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Improving Pain Management in the Cardiac Procedure Unit

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Clinical Leadership Theme

The topic for my CNL Project is the pain management of patients in the Cardiac Procedure Unit. According to the Department of Veteran Affairs (2000), pain is viewed as the fifth vital sign, therefore pain is an essential indicator for the patients' well-being. Although research and advanced treatments in improved practice protocols have documented improvements in management of acute and postoperative pain, little awareness of the effectiveness of best practices continues. Improved interventions can enhance patients' attitudes to and perceptions of pain. What a patient believes and understands about pain is critical in influencing the patient's reaction to the pain therapy provided. Use of interdisciplinary pain teams can lead to improvements in patients' pain management, pain education, outcomes, and satisfaction (Glowacki, 2015).

A CNL competency that directly supports this project is assuming the role of the outcomes manager. As a CNL, I will use data to change practice and achieve optimal client outcomes. The CNL synthesizes data, information and knowledge to evaluate and achieve optimal client outcomes (AACN, 2007). This competency also uses performance measures to assess and improve the delivery of evidence-based practices and promote outcomes that demonstrate delivery of higher-value care. The CNL also assumes the role of an educator. Educating the staff to effectively manage patient's pain is key in making an improvement change. According to the White Paper (2007), communication is a complex, ongoing, interactive process and forms the basis for building interpersonal relationships.

Statement of the Problem

The nurse communication patient satisfaction score of the Cardiac Procedure Unit (CPU) is below the target of 69%. Providing quality of care is the department's top priority, so it is

important for the nursing team to appropriately anticipate, assess and manage patients' pain. The mission statement of CPU serves as a guide in providing the best possible cardiac service as CPU exists to consolidate the care of cardiac patients on one unit thereby increasing the experience of its members. "Our commitment is to provide compassionate care in a nurturing environment. We welcome your feedback and suggestions because not only do we care for you, we care about you."

Project Aim

The goal of the project is to develop an effective pain management program for this microsystem. One of the key factors in accomplishing the goal is to improve nurse communication about the patient's comfort level during care transitions such as Nurse Knowledge Exchange (NKE) and Authentic Hourly Rounding (AHV). Effective pain communication during Nurse Knowledge Exchange (NKE) and Authentic Hourly Rounding (AHV) consists of: develop and implement a standardized process for Nurse Knowledge Exchange (NKE) that includes the patient's plan for pain; develop and implement a standardized process for assessing and addressing pain and comfort during Authentic Hourly Rounding (AHV); develop and implement a standardized pain management order set which includes analgesics for as needed basis; develop and implement a standardized pain intervention during femoral sheath removal.

Global Aim

We aim to increase the pain management scores in the Cardiac Procedure Unit. The process begins with assessing why pain is not being identified and not treated accordingly. The process ends when pain management scores from the HCAPHS satisfaction survey using STAR rating system will improve from a baseline of 2 stars to 3 stars by December 2017.

Project overview

Cardiac Procedure Unit (CPU) specializes in the care of patients who are undergoing Coronary Angiography, Percutaneous Coronary Intervention (PCI) or Angioplasty, closure of Congenital Heart Defect, treatment of Heart Valve Stenosis, and implantation of Pacemaker. The day-to-day operations are composed of Registered Nurses (RNs), Patient Care Technicians (PCTs), Unit Assistant (UA), and Nurse Practitioners (NPs) who work hand in hand in caring for cardiac catheterization patients with an oversight from the Medical Director and Department Managers.

Patients' perception of pain in the CPU has continually followed a "see-saw" pattern and averages at about 50% according to HCAPHS report. The result is below the national standards. Patients are likely to experience pain when undergoing cardiac catheterization. Pain can induce severe complications and it may lead to further deterioration of the patient. Therefore, knowing how to manage pain in patients is an important part of systemic approach. (Cohen, et. al., 2004). Under-treated pain may also lead to the development of chronic pain which can be difficult to treat, adversely affecting the person's quality of life. Inadequately managed pain is linked with many adverse consequences including sleeplessness, anxiety, physiological stress responses including delayed gastric emptying, and increased myocardial oxygen demand (Malcom, 2015). It is an expectation for the staff to appropriately anticipate, assess and manage pain. One of the barriers of the project is the unwillingness of some patients to ask for help when in pain. Examining at how different cultures perceive pain is important. Some cultures do not see the need for analgesics and would rather bare the pain (Wingfai & Bhuvanakrishna. 2014). Some cultures also still have the stigma that one will get addicted to pain medication. Patient teaching is necessary in order to actively manage pain and minimize anxiety about taking pain

medication. There also appears to be a gap between the assessment of pain and implementing strategies to manage pain. Routine screening for pain should be coupled with a comprehensive assessment and targeted pain interventions. The improvement theme for this project is based on the IHI's quadruple aim: improved population health; reduce care cost; satisfied patients; satisfied providers.

Effective pain communication during Nurse Knowledge Exchange (NKE) and Authentic Hourly Rounding (AHV) includes:

- Develop and implement a standardized process for Nurse Knowledge Exchange (NKE) that includes the patient's plan for pain and complete pain documentation.
- Develop and implement a standardized process for assessing and addressing pain and comfort during Authentic Hourly Rounding (AHV) and use of pain intensity scales.
- Develop and implement a standardized pain management order set which includes analgesics for as needed basis.
- Develop and implement a standardized pain intervention during femoral sheath removal.

Based on the Team Steps framework, I choose the situation monitoring principle of continually scanning and assessing the progress of the pain management project in CPU. Success of this pain program requires engagement from all stakeholders. A shared mental model is the result from each team member maintaining situation awareness and ensuring that all team members are "on the same page." It is important to improve communication about pain management for patients during nursing transitions in care such as NKE and AHV. Improved communication should result in consistent pain management approaches between caregivers and improved patient satisfaction with nurse communication-

Literature Review

Pain is something any patient may experience during hospitalization and affects patient satisfaction with their care. Can better communication about pain management for cardiac catheterization patients during nursing transitions in care such as NKE and AHV improve pain satisfaction scores? The terms “pain” and “pain management” were used in the literature search. The research was limited to the English language and published in the last 7 years (Appendix C).

In a descriptive cross-sectional study using electronic database of vital signs and pain scores in 2010, Carr, Meredith, Chumbley, Killen, Prytherch, and Smith (2014) wanted to prove that patients do experience clinically significant pain during their hospital stay and at discharge. After analyzing a total of 810,774 pain scores with an actual 38,451 patient stays, pain was present in 38.4% of patient stays. Only 0.2% of pain assessments were made with just the use of vital signs. Reducing the risk of long-term persistent pain should be seen as integral to improving patient safety and can be achieved by harnessing organizational pain management processes with quality improvement initiatives. The assessment of pain alongside vital signs should be reviewed. Setting quality targets for pain are essential for improving the patient’s experience (Carr et al., 2014).

The personal values of the clinician may be a key driver of pain-management decision making. Using a qualitative method, the study done by Bernhofer, Hosler, and Karius (2016) examined the written answers to questions posed to nurses regarding any practice changes they have made to caring for patients with pain after participating in a class that included a segment on personal values. In April 2014, twenty clinical registered nurses in a Midwestern hospital setting attended a pain class and provided written answers to two open-ended interview questions. After analyzing the data, four themes were identified among the answers provided by

nurses: understanding the patient, importance of pain education, nurse's self-awareness, and interpretation of personal values. Nurses who learned how their personal values affect their pain management decisions described new insights into their own approach to pain management (Bernhofer, E. et al, 2016).

