Improved Patient Reporting of Pain Utilizing A Traffic Light Pain Tool

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By

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DEDICATION

To my family who wouldn’t let me give up on this journey not matter how many times I said I was going to.

To Dr. Ann Tritak, who believed in me more than I did myself and stuck with me through the entire journey.

For all of you, my family and friends, I am eternally grateful.
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Abstract

Improving quality of care, patient safety and efficiency in healthcare are a national focus. Governmental agencies have taken an interest in identifying and monitoring interventions that will improve patient-centered care as well as other strategies that improve quality of care and/or decrease healthcare costs. The identified problem for this scholarly project is the inadequate identification and management of pain in patients who have undergone interventional cardiac procedures as reported by patient satisfaction scores and Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) scores. The focus of this project will be to utilize a traffic light pain assessment tool to improve patient self-reporting and early identification of pain, which should result in the rapid intervention of pain management treatments by the nursing staff. This goal will be accomplished by instructing patients on the purpose and utilization of the traffic light pain assessment tool.

Keywords: pain, traffic light tool, patient satisfaction, patient centered care, HCAHPS scores.
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Chapter I

Introduction and Statement of the EBP Problem

Introduction.

The Hospital Inpatient Value-Based Purchasing Program (Werner & Dudley, 2012) is not a term that is commonly known in health care; however, the terms pay for performance, Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS), patient centered care and patient satisfaction with a focus on pain management, are of increasing importance to hospital administrators. These topics have been the focus of great scrutiny within health care since the Centers for Medicare and Medicaid Services (CMS) initiated the pay for performance (P4P) program in 2012. This value based purchasing program is being referred to as the largest quality improvement initiative for hospitals (Werner & Dudley, 2012) since the public sector initiative of the Premier Hospital Quality Incentive Demonstration Project. In this project CMS and Premier tested organizations to see if financial bonuses would improve the quality of care provided to Medicare patients with specific conditions. Policymakers have been analyzing healthcare within the United States and have been unsuccessful in managing spending. In the 1990’s managed care was initiated in an attempt to deal with cost of unnecessary health care.

In 1999, the Institute of Medicine (IOM) published To Err is Human; that identified serious deficiencies in quality of care. The report identified that health care in the United States is not as safe as it should be. The IOM included statistics that showed that between 44,000 and 98,000 die yearly in hospitals as a result of medical errors with associated costs of seventeen to twenty nine billion dollars per year in hospitals nationwide (Kohn, Corrigan, & Donaldson, 2000). The lack of success with managed care and the unsettling results from the IOM report made it evident that healthcare needed to focus on quality.
Definitions

Quality.

Quality can be defined in several ways. According to the Oxford dictionary (Oxford University Press, 2015) quality is defined as the standard of something as measured against other things of a similar kind; the degree of excellence of something. Quality can also be defined as a measure of the degree to which a good or service meets established standards or satisfies the customer (Ross, 2014).

Quality of health care has been monitored since the 1800’s when Ignaz Semmelweis, a Hungarian physician known as an early pioneer of antiseptic procedures, started looking at mortality rates between two obstetric clinics at the same institution (Ross, 2014). This process used the essential components of quality improvement, which is defined as a formal approach to the analysis or performance and systematic efforts to improve it. Semmelweis’ process used problem identification, quantifying outcomes, implementing a change and monitoring the results. The results of this quality improvement effort showed lower mortality rates. Unfortunately, these 19th century health care providers were reluctant to change because Semmelweis’ observations conflicted with established scientific medical opinion. Even with proof of improvement, clinicians reverted back to their original practices.

Florence Nightingale followed Semmelweis’ lead to improve quality of care provided during the Crimean War (Ross, 2014). Nightingale found that increased mortality rates were a result of over crowded hospital wards and poor sanitation. She was able to make changes that improved sanitation, decreased overcrowding and improved ventilation resulting in a decrease in
mortality rates. Like Semmelweis, Nightingale met with resistance from policy makers and military bureaucracy, which lead practitioners to revert back to their old practices.

