healthcare Epidemiology of America (SHEA) on CAUTI prevention, utilizing a nurse-driven protocol. Two main protocols were studied, one for a surgical care improvement project, the other called the ‘HOUDINI’ method, which underlined removal of the catheter by exception of indication. The evidence-based indications for having an indwelling urinary catheter were studied using the PDSA approach and monitored numbers for two months-post intervention. A decrease in catheter use and infections related to E. coli urine samples were found. Assistance in optimal nursing performance utilizing these protocol were found to aid in reduction of infections.

American Association of Colleges of Nursing (2013). Competencies and curricular expectations for clinical nurse leader education and practice. Retrieved from:

<http://www.aacnnursing.org/Portals/42/AcademicNursing/CurriculumGuidelines/CNL-Competencies-October-2013.pdf>

Competencies and curricular expectations of the clinical nurse leader are outlined in a format that lists eight categorical requirements that candidates are educated on. Once proficiency is demonstrated by clinical hours and experiences meeting each of these requirements, one may sit for the CNL exam. The AACN outlines in detail the eight categories of competencies as follows: advocate, member of a profession, team manager, information manager, systems analyst and risk anticipator.

## NURSE-DRIVEN PROTOCOL TO REDUCE INFECTIONS

American Association of Colleges of Nursing (2016). Prevention of catheter-associated urinary tract infections in adults: Practice alert. *Critical Care Nurse*, 36, 9-11.

doi:10.4037/ccn2016208

This practice alert, published to the *Critical Care Nurse* journal, used recent best-practice guidelines to recommend early indwelling urinary catheter removal. Using statistics from reputable sources, expected practice for assessment of catheter indication are displayed. Proper technique as well as frequent reassessment of the indication are cited as supporting evidence for need. Recommendations for a set of criteria, or previously developed tools for standardization are suggested, such as the HOUDINI method. Guidelines for resources for more information are given.

California Department of Public Health (2018). Catheter-associated urinary tract prevention

Retrieved from: [https://www.cdph.ca.gov/Programs/CHCQ/HAI/CDPH%20Document%20Library/10h\\_CAUTI.Prevention.Approved5.4.18.pdf](https://www.cdph.ca.gov/Programs/CHCQ/HAI/CDPH%20Document%20Library/10h_CAUTI.Prevention.Approved5.4.18.pdf)

Basics of infection prevention, along with the CDPH healthcare associated infections program and Center for Healthcare Quality discuss CAUTI prevention. The scope of infections and evidence-based CAUTI prevention techniques, along with ways to monitor compliance are also discussed. Both individual and system-wide hospital roles are discussed, with tools to monitor rates and reduction strategies.

Centers for Disease Control and Prevention (2017). Catheter-associated urinary tract infections

(CAUTI). Retrieved from: [https://www.cdc.gov/hai/ca\\_uti/uti.html](https://www.cdc.gov/hai/ca_uti/uti.html)

CDC recommendations for prevention strategies are listed in such broad categories as monitoring rates of infection as well as types of prevention strategies for CAUTI.



## NURSE-DRIVEN PROTOCOL TO REDUCE INFECTIONS

Healthcare associated infection data for CAUTI is related and compared to BSI, central line associated BSI, surgical site infections (SSI), ventilator-acquired pneumonia (VAP) and other HAIs. Recommendation strategies that overarch prevention of infection with specifics for CAUTI prevention are discussed at varying levels for intended audiences.

Durant, D. J. (2017). Nurse-driven protocols and the prevention of catheter-associated urinary tract infections: A systematic review. *American Journal of Infection Control*, 45, 1331–1341. doi:10.1016/j.ajic.2017.07.020

A systematic review of 29 studies was performed regarding CAUTI prevention related to nurse-driven protocol, and revealed themes such as positive impact on predictors of CAUTI. Durant reveals however there a high risk of bias and low use of quality indicators used throughout the studies. All but one study found a reduction in CAUTI rates, and recommendations for quality improvement study design were given, as a risk of bias was found to be a theme.

Institute for Healthcare Improvement (2019). Safety Cultural Assessment. Retrieved from:

<http://www.ihl.org/education/InPersonTraining/patient-safety-executive-development-program/Pages/Safety-Culture-Assessment.aspx>

Dr. Robert Lloyd, on behalf of the Institute for Healthcare Improvement, explains family of measures, and how to implement these assessment strategies into the work of quality improvement. Videos and IHI resources are given on this web-based site, to allow the learner to understand the three main measures: process outcomes and balancing. Examples are given of how to connect each type to relevant improvement projects.

## NURSE-DRIVEN PROTOCOL TO REDUCE INFECTIONS

The Joint Commission. National Patient Safety Goals Effective January 2019. (2019).