Despite numerous quality-improvement projects and treatment policies and procedures on pain management, a majority of patients continue to experience significant pain during their hospitalization thus producing negative effects on their physical, psychological, and social well-being. A point-prevalence study was conducted by Zoega, Sveinsdottir, Sigurdsson, Aspelund, Ward, and Gunnarsdottir (2015) thru collection of data from the American Pain Society Patient Outcome Questionnaire (Icelandic version). The study was based on the response to pain assessment by 308 adults over 18 years old, 49% male and hospitalized for more than 24 hours. The response rate to the survey was 73% with 35% experiencing severe pain in a 1-10 pain scale. The study showed that the amount of pain the patients felt prevented early mobility and sleep disturbances. Pain was both prevalent and severe in the hospital, but patient participation in pain treatment decision making showed correlation to better outcomes. Optimal pain management, with emphasis on patient participation in decision making, should be encouraged in an effort to improve the quality of care in hospitals (Zoega et al., 2015).

Rationale

HCAHPS (the Hospital Consumer Assessment of Healthcare Providers and Systems) is a patient satisfaction survey required by CMS (the Centers for Medicare and Medicaid Services) for all hospitals in the United States. The Survey is for adult inpatients, excluding psychiatric patients. Using data from the 11 HCAHPS measures publicly reported on Hospital Compare, CMS created 11 HCAHPS star ratings. Star ratings for composite topics combine multiple

questions from the HCAHPS Survey. Star ratings for individual and global topics represent individual questions on the HCAHPS Survey. The composite topics include: nurse communication, doctor communication, responsiveness of hospital staff, pain management, communication about medications, discharge information and care transition. As part of the Centers for Medicare & Medicaid Services (CMS) initiative to add five-star quality ratings to its Compare Web sites, this source of information makes it easier for consumers to use the information to compare hospitals and recognize excellence in quality of service. Updated scores will be posted weekly as the organization transitions to the CMS STAR ratings for the 2017 performance goals. The management team is in the process of training, and learning how to access the tools and resources provided by the National Care Experience Analytics to improve measures.

A key provision of accountable care organizations (ACOs) is value based purchasing (VBP), which directly links payment to quality of care. The Hospital Value-Based Purchasing (VBP) Program is a Centers for Medicare & Medicaid Services (CMS) initiative and was established for traditional Medicare, offering financial incentives to hospitals to improve the quality of care (Penner, 2017). ACOs must demonstrate application of evidence-based practice (EBP), care coordination, quality indicators, and quality improvement efforts. In addition, ACOs must develop processes ensuring patient engagement and patient centered care. Based on the Hospital VBP Program for 2017, one performance measure under HCAHPS survey is pain management. To help achieve this measure, the CNL is responsible for the clinical management of comprehensive client care, for individuals and clinical populations, along the continuum of care and in multiple settings, including virtual settings (AACN, 2007).

When pain and other discomfort are better controlled, patients are able to ambulate sooner and avoid any delay in their discharge process. The aim of this project is to organize a comprehensive pain education plan for the CPU staff. Initiating awareness of the HCAPHS pain score from the previous year to the current year is the first step in addressing the pain management in CPU. During the in-service, the following topics will be addressed to build engagement for the changes proposed: describing the most important factors of pain management in CPU patients, standardized pain assessment and pain assessment tools, identifying aggravating factors after cardiac procedures, proposing strategies of pain control measures for facilitating effective pain management, and developing a program wherein patients can participate in their pain treatment decision making. It is essential to educate the nurses on proper documentation of pain assessment and the effect of pain interventions. Notation of such will allow communication among clinicians about the current status of patient's pain and responses to the plan of care. The Joint Commission requires documentation of pain to facilitate reassessment and follow-up (Wells, Pasero, & McCaffery, 2008).

Cost Analysis

The cost of educating each staff member would require allocating a 2-hour in-service initially (Appendix A). CPU is staffed with 40 staff members in total and the estimated cost to educate everyone would be \$4,800. An additional \$600 will be utilized for teaching materials necessary for the pain education. A proposed staff meeting twice during the initial year and the following years costing another \$4,800 is important because continued education and evaluation of the project help the nursing team see the progress and build a sense of achievement. Constant check in provides an opportunity to reflect and learn from what the team has done, assess the outcomes and effectiveness of a project and think about new ways of doing things. The initial

cost to start this educational project is a total of \$10,200 towards the primary benefit of decreasing length of hospital stay. If a day of hospitalization costs \$3,500 per patient, one patient per month would create a saving of \$42,000 total for the year. If the length of hospital stay is decreased for just three patients during the first year, the initial investment of \$10,200 will be covered entirely. The more patients who will go home as scheduled and prevent any additional hospital stay will save the hospital more money. Therefore, the return of investment is high (Appendix G). The secondary benefits include improved HCAPHS scores in patient satisfaction scores and pain management and improved customer service and retention. This enhanced pain management can lead to an important reduction in length of stay, therefore, increasing patient throughput and hospital capacity.

This project is important to ensure cost effective care because of the regulatory changes in reimbursement. Properly addressing patients' pain and discomfort can increase HCAPHS scores in patient satisfaction and pain management. It will retain and gain more patients by maintaining a high standard of care and great reputation within the healthcare community. Pain management promotes early ambulation and decreases length of stay.

Methodology

We aim to increase the pain management scores in the Cardiac Procedure Unit. The process begins with assessing why pain is not being identified and not treated accordingly. The process ends when pain management scores from the HCAPHS satisfaction survey using STAR rating system will improve from a baseline of 2 stars to 3 stars by December 2017. An effective pain management program for the CPU includes the following: staff education about the pain protocol; standardization of patient rounding and nurse hand-off; guidelines for pain intervention using analgesics especially during femoral sheath removal, and effective communication

between nurse and nurse practitioner/physician. By communicating effectively and working with physicians as a team, nurses can provide ideas for interventions and advocate constructively for patients. Through the formation of nurse-physician work groups, communication and teamwork are improved between these members. Because these meetings are led primarily by RNs, the historic stacked hierarchal structure of nurses and physicians is altered. Multidisciplinary committees including nurses and physicians should be formed. Ideally the goal that with improved perceptions of nurse-physician teamwork, both groups will feel more comfortable interacting with each other and participating in shared decision making and ultimately providing a culture of safety for patients and health care team members alike (Streeon, 2016).

The change being implemented in this microsystem is pain education. Providing the nursing team with an in-service and informational handouts, setting standards of care, embracing the key concepts of pain management, and creating an environment of accountability are vital to the department's pain performance. Nursing units in hospital settings are primarily shift-based work environments where continuity of patient care needs to be maintained throughout all shifts; nursing performance and care outcomes in previous shifts can influence the workload of those working during subsequent shifts. Thus, care quality and subsequent health outcomes of patients depend upon effective communication between nurses (Kim & Oh, 2016). Pain champions will be designated to the members of the Unit Council to assist in dissemination of information and sustainability of the project. Continued reinforcement by leaders is key in the achievement of the goal. The SWOT (Strengths, Weaknesses, Opportunities, Threats) matrix is a tool that helps in identifying and analyzing the SWOT related to a decision, project, or capital expenditure (Penner, 2017). (See Appendix H).