Beginning in the late 1800s, Ernest Codman (a graduate of Harvard Medical School) revolutionized medicine by applying scientific principles to the study of anesthesia related deaths with the goal of reducing mortality rates (Ross, 2014). He is referred to as the father of outcomes management because of his work in improving quality of care. However, again, the medical community did not accept his ideas. In 1912, Dr. Codman was named chair of the Committee of Standardization of Hospitals; this organization eventually merged with the American Medical Association and the American Hospital Association and in 1951 formed the Joint Commission on Accreditation of Healthcare Organizations (Ross, 2014).

**Patient centered care.**

Patient centered care is the active involvement of the patient in his/her care as well as the individualization of that care (Reynolds, 2009). The focus is not on the disease process but on the patient and his/her psychological, spiritual, and emotional needs (Reynolds, 2009). Patient centered care is based on the premise that patients need to establish a trust relationship with their provider through an interactive conversation regarding the individual’s medical condition and treatment plan. A study by Stewart et.al, (2000), demonstrated that patient centered care had a direct impact on patient outcomes. Patients who have collaborative input into their care have faster resolution of symptoms, fewer follow up visits and better self-reported health concerns (Reynolds, 2009). Incorporating patient centered care with pain management enables patients the ability to collaborate on their care and improve the process of self-reporting, which will improve the treatment of pain.
Value based purchasing-pay for performance.

An initiative created by CMS, Value based purchasing-pay for performance was developed after the findings of the IOM report “To Err is Human” in 1999 became public and shed light on serious deficiencies in quality of care. The Affordable Care Act of 2010 required the Secretary of the Department of Health and Human Services (HHS) to create a value based purchasing program for in patient hospitals. As a result of that mandate, CMS initiated the Medicare funded pay for performance program for hospitals(Werner & Dudley, 2012). This program attaches value based purchasing to a payment account that allows participating hospitals to be paid for services based on quality of care, not quantity. Pay for performance provides bonuses to health care providers and institutions if they meet or exceed agreed upon quality or performance measures, and imposes penalties on those providers and institutions that fail to achieve set goals. The percentage of loss or gain began at 1% and increases 0.25% per year until it reaches the 2% limit set for 2017 (CMS, 2011).

Hospital consumer assessment healthcare providers and systems.

The Hospital Consumer Assessment Healthcare Providers and Systems (HCAHPS) was the first standardized, publicly reported survey on patients’ perspective of hospital care(CMS, 2011). In 2002, CMS partnered with the Agency for Healthcare Research and Quality (AHRQ) to develop and test the HCAHPS survey. After vigorous testing, the National Quality Forum endorsed the survey in May 2005, and in December 2005 the survey received final approval for national implementation for public reporting. CMS implemented the first HCAHPS survey in October 2006 and the initial public reporting occurred in March 2008. In 2010, The Patient Protection and Affordable Care Act included HCAHPS scores in the measures used to calculate value-based incentive payments, which became effective in October 2012 (CMS, 2011).
HCAHPS surveys are sent to a sample of discharged patients in an attempt to measure the quality of care provided during their hospital experience.

The survey consists of twenty-seven questions about their recent hospitalization. The sampling is random and can be sent to any discharged patient from a time frame of forty-eight hours to six weeks post discharge. The sampling does not restrict the survey to Medicare patients only, but includes all discharged patients. The survey is available in English, Spanish, Chinese, Russian and Vietnamese versions (CMS, 2011). The core questions included in the HCAHPS survey are about critical aspects of the patients’ hospital experience, such as communication with the nurses and doctors, the responsiveness of the hospital staff, the cleanliness and quietness of the hospital environment, pain management, communication about medicines, discharge information, overall rating of the hospital and whether they would recommend the hospital. The most current HCAHPS data (4th Q2014) at the study site for post interventional cardiac patients indicated that, overall, pain management ranked in the 10th percentile. Related scores included a 3rd percentile ranking for pain-well controlled measures and a 37th percentile ranking for helpfulness of staff with pain management. As a result of these scores, this topic was identified by the organization for this evidence-based project with the focus on the questions that specifically relate to pain management.