Retrieved from:

[https://www.jointcommission.org/assets/1/6/NPSG\\_Chapter\\_HAP\\_Jan2019.pdf](https://www.jointcommission.org/assets/1/6/NPSG_Chapter_HAP_Jan2019.pdf)

National Patient Safety Goals of 2019 are presented, with evidence-based interventions to prevent CAUTI specifically. Goals include such other topics as goals of the Joint Commission in mandating that hospitals follow the NPSG in order to maintain accreditation. A certain percentage of compliance by institutions is regulated.

Kennedy, E., Greene, M. T. & Saint, S. (2013). Estimating hospital costs of catheter-associated urinary tract infection. *Journal of Hospital Medicine*, 8, 519-522. doi:10.1002/jhm.2079

Authors discuss cost associated with secondary infections of CAUTI, usefulness of clinical reduction in catheter use that with utilization of a tool they created, contributed to an average of a 50% decrease in CAUTI related costs. This tool was created to assist healthcare organizations in estimating the potential savings per reduction of CAUTI, after intervention. One of four outcomes would present after urinary catheter insertion (1) no infection would be present, (2) bacteriuria, (3) bacteriuria and symptomatic UTI (SUTI) or (4) bacteriuria and BSI or (5) bacteriuria, BSI and SUTI. Each outcome was calculated as a per-patient cost factor, and able to be used as a tool to multiply each type, for hospitals to determine the resulting costs of infection. Costs for SUTI were found to average approximately \$911 while costs or BSI averaged \$3842. The major limit with this tool, although useful and applicable currently, is that the costs are from 2013, and updated medical costs are likely. Conceptually, this tool aids in calculation of results of HAI and how prevention is absolutely in the best interest of all parties involved.

## NURSE-DRIVEN PROTOCOL TO REDUCE INFECTIONS

King, C. & Gerard, S. O. (2016). *Clinical Nurse Leader Certification Review* (2<sup>nd</sup> ed.) New York, NY: Springer Publishing.

A textbook that outlines the role of the clinical nurse leader (CNL) and discussed topics such as nursing leadership, clinical outcomes management, and care environment management. Certification review questions and answers are given to assist the CNL master's prepared student to sit for examination.

Krebs, P., Norcross, J. C., Nicholson, J. M. & Prochaska, J. O. (2018). Stages of change and psychotherapy outcomes: A review and meta-analysis. *Journal of Clinical Psychology*, *11*, 1964-1979. doi:10.1002/jclp.22683

A review and meta-analysis by authors, discussed the transtheoretical model of change and participants readiness to participate in psychotherapy. Adaptable treatment to each individual patient is the keystone for this theory as well as the stage at which each patient is ready for change. These items were assessed and compared, resulting in findings that indicated the farther along the five stages of readiness the patient started at, the more positive the outcomes. The five stages in order were listed as precontemplation, contemplation, preparation, action and maintenance. This theory of transtheoretical change was applied to readiness in the ICU unit for this pilot project for quality improvement.

Maxwell, M., Murphy, K., & McGettigan, M. (2018). Changing ICU culture to reduce catheter-associated urinary tract infections. *Canadian Journal of Infection Control*, *33*, 39-43.  
Retrieved from

## NURSE-DRIVEN PROTOCOL TO REDUCE INFECTIONS

<http://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=edb&AN=129292281&site=eds-live&scope=site&custid=s3818721>

This quality improvement project by authors was designed to use PDSA cycles to enact a culture of change in prevention of CAUTI, at a 234 bed ICU in Canada. Each change cycle gave the opportunity for growth upon the previous one, and findings indicated that indwelling urinary catheter use decreased overall by 17% at the end of the year. Increase in utilization of external catheter devices was shown. Reduction in harm and CAUTI events was noted, as well as the transference of this change in culture concept being applicable to other nursing units within the hospital.

Nelson, E. C., Batalden, P. B., & Godfrey, M. M. (2007) Introduction to microsystem thinking. In E. C. Nelson, P. B. Batalden, & M. M. Godfrey (Eds.), *Quality and design: A clinical microsystems approach*. San Francisco, CA: Jossey-Bass.

A textbook that reviews the clinical microsystem approach to the healthcare industry. Specifically, define high-performing microsystems, developing professionals and improving worklife, patient-centered care safety and creating an information rich environment. Many case studies are given to highlight the improvement process, using the model for improvement, aims, mapping, measuring and monitoring.