Theoretical Framework

Lewin's Change Model is a great framework to follow in order to guide practice change. Lewin's Model is straightforward and can be easily followed by staff. The first stage, "Unfreezing," focuses on bringing awareness to pain management. Educating staff with repercussions of complications due to unmanaged pain may help decrease incidents. Success depends on continuing to develop a sense of teamwork and active communication among those members of the department engaged directly in the change effort and the other members of the organization who have a stake in the outcome. It is essential that the change agents—especially managers, project team members, and consultants—provide visionary leadership that enables the process, rather than micromanagement that inhibits the change (Levasseur, 2001). Current practice need to be examined to begin the change and staff education in improving caregiver communication is imperative in addressing pain control. A crucial step in building momentum is when staff are well informed. Informational fliers on the types of pain, levels of pain, and effects of pain physically and psychologically are some of the important pieces of information necessary to promote pain awareness. The expectation of staff to round on each patient every hour highlighting patients' comfort will be reiterated during huddles, staff meetings, and annual skills day, so that all members of the team will be on the same page.

The second stage, "Moving," will work towards changing current practice in order to increase pain management by creating goals and objectives. A fundamental principle of effective change management is that people support what they help create. Active participation by the affected parties in the change process is the most important element of effective change (Levasseur, 2001). Staff will be randomly audited weekly by direct supervisor to ensure patients pain is being addressed during NKE and AHV. Attending to patients' comfort, safety, and

environmental needs may prevent adverse events like unrelieved pain; and contribute to patients' satisfaction with nursing care (Halm, 2009). During daily huddle, staff will be reminded to utilize tools and tips given during the in-service regarding the standardized pain protocol and consistency with nursing care for patients.

The third stage, "Refreezing," focuses on putting the intervention into action while simultaneously preventing old habits to occur. Successful refreezing requires a commitment to remain actively involved until required new behaviors have replaced those that existed prior to the change. This does not happen overnight or without ongoing support to the organization attempting to institutionalize the change (Levasseur, 2001). Continued education and evaluation of the project help the nursing team see the progress and build a sense of achievement.

By following Lewin's Model, I believe that pain or discomfort associated with cardiac catheterization will be managed effectively, thus achieving the goal of this project. Pain and pain management will be discussed during the daily morning huddle. Staff will also be randomly chosen weekly to teach back information given at the in-service and information from the informational fliers. Continued education, reinforcement, and monitoring are needed in order for this project to succeed.

Evaluation

Management will have constant reminders for staff until survey scores are satisfactory. Printed announcements regarding pain will be posted in staff break room in case staff members were not present during the morning huddle. Staff will initial the announcement to confirm that they have read the information. Nurse leaders and pain champions of the department will continue to support and educate the staff regarding new procedures, or any updates regarding pain performance. Nurse leaders will check on patient's comfort during their daily patient

rounding which will validate the teachings about pain during NKE and AHV. Making hourly rounds is another apparatus in nurses' toolkit to advance nursing quality outcomes (Halm, 2009). Random patient charts will be audited to ensure pain score is being documented and re-assessment of pain after pain intervention.

Timeline

The timeline for this project involves several months of gathering baseline data as the start-up phase. The initial phase encompasses the preliminary meeting with stakeholders involved, data gathering and project planning. This phase takes place between the months of May 2017 to August 2017 (Appendix F). The second phase is the implementation of pain education for the nursing staff in the microsystem utilizing the Model for Improvement with Plan-Do-Study-Act (PDSA) cycles (Appendix K). According to Nelson et al. (2007), the Model for Improvement serves as a structure to test ideas with anticipated improvements. The final phase is to re-assess and evaluate the initial results of the project with the stakeholders (Appendix G).

Expected Results

Through effective communication between nurses, doctors and nurse practitioners in pursuing effective pain interventions, patient's perception that pain was managed will increase as reported in the STAR ratings from HCAPHS survey. Patient experience scores are also directly associated with clinical quality measure scores. When patients have desirable hospital stay, it could also mean high quality measures. Better patient experience scores could indicate that a hospital has stronger teamwork, organizational leadership, and commitment to improvement, characteristics that could be associated with better quality measures and patient experience scores (Mehta, 2015).

Nursing Relevance

The prevalence of pain across different patient populations is important, but assessment of the pain intensity is also imperative, as it can provide a predictor of the impact of pain on physical function (Carr, Chumbley, Prytherch & Smith, 2014). An effective pain management program for the CPU includes the following: staff education about the pain protocol, standardization of Authentic Hourly Rounding (AHV), and Nurse Knowledge Exchange (NKE) that includes the patient's plan for pain, set guidelines for pain intervention during femoral sheath removal, and a pain management order set which includes analgesics for as needed basis. Patient education is important to emphasize the effects of ineffective pain to the body and review the different pain treatment options, both pharmacologically and non-pharmacologically. An astute nursing judgement is crucial because pain can be verbal and non-verbal. Patient-centered care will also require having knowledge of barriers to pain management and then developing a plan with the patient to identify solution to overcome barriers to the patients experience of pain. Effective pain management results in better patient outcome and care experience, creates cost saving for the hospital by increasing patient throughput and hospital capacity.

Project Summary

Inadequately managed pain can lead to adverse physical and psychological patient outcomes for individual patients and their families. Of particular importance to nursing care, unrelieved pain reduces patient mobility thus resulting in complications. Negative changes in condition negatively affect the patient's welfare and the hospital performance because of extended lengths of stay and readmissions, both of which increase the cost of care (Wells et al, 2008). Pain control in CPU is a constant problem that has not been resolved. The goal of the project is to develop an effective pain management program for this microsystem which begins

by organizing a comprehensive pain education plan for the CPU staff. It is important to improve communication about pain management for patients during nursing transitions in care such as Nurse Knowledge Exchange (NKE) and Authentic Hourly Rounding (AHV). Effective pain communication during NKE and AHV consists of: develop and implement a standardized process for Nurse Knowledge Exchange (NKE) that includes the patient's plan for pain; develop and implement a standardized process for assessing and addressing pain and comfort during Authentic Hourly Rounding (AHV); develop and implement a standardized pain management order set which includes analgesics for as needed basis; develop and implement a standardized pain intervention during femoral sheath removal. The improvement theme for this project is based on the IHI's quadruple aim: improved population health; reduce care cost; satisfied patients; satisfied providers. Lewin's Change Model is a great framework to follow in order to guide practice change. The review of literature shows clear explanation that inadequate pain management reduces patient mobility, develops complications, increases length of hospital stay, and promotes poor patient satisfaction. Improved communication should result in consistent pain management approaches between caregivers and improved patient satisfaction with nurse communication. Besides the initial pain in-service, an additional 1-hour in-service twice a year will be provided as continued education and evaluation of the project help the nursing team see the progress and build a sense of achievement. Quality improvement requires essential elements for success: fostering and sustaining a culture of change and safety, developing and clarifying an understanding of the problem, involving key stakeholders, testing change strategies, and continuous monitoring of performance and reporting of findings to sustain the change (Hughes, 2008).