**Pain.**

Pain is a subjective, personal, multidimensional experience that encompasses psychological, behavioral, affective, cognitive and sensory dimension (Evans et al., 2004). Pain is challenging to assess and is most often self-reported. (Marco et al., 2006). Currently there are several different pain assessment tools that are utilized for the assessment and management of acute pain. According to, Bejur, Silver & Gallagher (2001) the Visual Analogue Scale (VAS)
and the Numeric Rating Scale (NRS) are powerful one-dimensional tools for detecting change in pain intensity. Both tools have demonstrated validity and reliability in the measurement of acute pain (Bijur, Latimer, & Gallagher, 2003).

Appropriate assessment and management of pain are essential aspects of compassionate medical care (Marco et al., 2006). According to Coker et al., (2008), 31%-70% of patients experience significant pain sometime during their hospitalization. Since the Affordable Care Act mandated that CMS initiate Medicare funded pay for performance programs for hospitals (Werner & Dudley, 2012), organizations are measured and reimbursed based on HCAHPS scores. The achievement score is based on whether a hospital’s performance surpasses the CMS defined benchmark (Werner & Dudley, 2012). Pain is a prevalent and high-risk problem and it has been the focus of national efforts at quality improvement (Beck, Brandt & Lavoie Smith, 2010).

Statement of the Problem

Patients having interventional cardiac procedures are likely to experience some degree of post procedure pain, with the type and severity of pain varying from patient to patient. There are multiple pain assessment tools that are available to use in determining patients level of pain and if intervention is necessary. Health care organizations rely on these pain assessment tools and the data they provide to gain specific information from patients regarding the responses to treatment rendered in response to their pain.

Purpose Statement

The purpose of this evidence-based project is to determine if the utilization of a traffic light pain assessment tool can identify and manage patients’ pain in a more efficient manner than
the numeric rating scale thereby leading to improved reported HCAHPS scores on a post interventional cardiac unit.

**Problem Statement in PICOT Format**

**P- Population:** All adult cardiac patients on the post interventional telemetry unit who have had an interventional procedure

**I- Intervention:** Utilization of a traffic light pain tool rating system to determine patient’s level of pain during hospitalization

**C- Comparison:** The numeric rating scale (NRS) to the traffic light pain tool for assessment of pain intensity which is the tool currently used at the organization where this EBP will be carried out

**O- Outcome:** The outcomes that should be realized are improved patient reporting of pain, early intervention to reported pain, increased patient satisfaction, increased HCAHPS scores and thus increase in reimbursement pay for performance from CMS

**T- Time:** over a four-week period

**PICOT Question**

In adult cardiac patients on an interventional telemetry unit, does the utilization of a traffic light pain tool as compared to the standard protocol of NRS for assessment of pain intensity allow for earlier patient self-reporting and/or earlier intervention for pain or both, thereby increasing patient satisfaction resulting in improvement in HCAHPS scores and overall improved patient experience over a four week period?
Implementing a pain assessment tool will allow the patient to easily quantify his/her pain level, provide the nursing staff a better understanding of the patient’s pain and more able to intervene before the pain levels become unmanageable.
Chapter II

Critical Appraisal of the evidence

Review of the literature.

An extensive review of the literature was conducted using nursing Cumulative Index of Nursing and Allied Health Literature CINAHL, medical (MEDLINE, PUBMED) and databases available through Hackensack University Medical Center and Saint Peter’s University Libraries. Numerous articles were found using the keywords pain, traffic light pain assessment tool, pain assessment, patient satisfaction, patient-centered care and HCAHPS scores. The Johns Hopkins Nursing evidence-based practice (JHNEBP) appraisal tools (Newhouse, 2007) were used to evaluate the strength and quality of research and non-research literature. The search produced many relevant articles, systematic reviews, randomized controlled trials and clinical practice guidelines. Sixteen articles were deemed appropriate for this study based on the rating of the evidence.