Smith, C. V. (2015). On the road to zero CAUTIs: Reducing urinary-catheter device days: how a culture shift, a quality-improvement project, and electronic solutions reduced one hospital's CAUTI incidence. *American Nurse Today*, 10, 46-48. Retrieved from:

<http://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=edsgao&AN=edsgcl.398953563&site=eds-live&scope=site&custid=s3818721>

## NURSE-DRIVEN PROTOCOL TO REDUCE INFECTIONS

A quality improvement project, and electronic charting solution component, to reduce number of indwelling urinary catheter days. Using electronic solutions trends of non-compliance within the CAUTI prevention bundle were able to be monitored at three levels. These trends were brought to the unit, department and system level, to study what the barriers to successful implementation of the bundles were. Decline in urinary catheter device days, CAUTI infections and a 94.7% compliance rate at the end of the project resulted.

## NURSE-DRIVEN PROTOCOL TO REDUCE INFECTIONS

## Appendix A

**EVIDENCE-BASED CHANGE OF PRACTICE PROJECT CHECKLIST \*****STUDENT NAME:** Sara Burrington**DATE:** 04/28/2019**SUPERVISING FACULTY:** Robin Jackson, MSN, RN, CNL**Instructions:** Answer YES or NO to each of the following statements:

**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.

<b>Project Title:</b> Nurse Driven Protocol to Reduce Urinary Catheter Infections	<b>YES</b>	<b>NO</b>
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.	Yes	
The specific aim is to improve performance on a specific service or program and <b>is a part of usual care</b> . ALL participants will receive standard of care.	Yes	
The project is <b>NOT</b> 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 <b>NOT</b> follow a protocol that overrides clinical decision-making.	Yes	
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 project does <b>NOT</b> develop paradigms or untested methods or new untested standards.	Yes	
The project involves implementation of care practices and interventions that are consensus-based or evidence-based. The project does <b>NOT</b> seek to test an intervention that is beyond current science and experience.	Yes	
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.	Yes	
The project has <b>NO</b> funding from federal agencies or research-focused organizations and is not receiving funding for implementation research.	Yes	
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., <b>not</b> a personal research project that is dependent upon the voluntary participation of colleagues, students and/ or patients.	Yes	
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>	Yes	

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

## NURSE-DRIVEN PROTOCOL TO REDUCE INFECTIONS

### Appendix B

#### **Project Charter**

##### **Project Charter:**

Decreasing rates of infection due to CAUTI by implementing nurse-driven protocol for indwelling urinary catheter removal.

##### **Global Aim:**

We aim to improve management of the process in which indwelling urinary catheters are utilized, inserted, managed, reassessed for indication, and removed, reducing number of catheter days, and subsequently CAUTI rates, at this clinical site, using an updated, nurse-driven, evidence-based protocol.

The process begins with comparing current policies, procedures to national standards of practice guidelines, in regard to indwelling urinary catheter indications, and rates of catheter associated urinary tract infections (CAUTI). The process ends with implementing and evaluating a new policy and procedure for managing indwelling urinary catheters of the inpatient population using nurse-driven protocol. By working on the process, we expect (1) to clarify staff roles in regard to indwelling urinary catheter indications for insertion and removal, (2) increase staff awareness of risks and sequella to CAUTIs, (3) decrease CAUTIs within the inpatient population at the clinical practicum site. It is important to work on this now because we have identified the need to improve (1) rates of CAUTIs within the organization (2) the need for a more standardized process of indication/need for continuing this treatment, amongst nursing staff, (3) reduction of the financial burden CAUTIs have on the hospital.

##### **Specific Aim:**

To decrease CAUTI rates in an acute care hospital by implementing CAUTI bundle and nurse-driven protocol for removal of catheters, to less than 4 in 2019, per CDC and National Healthcare Safety Network recommendations to reduce CAUTI by 25% by 2020.

##### **Background:**

Reduction of CAUTI in acute care hospitals has been listed as one of the top priorities by agencies such as the CDC, CCDPH and AACN. Hospitals are no longer being reimbursed for HAI such as CAUTI, that are deemed 'reasonably preventable' (Kennedy, Greene & Saint, 2013). As UTIs are the most common HAI, with approximately 80% of UTI linked to indwelling urinary catheters, pressure has mounted to reduce infection rates (AACN, 2016). One study by Kennedy, Greene and Saint (2013) estimates that between five and ten percent of all hospitalized patients are affected by HAIs and the associated costs result in a \$45 billion financial loss for hospitals. Current literature, pertaining to the concept of nurse-driven protocol as standardization of practice initiatives, is recommended by the AACN (2016). The AACN agrees that nurse-driven protocol is a step towards positive patient outcomes and adds that frequent reevaluation as a necessary tool to decrease risk of acquiring CAUTIs (AACN, 2016). The clinical practicum site, an acute care hospital in California, saw a 300% increase in CAUTI from 2017 to 2018, prompting a full lifecycle assessment and investigation into interventions to decrease this infection rate.