References

- American Association of Colleges of Nursing. (2007). *White paper on the education and role of the clinical nurse leader*. Retrieved from <http://www.aacn.nche.edu/publications/white-papers/ClinicalNurseLeader.pdf>
- Bernhofer, E.I., Hosler, R., & Karius, D. (2016). Nurses' Written Responses to Pain Management Values Education: A Content Analysis. *Pain Management Nursing, 17*(6), 384-391. doi: 10.1016/j.pmn.2016.08.007
- Carr, E. C., Meredith, P., Chumbley, G., Killen, R., Prytherch, D. R., & Smith, G. B. (2014). Pain: A quality of care issue during patients' admission to hospital. *Journal of Advanced Nursing, 70*(6), 1391-1403. doi: 10.1111/jan.12301
- Cohen, S., Christo, P, Moroz, L. Pain management in trauma patients. *Am J Phys Med Rehabil.* 2004 Feb;83(2):142-61
- Department of Veteran Affairs (2000) Pain as the 5Th Vital Sign Toolkit. Veterans Health Administration, Washington, DC. Retrieved from <http://www.va.gov/PAINMANAGEMENT/docs/ TOOLKIT.pdf>
- Glowacki, D. (2015). Effective pain management and improvements in patients' outcomes and satisfaction. *Critical Care Nurse, (3)*, 33.
- Halm, M. (2009). Hourly round: what does the evidence indicate? *American Journal of Critical Care 18*(6), 581-584. doi: 10.4037/ajcc2009350
- Hughes R.G. (2008). *Tools and Strategies for Quality Improvement and Patient Safety*. Patient Safety and Quality: An Evidence-Based Handbook for Nurses. Rockville, MD: Agency for Healthcare Research and Quality.
- Kim, M., & Oh, S. (2016). Assimilating to Hierarchical Culture: A Grounded Theory Study on

- Communication among Clinical Nurses. *Plos ONE*, 11(6), 1-18.
- Levasseur, R. E. (2001). People Skills: Change Management Tools: Lewin's Change Model. *Interfaces*, (4). 71.
- Malcolm, C. (2015). Acute pain management in the older person. *Journal Of Perioperative Practice*, 25(7/8), 134-139.
- Mehta, S. J. (2015). Patient Satisfaction Reporting and Its Implications for Patient Care. *AMA journal of ethics*, 17(7), 616.
- Nelson, E.C., Batalden, P.B. & Godfrey, M.M. (2007). *Quality by design: A clinical microsystems approach*. San Francisco, CA: Jossey-Bass.
- Penner, S. J. (2017). *Economics and financial management for nurses and nurse leaders*. New York, NY: Springer Publishing Company, LLC.
- Streeton, A. (2016). Improving Nurse-Physician Teamwork: A Multidisciplinary Collaboration. *MEDSURG Nursing*, 25(1), 31-66.
- Wells, N., Pasero, C., McCaffery, M. (2008). *Improving the Quality of Care Through Pain Assessment and Management*. Rockville, MD: Agency for Healthcare Research and Quality.
- Wingfai, K., & Bhuvanakrishna, T. (2014). The Relationship Between Ethnicity and the Pain Experience of Cancer Patients: A Systematic Review. *Indian Journal Of Palliative Care*, 20(3), 194-200. doi:10.4103/0973-1075.138391
- Zoega, S., Sveinsdottir, H., Sigurdsson, G., Aspelund, T., Ward, S., & Gunnarsdottir, S. (2015). Quality Pain Management in the Hospital Setting from the Patient's Perspective. *Pain Practice*, 15(3), 236-246. doi: 10.1111/papr.12166

Appendix A

COSTS

Category	Details	Initial Cost (2017) / 2018	
Education	Initial 2-hr pain inservice - all staff 40 staff, average of \$60/hour	\$4,800	n / a
Education	Teaching materials	\$600	\$600
Education	1-hr staff meeting twice a year to check progress	\$4,800	\$4,800
Total		\$10,200	\$5,400

PRIMARY BENEFIT

Benefit	Savings within 12 months	Succeeding Years
Decrease length of stay		
A day of hospitalization per patient = \$3,500		
1 patient per month X 12 months	\$42,000	\$42,000
(more patients, more savings)	\$\$	\$\$
Total	\$42,000	\$42,000

BENEFIT COST ANALYSIS

Net Benefit = Total Benefit – Total Cost

$$= \$42,000 - \$10,200$$

$$= \$31,800$$

Benefit/Cost Ratio = Net Benefit / Total Cost

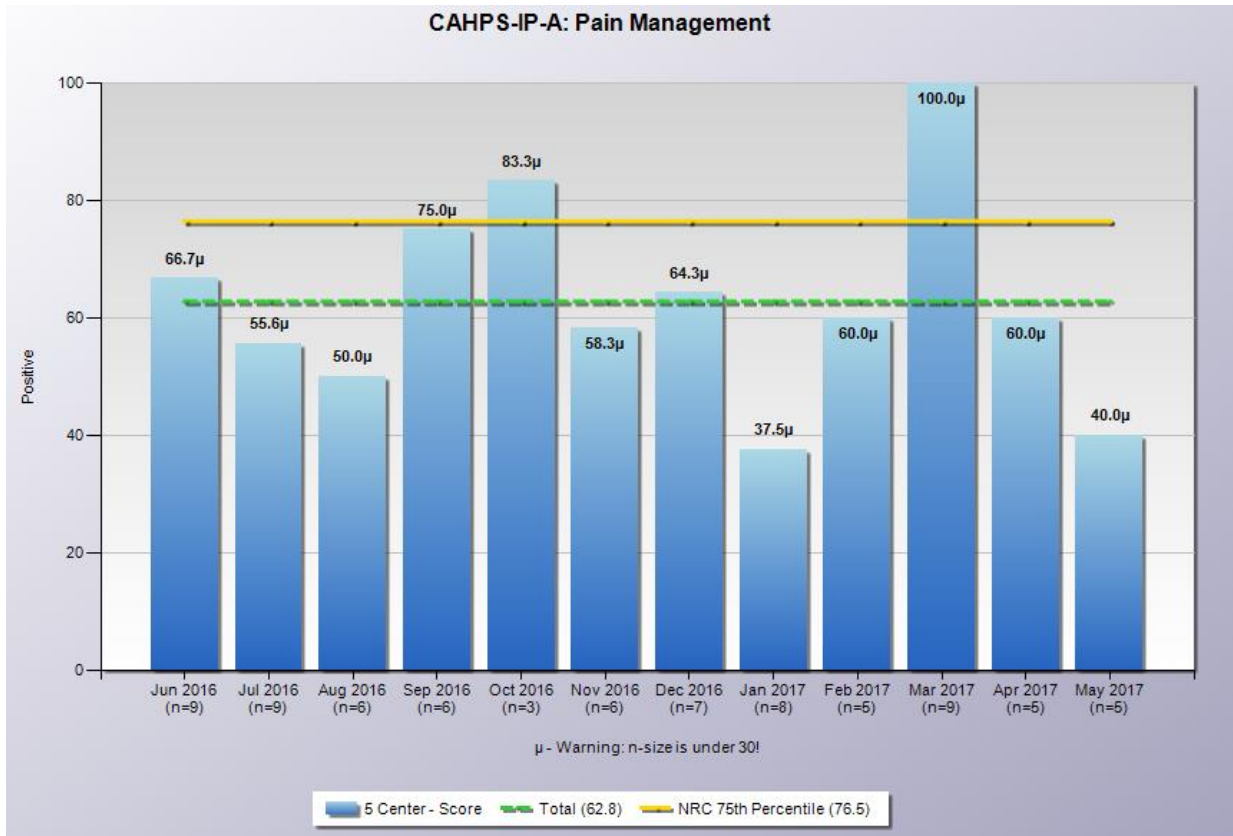
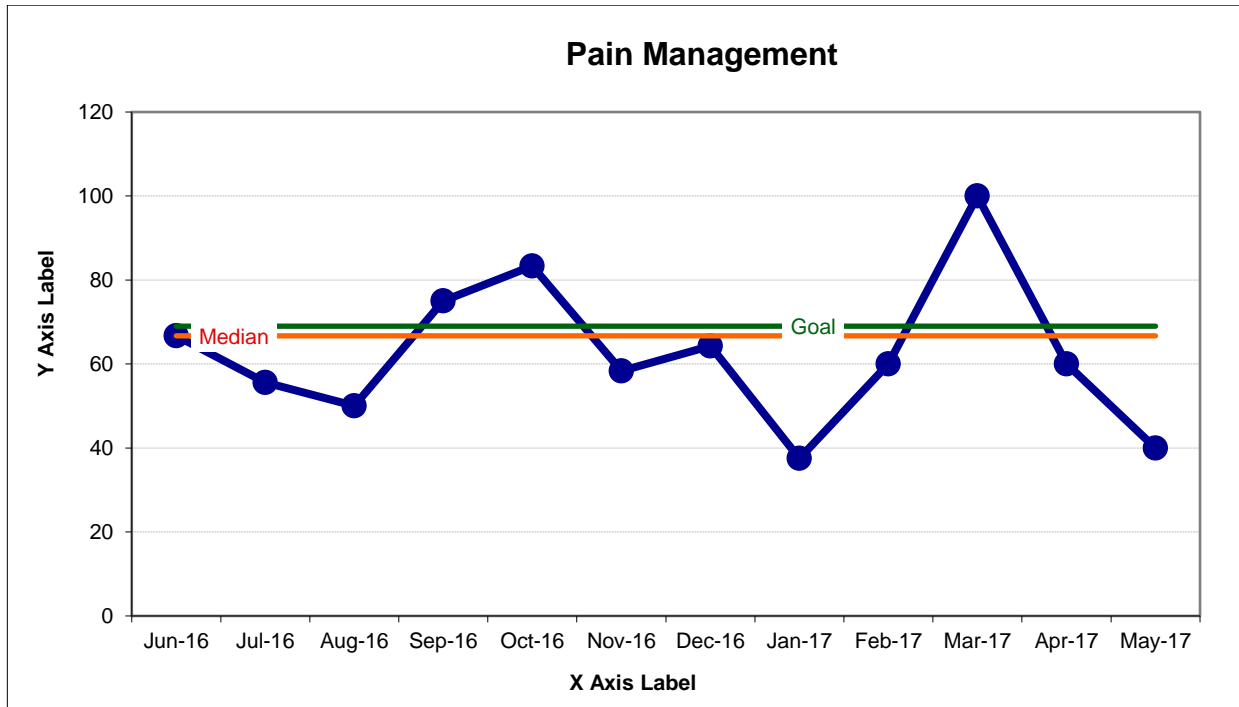
$$= \$31,800 / \$10,200$$