The Office of the Army Surgeon General published a report from the Pain Management Task Force (PMTF) that in 2008 was charged with proposing a recommendation to implement a standardized Department of Defense (DOD) and Veterans Health Administration (VHA) approach to pain management (Buckenmaier, 2013). The study titled “Preliminary Validation of the Defense & Veterans Pain Rating Scale (DVPRS) in a Military Population” by Buckenmaier et al., (2013) discusses how this tool demonstrated acceptable reliability and validity in its preliminary phase of validation in a single assessment point in time. Internal consistency reliability (Cronbach’s Alpha) for the five items was high 0.902. This exceeded the acceptable minimum threshold for internal consistency of 0.70. Principal component factor analysis (varimax rotation) for construct validity revealed one item grouping or factor accounting for
72.351% of the variance in the measure. This non-experimental study utilized a convenience sample of three hundred fifty active duty or retired military service members who were hospitalized across seven hospital units. All of the patients in the in-patient setting were being followed by the acute pain service and the outpatient setting subjects were recruited from the pain clinic at Walter Reed Army Medical Center (Buckenmaier et al., 2013). A twenty-two-member task force developed the Defense and Veterans Pain Rating Scale (DVPRS). This tool is a combination of the numeric rating scale (NRS), and the integration of the “traffic light” color designation. The NRS is the current tool that is being utilized throughout the military and VHA health care settings.

The “traffic light” tool concept was taken from the Robert Wood Johnson Transforming Care at the Bedside (TCAB) initiative (2011) where nurses from Seton Northwest Hospital developed this three color system to designate nurse workload and availability for additional patient care (RWJF.org, 2011). The subjects of the TCAB study were provided word descriptors that gave a standard meaning for each numerical rating on the scale. The word descriptors were tested using three grade level assessment tools to determine that grade level was appropriate. Standardized written instructions were provided and participants reviewed and matched the word descriptors to the corresponding number on the DVPRS. The PMTF favored using the DVPRS because it reorients patients to consider the impact of pain by grounding them in standard functional language (Buckenmaier et al., 2013). The task force felt the limitations of the study were that its use was limited to military medical environments and that the color coding system had specific implications for prioritizing patients in need of prompt and effective pain care (Buckenmaier et al, 2013).
In the study “The Impact of Patient-Centered Care on Outcomes” by Stewart et al., (2000), thirty-nine family physicians and three hundred fifteen of their patients were randomly selected to participate in an observational cohort study to assess patient-centered communication and medical care utilization (Stewart et al., 2000). The purpose of this study was to test the hypothesis that patients whose initial visit with their medical provider was patient centered would demonstrate symptom recovery, better self reported health and less subsequent medical visits within two months after the initial visit. Each patient’s office encounter was audiotaped and assessed for patient-centered communication, the patient’s chart was reviewed for utilization of follow up medical care and a telephone interview was conducted two months after the patients initial visit (Stewart et al., 2000). The study results revealed that the communication scores were as expected when the patient and physician were aligned in approach and treatment plan for medical problems. In the two months following the initial visit, those participants who were not in agreement with the ideas and treatment plan initiated by the physician had four-times the number of diagnostic tests performed as compared to those patients who were in agreement with their physicians. One of the limitations of the study was the small sample of physicians agreeing to participate in this study. This study revealed that the patients’ perception of patient centeredness was directly associated with positive outcomes (Stewart et al., 2000).