## NURSE-DRIVEN PROTOCOL TO REDUCE INFECTIONS

### **Team:**

MSN Clinical Practicum Student

Clinical Excellence Director – Preceptor to this Student

Infection Preventionist – Mentor and Information Analyst

Intensive Care Unit Manager – Mentor and Collaborator

Lifecycle Assessment Team – Information Analysts

### **Timeline:**

#### **January 2019**

Preceptor and Preceptee meet to discuss timeline, goals and project overview

Research current evidence based guidelines on nurse-driven protocol and CAUTI prevention

Review HOUDINI Method in comparison to current practice and procedure

#### **February 2019**

Research CAUTI prevention strategies in regional hospitals in same network

Cost benefit analysis for project implementation

#### **March 2019**

Create and present poster presentation on CAUTI prevention at hospital-wide safety fair

Meet with ICU Manager to plan implementation of proposed changes to protocol with logistics

#### **April 2019**

Lifecycle assessment of indwelling urinary catheters in this clinical practicum site

Revisions to current CAUTI Prevention Protocol to include Nurse-Driven Catheter Removal

#### **May 2019 (projected)**

Submission of revised protocol to Medical Board for Review

Education in ICU as pilot unit to implement new protocol and rounding information necessary

Collection of CAUTI rate data after implementation of new protocol



## NURSE-DRIVEN PROTOCOL TO REDUCE INFECTIONS

## Measures:

Project Measures				
FAMILY OF MEASURES (IHI, 2019)	MEASURE	MEASURE DEFINITION	DATA COLLECTION SOURCE	GOAL
Outcome	Number of catheter days	<p>N = Number of days, including any portion of a day, that a patient had an indwelling urinary catheter in place</p> <p>D = Total number of days same patients were considered 'inpatient and admitted.'</p>	Meditech data collection and analysis using 'CAUTI Measures' for 2019	N < 3 days
Outcome	Number of CAUTI	Actual cases of CAUTI as defined per classification, of patients admitted to the hospital	Infection Preventionist data collection and analysis for CAUTI rates 2019	N < Reduction of current status by 25% by 2020
Process	Nurse-driven urinary catheter removal protocol steps followed correctly	<p>N = Available opportunities a nurse had, using new nurse-driven protocol for removal of no longer indicated indwelling catheter</p> <p>D = Number of times the nurse correctly discontinued indwelling catheter, per nurse-driven protocol, when no longer indicated</p>	Infection Preventionist data collection and CAUTI rates during 2019	N = 100%

## NURSE-DRIVEN PROTOCOL TO REDUCE INFECTIONS

### Measurement Strategy:

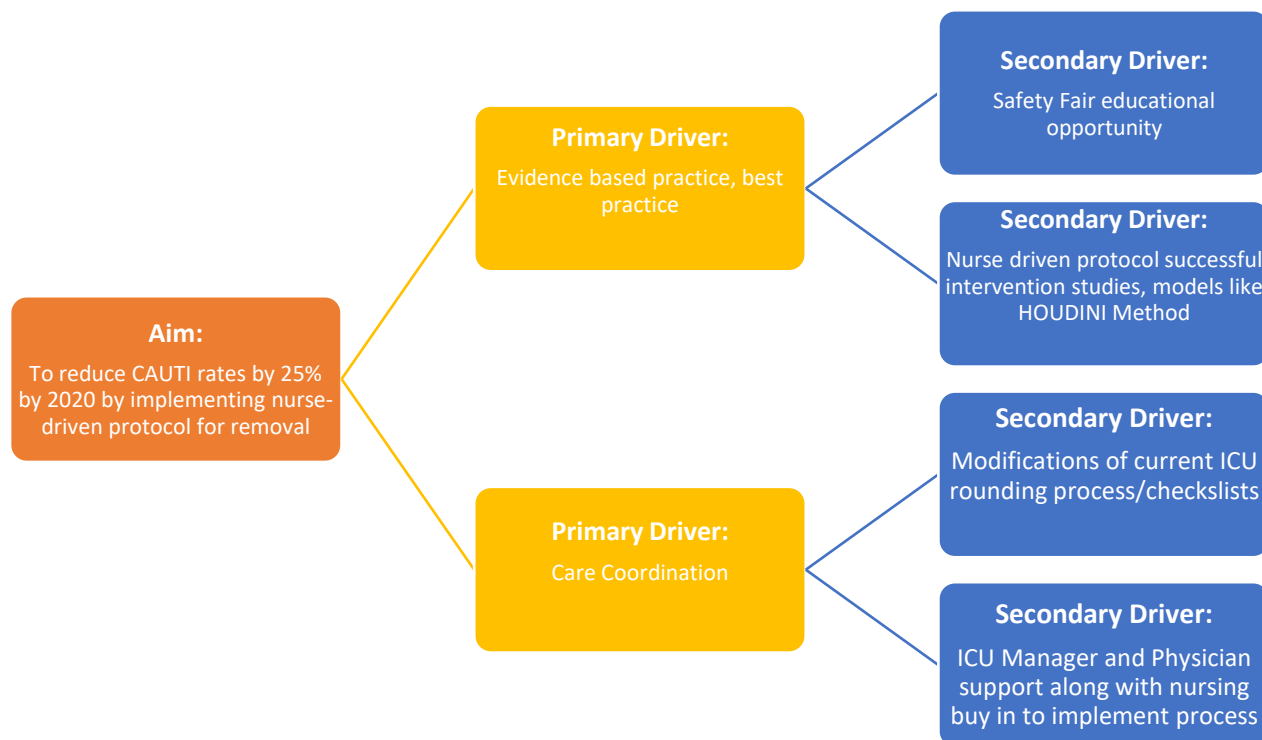
### Population Criteria:

All inpatients having an indwelling urinary catheter in place that was inserted at some point during their hospital admission.

### Data Collection Methods:

Retrospective analysis via a chart audit from patients who had an indwelling urinary catheter inserted during their inpatient stay in this acute care hospital during 2019, identifying which unit the catheter was placed in, and if the patient experienced any HAI. Number of appropriate times a nurse correctly utilized nurse-driven protocol for discontinuation of indwelling catheter, once implemented, versus times a nurse did not correctly discontinue catheter will be measured.

### Driver Diagram:



NURSE-DRIVEN PROTOCOL TO REDUCE INFECTIONS

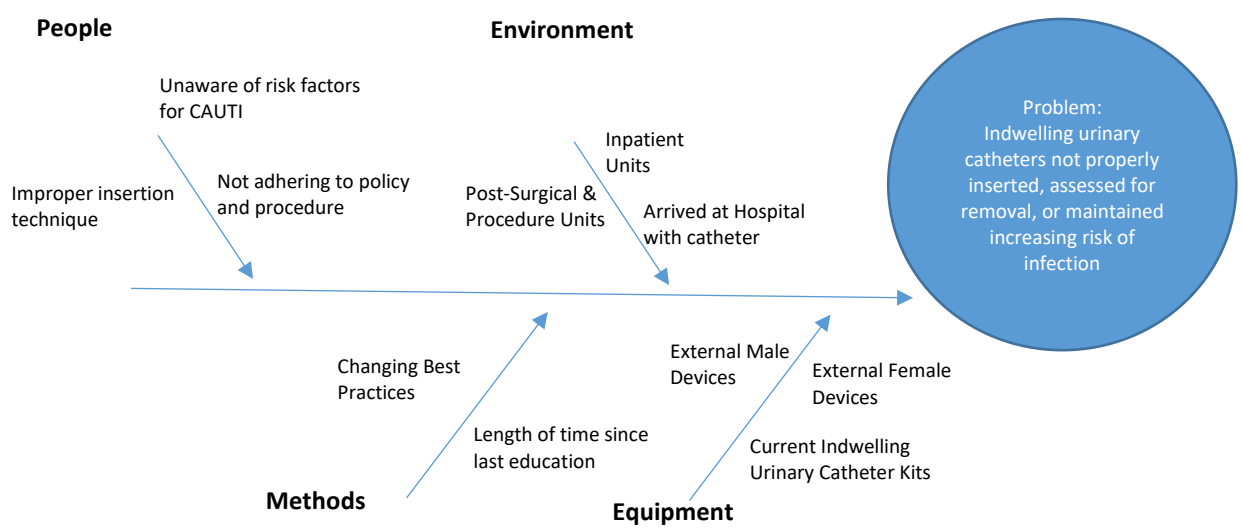
Appendix C

Process Improvement Tools

SWOT Analysis

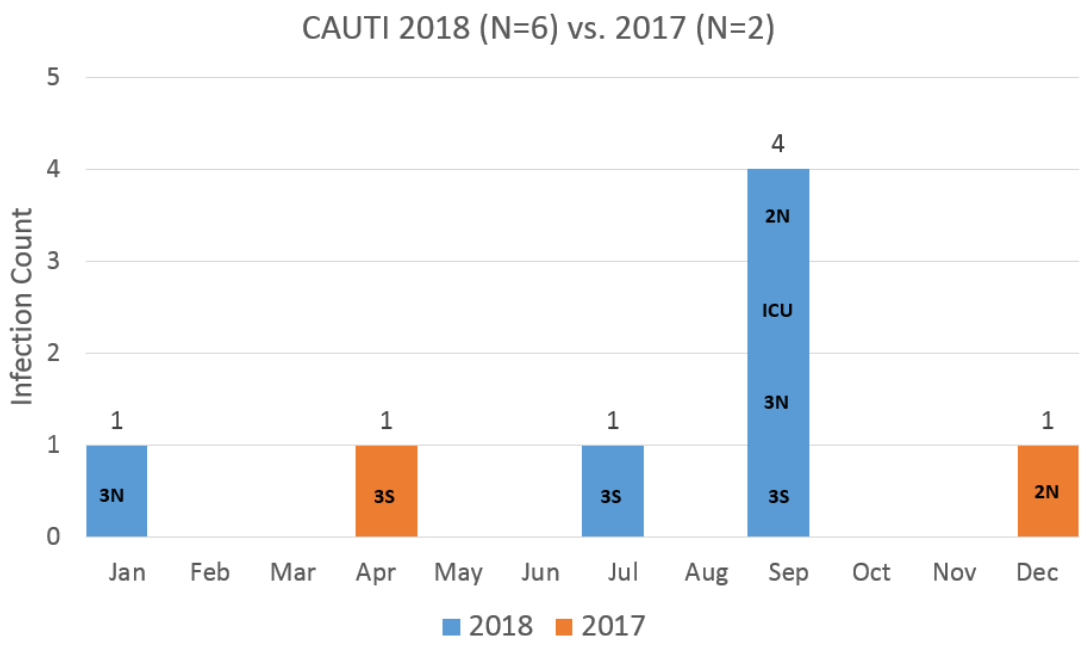


Fishbone Diagram: Indwelling Urinary Catheter Management



NURSE-DRIVEN PROTOCOL TO REDUCE INFECTIONS

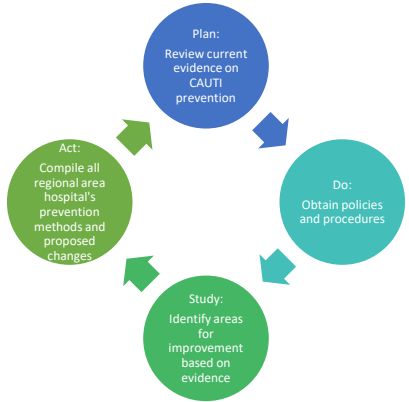
Run Chart Comparison of 2017 vs 2018 CAUTI Rates at Clinical Practicum Hospital:



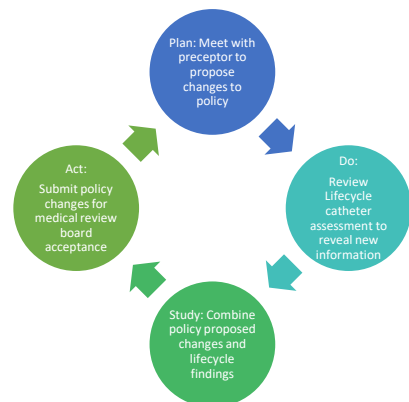
NURSE-DRIVEN PROTOCOL TO REDUCE INFECTIONS