$$= 3.1$$

$$3.1 > 1$$

Appendix B

Baseline data with run chart



**Appendix C
Family of Measures**

Measure Description

Measure	Measure Definition	Data Collection source	Goal
	N = numerator D = Denominator		
Nurses initial that they have participated in in-service/huddle and/or staff meeting (Process)	N= Number of nurses at huddle/meeting D = Total number of nurses on unit	Observational study Sign-in sheet	100% completion
30 random patient chart audits will be checked to see if nurses assessed pain per policy every 4 hours (Process)	N = Number of patients who were assessed for pain D = Number of patients	Chart review – Health Connect Infoview	90% completion
Leader rounding interviews will be conducted to collect baseline information on patient’s perception of pain	N = Number of patients who responded from interview	Data collection Interview	100% completion

and effectiveness of pain communication during NKE & AHV (Process)	D = Number of patients rounded	Real-time observation	
Interview data will be collected & 90% pts were comfortable (Outcome)	N = Patients that were interviewed D = Patients reported no pain	Data collection	100% completion
Surveys will be completed and 69% reported pain was managed appropriately (Outcome)	N = patients that filled out survey D = Patients discharged from unit	HCAPHS Catalyst STAR ratings	70% completion

Balancing		
A negative connotation arises from the demand of the project	People Pulse Survey	60%

Team Composition; sponsors

Population Criteria

CPU patients

Team

CPU staff

CPU Unit Council

Unit leaders

Nurse Practitioners

Sponsors

Bridget Williams

Nancy Taquino

Measurement strategy

Data Definitions

Data Element	Definition
Huddle	Information will be disseminated during daily morning meeting, monthly staff meeting and annual Skills Day. Staff will initial that they have read information.
Posted Announcement	An announcement will be posted in the break room and pillars around unit.
Survey	Catalyst surveys will be mailed to patients after discharge from hospital.
Catalyst	Data collection agency (National Research) that helps hospitals improve scores with CMS requirements on specific CAHPS

	programs and can also help with customer experience.
HCAHPS	Hospital Consumer Assessment of Healthcare Providers and Systems
CMS	Centers for Medicare & Medicaid Services
Pain	Physical or mental suffering or discomfort experienced by patient

Appendix D
Evaluation Table

Citation	Conceptual Framework	Design/ Method	Sample/ Setting	Variables Studied and Their Definitions	Measurement	Data Analysis	Findings	Appraisal: Worth to Practice
O’Leary, Thompson, Landler, Kulkarni, Haviley, Hahn, Jeon , Wayne, Baker, Williams, 2010	None	Cross Sectional Study during a 4-week period in June 2007 Purpose: Nurse-Physician Communication Method: During a one-month period, randomly selected hospitalized patients, their nurses and their physicians were interviewed whether communication had occurred, and about six aspects of the plan of care.	310 (91%) and 301 (88%) of 342 eligible nurses and physicians completed interviews. Two internists rated nurse–physician agreement on aspects of the plan of care as none, partial or complete agreement. Measures included the percentage of nurses and physicians able to identify one another and reporting communication and the percentage of nurse–physician pairs in agreement on aspects of the plan of care. The study was conducted at a 753-bed academic hospital in Chicago, Illinois	Nurses (N=310) Physicians (N=301) Participant characteristics are: The majority (84%) of the patients were admitted via the emergency department, and half (51%) were admitted at night. Approximately two-thirds (64%) of the patients were admitted to the teaching service and one-third (36%) to the hospitalist service.	A structured interview instrument was designed to characterize nurse–physician communication and assess understanding of patients’ plan of care.	The Nurse–Physician Summary Agreement Score was not significantly different when comparing nurse–physician pairs in which neither the nurse nor the physician reported communication with pairs in which both reported communication had occurred (mean score 7.63 vs 7.78, p=0.67).	Nurses and physicians did not reliably communicate with one another and were often not in agreement on the plan of care for 26 hospitalized medical patients.	Strengths: Studies show improved perceptions of collaboration among providers, but understanding of the plan of care has not been assessed. Limitations: Findings reflect the experience at one hospital highlight that communication is often suboptimal even when it occurs, which is valuable for healthcare workers to consider in a variety of settings. Future studies should evaluate the connection between the quality of nurse-physician communication and actual preventable adverse events. Level III, B