In “The Verbal Numeric Pain Scale: Effects of Patient Education on Self-reports of Pain” a prospective, interventional study by Marco et al., (2006), three hundred and ten eligible patients in an emergency department who were experiencing pain were asked to rate their pain level utilizing the verbal numeric pain scale. All participants recorded their initial pain score in initial triage and were then randomized to control group, educational video or educational print
Of the three hundred and ten subjects, fifty-five participants were enrolled as the control group and received no educational intervention and the others selected to view an educational video or read a brochure on the subject. No pharmacological or other pain treatments were performed during the study protocol (Marco et al., 2006). The results of this study showed a change in the reporting of pain scores as both an increase and a decrease, but the results of all groups was not statistically significant. This study demonstrated that education regarding patients knowledge of pain and measurement techniques will provide more accurate, self reporting pain scores that will allow better treatment of pain.

Pain is challenging to assess and is felt to be a subjective phenomenon (Marco et al., 2006). The use of alternative assessments of measures of pain, such as faces scale, color scale, visual or functional assessments rather than numeric scales have all been discussed. There are many challenges that exist when discussing patient reported pain. The consensus within the literature calls for health care providers to communicate and document pain outcomes using a common measurement tool (Buckenmaier et al., 2013).
Chapter III

Evidenced Based Practice Model

The Johns Hopkins Nursing evidence-based practice model (JHNEBP) will be used as a framework to facilitate this evidence based project. Evidenced-based practice models have been developed to move nurses into an organized practice change (Newhouse, 2007). The importance of a model for an evidence-based project serves as a process or an outline to include the necessary steps. Following a model can improve organization and create a communication process with the evidence-based practice team (Newhouse, 2007).

The JHEBP model assists nurses at the bedside translate evidence to clinical, administrative and educational nursing practice (Newhouse, 2007). A gap in the standard for nursing practice was recognized and in 2002 organizational leadership at the Johns Hopkins Hospital set a goal to build a culture of nursing practice based on evidence. This goal was to enhance nurse autonomy, leadership and engagement with interdisciplinary colleagues.

The JHNEBP is defined as a problem-solving approach to clinical decision-making within a health care organization that integrates the best available scientific evidence with the best available experiential (patient and practitioner) evidence, considers internal and external influences on practice, and encourages critical thinking in the judicious application of such evidence to care of the individual patient, patient population, or system (Dearholt & Dang, 2012).

The implementation of the JHNEBP model is done utilizing an 18-step, three-phase PET process that focuses on Practice question, Evidence and Translation. Key to making the Hopkins model successful is the development of an interdisciplinary team. During the first phase of the development of the practice question, the interdisciplinary team is formed and a leader is
determined. The collaborative efforts of this team move into the evidence phase where they search and screen the evidence. This phase progresses when the team has completed evidence synthesis, develops recommendations as determined by the level, quality and quantity of evidence and selects one of the four pathways to move into translation phase as determined by the strength of all the evidence (Newhouse, 2007).

In the translation phase, the plan for implementation is developed. During this phase, the implementation, evaluation and dissemination of the information is determined in coordination with the organizations quality improvement framework in an effort to communicate effective changes with organizational engagement to enhance success in implementation of the EBP (Newhouse, 2007).

**Methodology**

The purpose of this evidence-based project was to increase the quality of care of post procedural patients. This was achieved by improving the early identification of pain by utilizing a traffic light pain assessment tool to identify the pain levels of patients who have had an interventional cardiac procedure. Those procedures could be a cardiac catheterization, a pacemaker or defibrillator insertion, and a cardiac ablation procedure. This utilized a multidisciplinary team approach to educate the nurses on the post procedural care units and identify pain cues leading to early treatment.

The traffic light pain assessment tool was used to help to quantify the level of pain as reported by the patient and allow for rapid intervention and to minimize the intensity and duration of pain as a result of the invasive procedure.
Chapter IV

Data Collection

Sample and setting.

The setting for this project was a large university teaching hospital in northern New Jersey with a greater than five hundred in-patient bed capacity and an interventional procedural suite that has twenty-four hour operating capacity. This laboratory performs approximately fifty-four hundred elective cases per year.