**PDSA Cycles:**

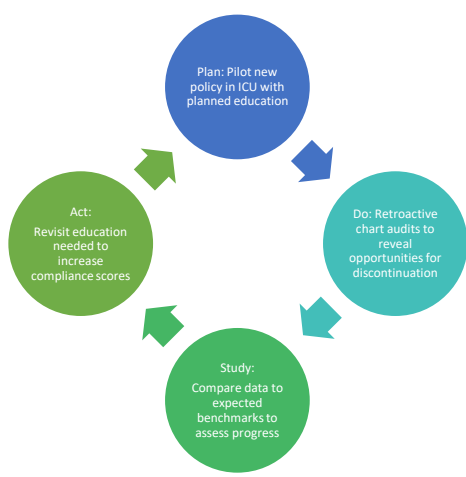
**Cycle 1 – Review Current Policy**



**Cycle 2-Revise Policy Using Lifecycle Information**



**Cycle 3 – Implement Policy Changes**



## NURSE-DRIVEN PROTOCOL TO REDUCE INFECTIONS

## Appendix D

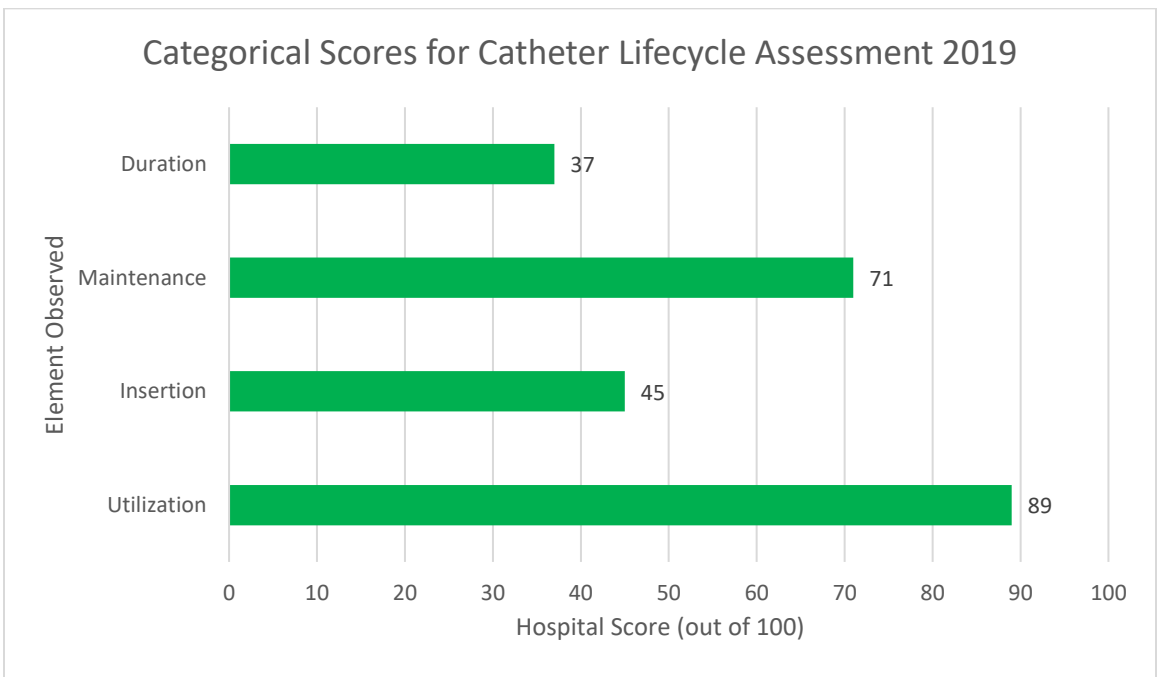
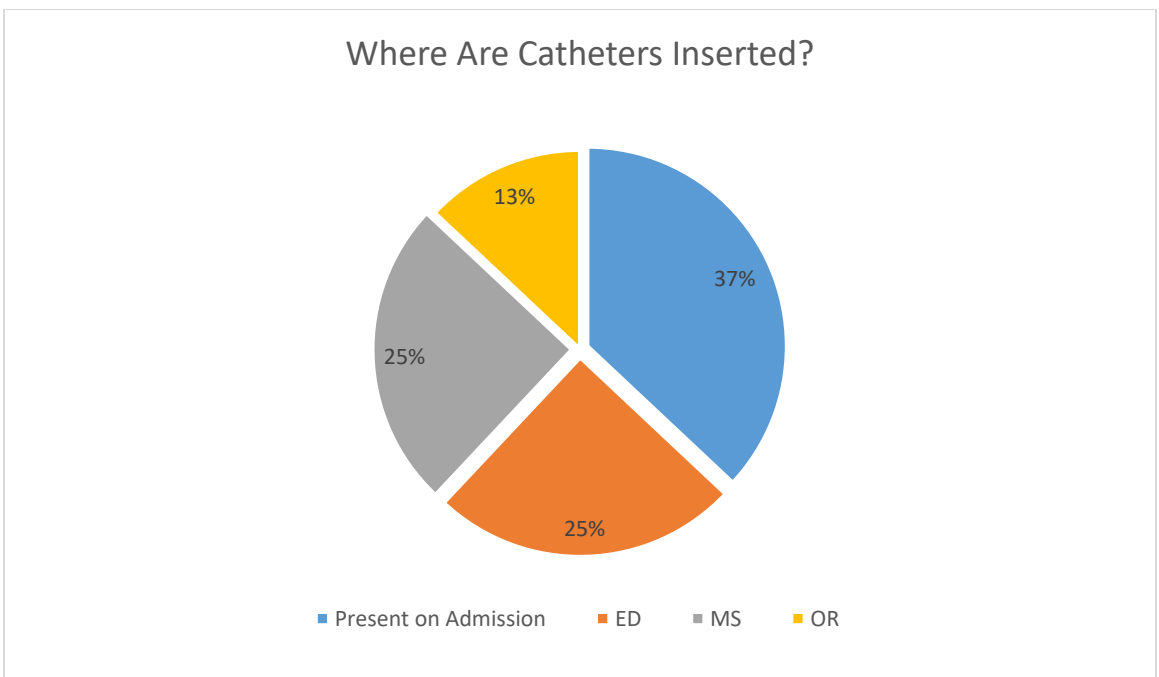
**Cost Benefit Analysis:**