Citation	Conceptual Framework	Design/ Method	Sample/ Setting	Variables Studied and Their Definitions	Measurement	Data Analysis	Findings	Appraisal: Worth to Practice
Kim & Oh, 2016	none	Grounded theory methodology was used in this study The purpose of this study was to generate a substantive model that accounts for the explanatory social processes of communication in which nurses were engaged in clinical settings in Korea.	A total of 15 clinical nurses, all female participated in the in-depth interviews. Eligible study participants included registered nurses who had three or more years of experience in clinical nursing. Participants were recruited from general hospitals in three Korean cities	Phase I: Getting to know unspoken rules - Receiving strong disapproval - Learning by observing Phase II: Persevering within the culture - Going silent - Doing what is acceptable - Minimizing distress Phase III: Acting as a senior nurse - Enjoying the advantages - Taking responsibility	All interviews for this study were conducted in person at a participant-chosen time and location, including in small hospital conference rooms, the researcher’s office, or a quiet spot near a participant’s workplace. Interviewers and participants in this study	The initial purposive sampling was done to identify “good informants,” then theoretical sampling was performed throughout the study to saturate previously-emerged codes and categories and to gain variation of categories in their properties and dimensions with varying conditions as much as possible.	The results of this study illustrated how the hierarchy-based culture in nursing units was applied and reinforced via communication between organization members in Korea. The results also demonstrated that a culture that emphasizes organizational rigidity, exclusivity, and hierarchy serves as a serious obstacle to active communication within an organization and as a mechanism that can lead to difficult transitions for nurses.	Strengths: Methods credible Limitations: sample size was small, and only one hospital was used which could affect generalizability and selection bias. Level III, B

					were all female.			
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Citation	Conceptual Framework	Design/Method	Sample/Setting	Variables Studied and Their Definitions	Measurement	Data Analysis	Findings	Appraisal: Worth to Practice
Carr, Meredith, Chumbley, Killen, Prytherch, & Smith, 2014	none	<p>A descriptive cross-sectional exploratory design</p> <p>A large electronic pain score database of vital signs and pain scores was interrogated between 1st January 2010 and 31st December 2010 to establish the proportion of hospital inpatient stays with clinically significant pain during the hospital stay and at discharge.</p>	<p>The study sample comprised all documented pain scores for hospital admissions where the in-hospital stay finished between 1 January 2010–31 December 2010.</p> <p>The study took place at a National Health Service District General Hospital on the South Coast of England, UK. The hospital manages ~140,000 admissions per year in ~1200 inpatient beds on a single site.</p>	<p>Adverse events, epidemiology and detection, nursing, pain, pain assessment, patient safety, quality improvement.</p> <p>Pain was assessed using a verbal rating scale (VRS) and had four categories – 0 (no pain), 1 (mild pain), 2 (moderate pain) and 3 (severe pain).</p>	A commercial electronic system for the routine documentation and charting of vital signs, including pain scores, at the bedside using hand-held devices (Smith et al. 2006, 2009) was used during the study.	<p>The database system has demonstrated good reliability and validity</p> <p>Several authors have compared different pain intensity rating scales and have concluded that a verbal pain rating scale is a valid and reliable measure of pain</p>	<p>A total of 810,774 pain scores were analyzed, representing 38,451 patient stays. Clinically significant pain was present in 384% of patient stays. Across surgical categories, 540% of emergency admissions experienced clinically significant pain, compared with 480% of elective admissions. Medical areas had a summary figure of 265%. For 30% patients, clinically significant pain was followed by a consecutive clinically significant pain score. Only 02% of pain assessments were made independently of vital signs.</p>	<p>Strengths: A major strength of our study is that the data were entered directly into electronic devices at the bedside as part of routine clinical care, thereby eliminating transcription error and facilitating subsequent retrieval and analysis of data.</p> <p>Limitations: It has been conducted at a single hospital and the work needs to be replicated in another institution.</p> <p>Level III, B</p>

Citation	Conceptual Framework	Design/Method	Sample/Setting	Variables Studied and Their Definitions	Measurement	Data Analysis	Findings	Appraisal: Worth to Practice
Glowacki, 2015	none	An NDNQI pain study, Coordinating Center for Dissemination and Implementation of Evidence-Based Methods to Measure and Improve Pain Outcomes, was initiated in March 2011.	A total of 400 hundred hospitals in the United States participated in phase 1 of the study, which began in March 2011 and included administration of the survey/questionnaire to patients in the 400 hospitals.	Five identified dimensions contribute to pain management. The dimensions have physiological, sensory, affective or cognitive, and sociocultural components unique for each patient that should be considered.	At Mercy Hospital of Buffalo, distribution of the survey/questionnaire prepared by the NDNQI and approved by the hospital institutional review board was administered to the patients by trained registered nurses. A $p < 0.05$ considered statistically significant.	Relevant data for this research can be grouped into three categories: patient characteristics, procedural characteristics and complications. These data were collected from the medical and nursing files.	<p>The results strongly linked the team's initiatives with improved pain management and a continuance of increased improvement in patient satisfaction scores after the completion of the study in May 2012.</p> <p>The interdisciplinary team approach in pain management is a complex yet fundamental part of providing excellence in patient care. The team approach provides important insight for patients and is highly correlated with improved patient recovery, outcomes, knowledge, and satisfaction.</p>	<p>Strengths: Studies show improved perceptions of collaboration among providers, but understanding of the plan of care has not been assessed</p> <p>Limitations: Findings reflect the experience at one hospital. Future studies should evaluate the connection between the quality of nurse-physician communication and actual preventable adverse events.</p> <p>Level III, B</p>

Appendix E

Timeline

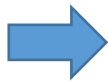
	5/24	6/7	6/14	6/28	7/5	7/23
Clinical Leadership Theme	X					
Project Aim		X				
Global Aim		X				
Statement of the Problem		X				
Project overview		X				
Budget		X				
SWOT Analysis			X			
Methodology			X			
Action Plan				X		
Evaluation					X	
Data Source/Literature Review						X
Expected Results						X
Nursing Relevance						X

Appendix F

Driver Diagram

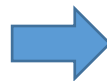
AIM

We aim to improve nurse communication of pain level during Nurse Knowledge Exchange (NKE) and Authentic Hourly Rounding (AHV) in an effort to increase the pain management scores via STAR system from a rating of 2 to 3 in the Cardiac Procedure Unit by December 2017.



Primary

Develop and implement a standardized process for Nurse Knowledge Exchange (NKE) and Authentic Hourly Rounding (AHV) that includes the patient's plan for pain.