The convenience sample included fifty-six adult cardiac patients who have recovered from their procedure on the post interventional telemetry unit, the post procedure recovery room or the same day admission and discharge suite. Eligibility criteria included patients be alert, oriented and English speaking. Their procedure was performed on the current admission. The patients included all pre-scheduled elective cases that were admitted on the day of procedure as well as in hospital patients who had procedures performed on a non-urgent basis. Patients were selected if they complained of pain, post procedure. Patients that were identified as meeting criteria were asked their current level of pain using the numerical rating scale and that number was recorded, they were then asked their acceptable level of pain and that number was recorded. The patient was then asked their current level of pain utilizing the Traffic light pain assessment tool and the color chosen was circled, then they were asked their acceptable level of pain according to the traffic light pain assessment tool and that response was recorded by circling the appropriate color answer.

Nurses on the post interventional telemetry unit, the post procedure recovery room or the same day admission and discharge suite attended in-services provided by the team leader or the nurse educator for cardiovascular services on the utilization of the traffic light pain assessment
The nurse educator was instructed by the project leader on how to administer the tool. The education to the nursing staff was done by providing the nursing staff step-by-step instructions on how to administer the utilization of the tool. A return demonstration by the nurse was performed to ensure understanding of the process. Usage of the tool began after all staff on all shifts had been in-serviced. The nursing staff on all clinical units instructed the patients on their respective units on how the tool was utilized and how pain was being measured.

**Data Analysis**

Data was analyzed using SPSS software, version 22. The data was analyzed for descriptive, correlational and inferential statistics. The demographic data that was obtained from each patient was gender and age. Age demographics were broken down into four groupings, 18-25 years, 26-40 years, 41-64 years and greater than 65 years. Fourty-eight percent of the patients were male and fifty-two percent were women. The age demographics were 18-25 years accounted for 5.4%, 26-40 years accounted for 8.9%, 41-64 years accounted for 37.5% and greater than 65 years accounted for 48% of the patients.

The paired t-test revealed no statistically significant difference t(55) = .72, p = .48 between mean scores for both the numeric reported level of pain scale and the traffic light pain scale. However, paired t-test revealed a statistically significant difference t(55) = -8.92, p = .000 between mean scores for both the numeric acceptable level of pain scale and the traffic light acceptable level of pain scale.

Pearson correlations revealed two statistically significant relationships. A strong positive relationship (.726) between numeric level of pain with the traffic light level of pain, and a moderate positive relationship (.457) between numeric acceptable level of pain with the traffic light acceptable level of pain.
Conclusions

The numeric pain scale measures post cardiac interventional patients’ pain similar to that of the traffic light pain scale. The two scales did not agree on the acceptable levels of pain among the post cardiac interventional patients who were in pain. The numeric scale indicated that the acceptable level of pain was compatible to green, while the traffic light indicated that the acceptable level of pain was yellow.

Limitations

The limitations of this study were identified as a small sample size and that minimal demographic data was collected. Another limitation was identified as one type of patient group was utilized at a single institution.

Ethical Considerations

Initial approval was granted by Saint Peter’s University (SPU) Institutional Review Board (IRB). Full approval was received after successful completion of the organizations evidence based project’s protocols which consisted of approval from The Nursing Research Council (NRC), then approval from the organizations IRB committee. After approval from the organization IRB, approval was obtained from Saint Peter’s University. Data collection began after all approvals were received.

Confidentiality was maintained and participant’s identity was not collected, as such written consent was not required. A power analysis was performed to determine sample size.
Dissemination of Findings

The findings will be disseminated through the Nursing Research Council at the organization where this project was conducted. The findings will also be presented at the study sites annual research day. The finding may be presented at professional nursing conferences either via poster or podium presentation.

Implications for Nursing

Policy and procedures will be written to institute the traffic light pain scale as an alternative for the Numeric Pain Scale.

Incorporate evidence-based approaches to nursing care into clinical practice settings.

Develop strategies for change that can be used by clinical nurses to enhance the use of evidence-based nursing in clinical practice.
References