<b>Estimated Costs of Project Implementation</b>			
<b>Staff</b>	<b>Hours/Unit</b>	<b>Hourly Rate</b>	<b>Total Cost</b>
RN as MSN Student	2hr/month x 6 mos.	\$60	\$720
Clinical Excellence Direct	2hr/month x 6 mos.	Salary	\$0
Infection Prevention Director	2hr/month x 6 mos.	Salary	\$0
Materials for Implementation (Poster Board, Stock Paper, Tape)			\$25
Educational Materials (handouts at Safety Fair)			\$5
<b>Total Operating Expenses:</b>		<b>\$60 + Salary Pay Included</b>	<b>\$750</b>
<b>Projected Savings</b>			
<b>Financial Benefit</b>		<b>12 month Impact</b>	<b>Assumptions</b>
Decrease CAUTI rates by 25% in 2019, compared to 2018 (2018 N = 6)	25% reduction	Average \$37,868 per case Projected reduction of 1.5 cases/yr.: \$56,802/year	Reduction of 25% CAUTI rates will follow CDC guidelines for 2019
<b>Total Savings:</b>		<b>\$56,802</b>	

NURSE-DRIVEN PROTOCOL TO REDUCE INFECTIONS

Appendix E

**Lifecycle Assessment of Urinary Catheter Use at Clinical Practicum Site**



Note: Lifecycle Assessment performed by independent vendor company at current clinical practicum site to assess areas of need for improvement.

Audit of process completed by employees independent of this project and of the clinical practicum site.

## NURSE-DRIVEN PROTOCOL TO REDUCE INFECTIONS

## Appendix F

## ICU Morning Rounds Checklist (Post-Revision)

Patient Name:		Physicians:		
DATE				
History and Chief Complaint to include ICU Day # (one liner)—this is done by PMA or by bedside RN				
Nursing: Overnight events; Abnl VS; Diagnostic Tests; change in status				
Abnormal labs & AM glucose <i>*note if pt on K/Mg protocol do not need to report replaced levels and remember to recheck levels as ordered in protocol</i>				
Pain/RASS/CIWA		Score____ Goal____	Score____ Goal____	Score____ Goal____
CAM ICU Score				
TitratableMeds <i>include gtt dose &amp; goal (ie levo @ 8 mcg/kg MAP 65)</i>		Dose____ Goal____ Dose____ Goal____ Dose____ Goal____ Dose____ Goal____	Dose____ Goal____ Dose____ Goal____ Dose____ Goal____ Dose____ Goal____	Dose____ Goal____ Dose____ Goal____ Dose____ Goal____ Dose____ Goal____
PRN meds given				
VTE & Peptic Ulcer prophylaxis				
Restraint order?		Yes No NA	Yes No NA	Yes No NA
Central Line Insert Date _____ & <b>reason for continued use</b> <i>Does pt have adequate access for med/blood draws?</i>		CL Day _____	CL Day _____	CL Day _____
Foley Insertion Date _____ & <b>WHY is it in place ?</b>		Foley Day _____	Foley Day _____	Foley Day _____
Last BM		Date _____	Date _____	Date _____
Intake & Output (24 hr)				
Mobility <i>Current level of ordered activity/can pt get OOB</i>				
Skin				
Plans Travel/Procedures ? <i>What is keeping pt in ICU ?</i>				
Off going/On coming RN initials		/	/	/

Note: Newly updated form now prompts a 'Why' regarding indication for indwelling catheter.



## NURSE-DRIVEN PROTOCOL TO REDUCE INFECTIONS

## Appendix G

## Charting Element for Continued Catheter Use Criteria

Procedure Detail	
Consider using external catheters as an alternative to Indwelling urethral catheters in cooperative male patients Without urinary retention or bladder outlet obstruction.	
Catheter Type	<Indwelling>
-----	
Intermittent catheterization is preferable to indwelling Urethral or suprapubic catheters in patients with bladder Emptying dysfunction.	
-----	
--> Reason for Placing Indwelling Catheter	<Strict I&O Monitor>
May Remove Catheter Based on Nurse Driven Protocol? Y/N	<Y>
Comment:	<No Answer>
Additional Order Details	< May use urinary, esophageal or rectal temperature probe >
-----	
~ACTUAL PROVIDER ORDER ABOVE, BELOW IS FOR POM DISPLAY ONLY~	
-	<May use urinary, esophageal or rectal temperature probe>
-	<Indwelling>
-	<Monitor Strict I &O, per nurse policy>

*Note:* This patient's order would be for a temperature sensing indwelling urinary catheter, indicated for strict intake and output monitoring in the ICU setting.

Nurse-driven protocol for removal of indwelling catheter will have this 'Y' (yes) prompt given to indicate protocol is not to be excluded.