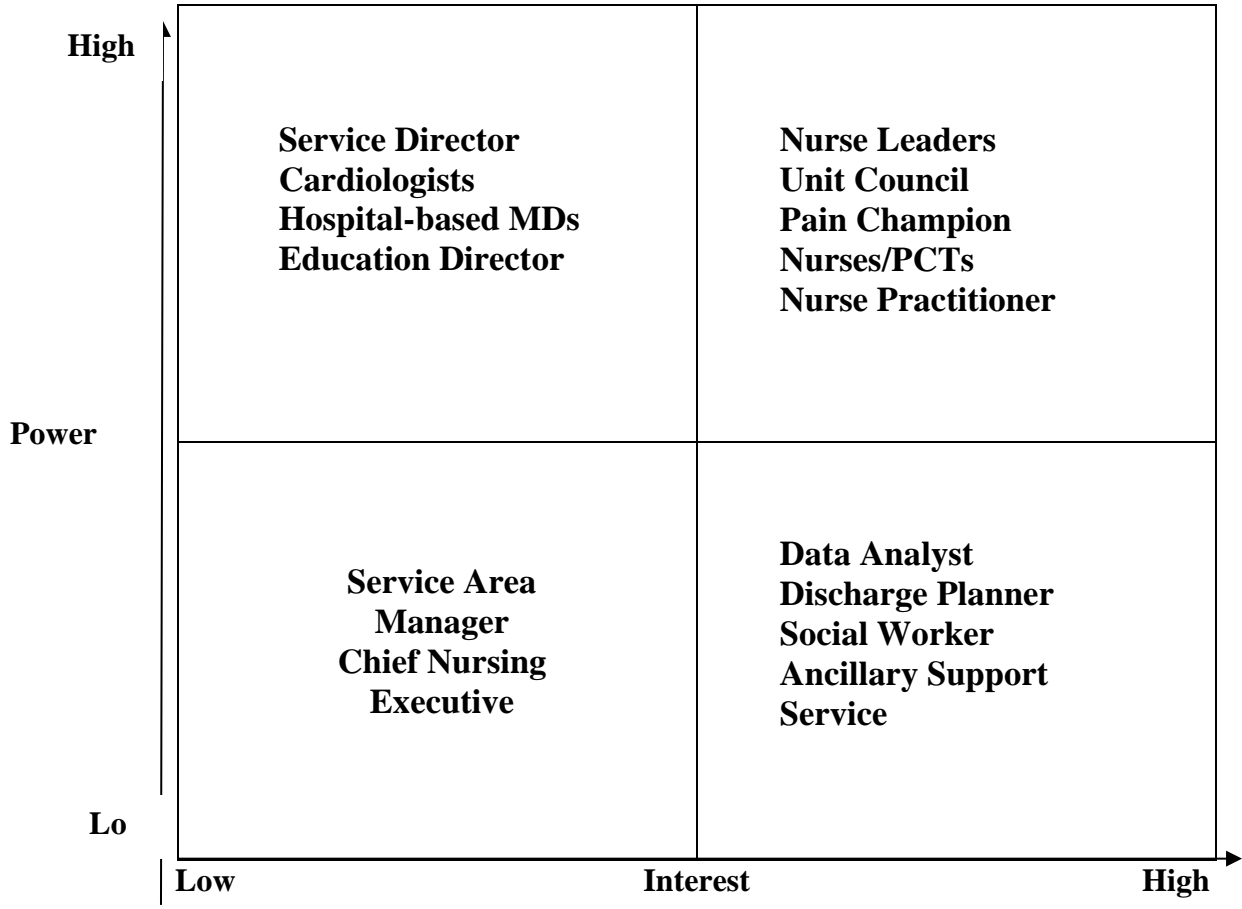
Secondary

Develop and implement a standardized pain management order set.

Develop and implement a standardized pain intervention during femoral sheath

Appendix G

Stakeholder Analysis



Appendix H

SWOT Analysis

STRENGTHS AND OPPORTUNITIES	WEAKNESSES AND THREATS
<p>By working on this process, we expect that pain is alleviated to a level of comfort acceptable to patients resulting in increased HCAPHS scores in patient satisfaction.</p>	<p>Resources in obtaining accurate, baseline pain data through rounding interview, chart review and HCAHPS survey.</p>
<p>Better pain management of cardiac catheterization patients will improve pain performance scores from a baseline of 2 to 3 via STAR rating system.</p>	<p>Staff attendance during huddle in bringing awareness regarding the effects of ineffective pain management and the repercussions of its complications, learning cues to nonverbal pain, and department's pain protocol.</p>
<p>Instituting standardized pain protocol will enhance pain screening, assessment, and intervention.</p>	<p>100% buy in of key stakeholders regarding the pain management of the department and agreement to strategies of pain control measures.</p>
<p>With improvements in pain management, it will expedite early mobilization after cardiac catheterization, thus reducing the length of hospital stay.</p>	<p>Further surveys and data collection need to be completed for more accuracy and effectiveness of methods.</p>
<p>By improving pain management, patient's hospital stay will be decreased thus saving money to allocate for other unit needs.</p>	<p>100% of patient participation in the pain treatment decision making during their hospitalization following cardiac procedure and at discharge.</p>

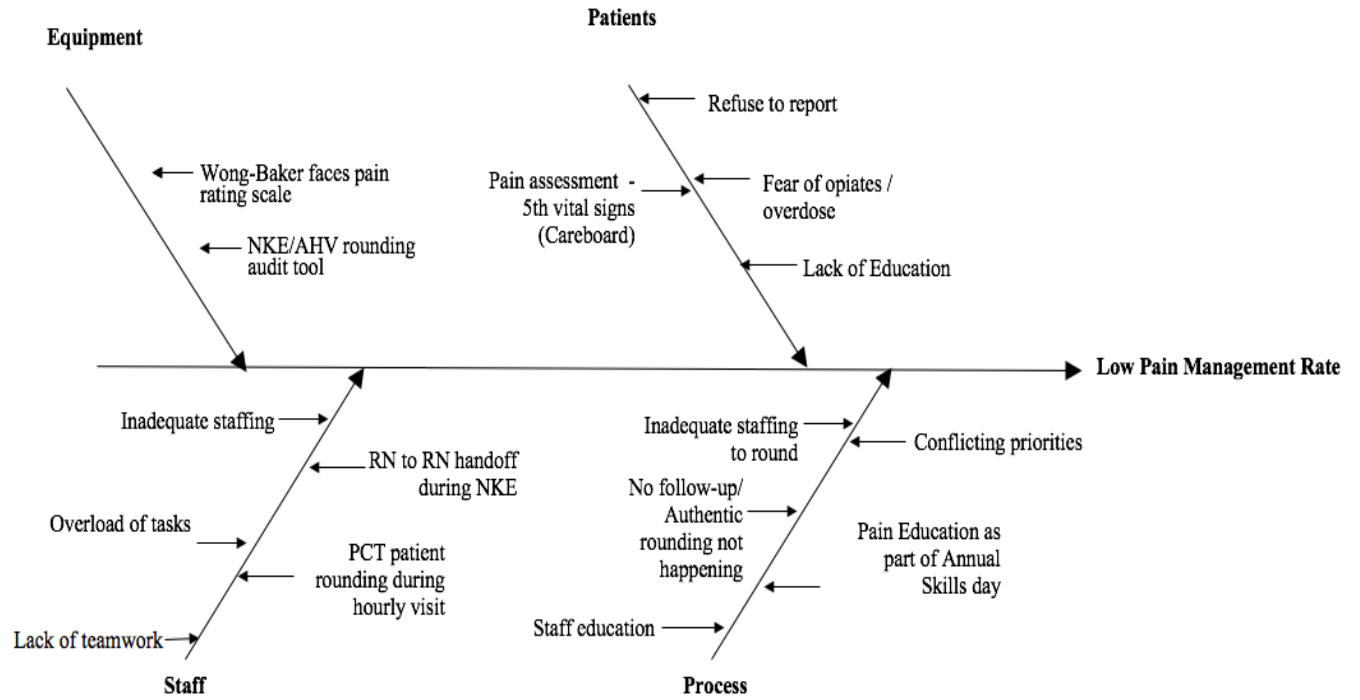
Appendix I

Return of Investment (ROI)

Description	Calculation per month	Calculation per year
Decrease patient length of stay (LOS).	Expected number of days decrease in a month = 1 day.	Expected number of days decrease in year = 12 days.
Improvement cost	Cost of staff education and training: No. of staff x time x rate per hour. $40 \times 2 \text{ hours} \times \60.00 $= \$ 4,800.00$	Cost of staff education and training in a year: $\$ 4,800.00 \times 1 = \$4,800.00$
	Cost for handout material: \$600.00	Total cost for handout material: \$600.00
	Initial 2-hour inservice = \$4,800.00	Total annual cost: (\$4,800.00 + \$600.00 = \$5,400.00)
Calculated revenue (saving per day LOS: \$3,500)	Saving per day reduction on LOS: \$3,500.00	Total revenue: No. of day reduced LOS in a year x cost per day $(12 \times \$3,500.00 = \$42,000.00)$
Calculated Return of Investment (ROI)		Total revenue – Total cost: $\$42,000 - \$5,400 = \$36,600$
		Annual Saving of \$36,600.00

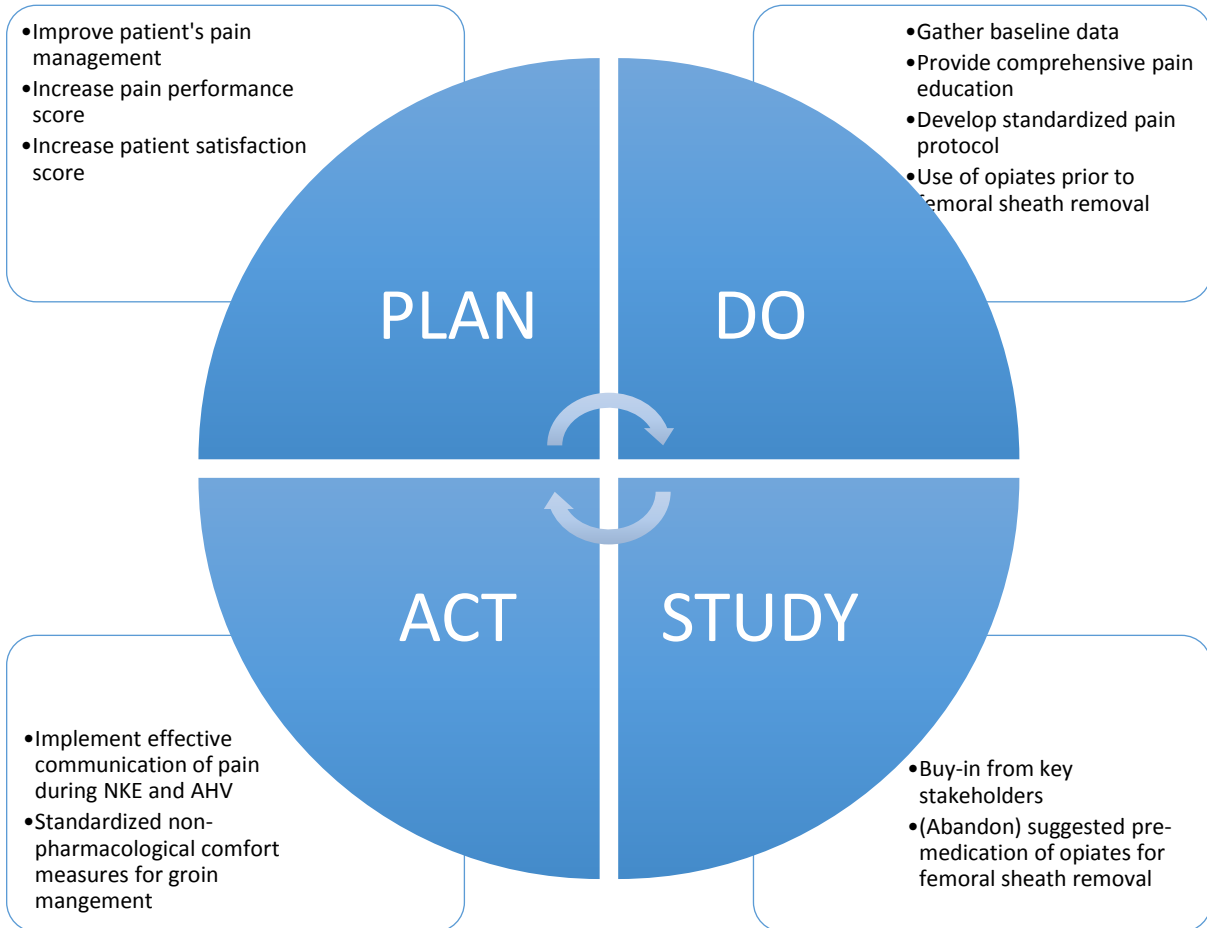
Appendix J

Root Cause Analysis – Fishbone Diagram



Appendix K

PDSA Cycle



Appendix L

Tools Developed

Do you know The Effects of Unrelieved Pain ?

**ANXIETY
DEPRESSION
DECREASED CONCENTRATION**

**NEGATIVELY AFFECTS
INTERACTION WITH LOVED ONES**

**NAUSEA/VOMITING
DECREASED BOWEL MOVEMENT
DECREASED URINATION**

**INCREASED HEART RATE
INCREASED BLOOD PRESSURE
DECREASED OXYGEN TO THE
HEART & VITAL ORGANS**

**WEAKENED IMMUNE SYSTEM:
INCREASED RISK OF
INFECTION/PNEUMONIA**

**INCREASED RISK FOR FALLS
DECREASED MOBILITY
INCREASED RISK FOR BLOOD CLOTS**

Please Let Us Know If You're in PAIN

0 No Pain
1
2 Mild Pain
3
4 Moderate Pain
5
6 Severe Pain
7
8
9
10 Worst Pain

Got Pain?!?



Chest Pain **Groin Pain** Numbness & Tingling
Cramping Stretch Pain **Hand/Wrist/Arm Pain**
Leg Pain **Abdominal Pain** **Hip Pain**
Back Pain Foot Pain *Neck Pain*
Headache

If you've got pain or discomfort... We can help...

Pain Control Survey for RN Staff

1. How often do you feel that a patient under your care has inadequate pain control?
 - a. Almost every shift
 - b. 1-2 x per shift
 - c. Rarely
2. Please circle the top two factors that are major contributors when pain control is suboptimal.
 - a. Pharmacy is too slow with meds
 - b. Patient has unrealistic expectations
 - c. Unable to reach MD to discuss pain control despite attempts
 - d. MD spoken to but unwilling to change orders when asked
 - e. RN too busy with other patient care tasks to reassess patient
 - f. RN afraid of serious side effects such as respiratory depression and altered mental status
3. What is your usual next step when standard orders for PRN oral opiates (Norco, Percocet) do not control the patient's pain? May circle 2
 - a. Give whatever IV med is available on the MAR
 - b. Call MD to change oral med or increase the frequency
 - c. Non-pharmacologic approach: Heat/ice, repositioning, distraction, emotional support
 - d. Encourage patient to wait until the next scheduled medication is due
4. Which of the following would most help you control your patient's pain?
 - a. More options for meds on the MAR
 - b. Multidisciplinary rounding with the MD to discuss pain control
 - c. Written information for the patient about duration of meds and what to expect
 - d. Quicker response from the pharmacy
 - e. More support from other RNs or Nurse managers to help with giving meds faster
 - f. Education for you about risks, benefits, and side effects of pain meds.
5. Any other suggestions for what would help you?