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Opioid Awareness Shaping Lives: One Mind, One Heart, One Pill at a Time

Tami King-Latka

Submitted as Partial Fulfillment for the Doctor of Nursing Practice degree

Regis University

April 28, 2018

Running head: OPIOID AWARENESS SHAPING LIVES: ONE MIND,
ONE

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OPIOID AWARENESS SHAPING LIVES: ONE MIND, ONE

Executive Summary

Title:

Opioid Awareness Shaping Lives: One Mind, One Heart, One Pill at a Time

Problem:

Across the board recognition to decrease the inappropriate, misuse and abuse of opioids has gained real momentum for the past decade. This multifaceted problem is complex, requiring battles to be waged on all fronts. A critical realm in confronting this issue requires solid and effective education for nursing professionals which can then be imparted to patients and caregivers. The PICO for this capstone is: P: Nursing Staff Registered Nurses, I: Pre-test, Didactic, Simulation, Post-test, 30-day Post-test, C: Pre/Post/Post-test current practice knowledge, additional comparison of Naloxone (Narcan) current practice utilization 30 days Pre and Post Implementation and O: Evaluate increased and retained opioid knowledge, skill competency and Naloxone utilization

Purpose:

The purpose of this study is to increase nursing staff opioid knowledge, strengthen clinical skill competency, raise multi-modal therapy awareness and reduce Naloxone utilization.

Goal:

The goal of this study is to initiate and standardize yearly nursing staff education, prioritize non-opioid therapies as first-line treatment, decrease inappropriate opioid use and minimize the need for Naloxone.

Objectives:

This study includes the following objectives: to increase nursing staff opioid education, clinical skill competency, demonstrate knowledge of non-opioid palliative anesthetic techniques and inpatient Naloxone reduction by 50-100%.

Plan:

Using a quasi-experimental quantitative design, the study's succession is as follows: 1.) Pretest, 2.) Didactic education, 3.) Enactment of a progressive group simulation scenario, 4.) Post-test and debriefing and 5.) 30-day Post-test initiated for knowledge retention. Additionally, simulation skills were observed by analyzing domains of Noticing, Interpreting, Responding and Action. Inpatient Naloxone utilization reduction was analyzed 30 days pre and post implementation.

Outcomes and Results:

The results indicate a statistically significant difference in pre-test to post-test and 30-day post-test scores after a combined didactic and simulation session. Results from the post to 30-day post-test were not found to be statistically significant indicating possible knowledge retention post didactic and simulation intervention. While the Naloxone results were not statistically significant, positive data indicators direct the need for continued evaluation noting utilizing the acute pain service consistently may impact inappropriate opioid administration, reduce length of stay and reduce patient transfers to a higher level of care. The simulation observation domains indicated that block techniques from didactic education resulted in learning. Dual intervention, didactic and simulation, provided an evidence-based method to enhance opioid knowledge. Initiating standardized and frequent opioid education is imperative so that nursing professionals provide excellent patient care and contribute to optimal health outcomes with thoughts every pill given wholeheartedly matters.

Acknowledgements

Several special people in my life have provided me the courage and perseverance to complete this goal; in which “thank you” seems less than adequate to express my love and gratefulness.

First, I give the faith in God, role-modeled since childhood, the highest acknowledgement for this accomplishment.

Next, I dedicate this achievement to my mother who began this journey with me on earth and is now smiling from above. Her daily prayers and endless encouragement will be forever treasured. She is my hero and we, her family, remain her biggest fans. I love and miss you.

To my husband, your love for me, strength, prayers and support leaves me speechless, adventures await, and I promise I will relearn how to turn on the stove. I love you.

To Kasey and Shelby, your faith in me is indescribable. I love you and am forever proud of you both. As you know I will keep you in my heart forever. Oh, the places we go!

To my dad, thank you for your endless love, guidance, prayers and direction for me, my children and our family. I love you.

Greg, I love you and thank you for the continued encouragement.

Regis University, faculty and instructors, thank you for believing in me and the support throughout the journey of a lifetime.

Diana Patterson you are purely amazing.

May these words from my heart touch yours.

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Opioid Awareness Shaping Lives: One Mind, One Heart, One Pill at a Time

Headlines of the harmful physical and societal impacts of pain sequelae associated with inappropriate opioid utilization continue to wreak havoc daily. The aftermath of mismanaged and poorly treated pain has in part led to addictions, accidental overdoses, death, societal economic detriment and endless emotional scars. Sadly, the well-known “opioid crisis” is a multi-faceted issue and continues to draw sweeping attention from individuals and organizations across the country. Although the brutality of this crisis has become reality, hope prevails as every individual has a role and the ability to impact and defeat this epidemic. Clarke, Skoufalos and Scranton (2016) revealed statistics claiming 46 American lives are lost daily due to deadly overdoses, while the associated societal costs and health care expenses continue escalating into the billions. This dire situation conveys time is of the essence. Minimizing excess opioids into the community is imperative, as the historically reckless prescriptive writing approach is no longer an option. Other failures such as addressing underlying issues are now regarded as extremely important. Recognizing the need for proactive and deliberate approaches will provide for challenges in eradicating the opioid epidemic (Clarke et al. 2016). Of the approximate 110,000 (inpatient and outpatient) surgeries being performed yearly in the United States, one in 15 of surgical patients receiving opioids, will become addicted (Clarke et al. 2016). As this plague has no regard for age, race, gender or socioeconomic status the need to be proactive is critical. To reduce the severity of the opioid epidemic, healthcare professionals-specifically nursing staff, as daily caregivers-should be educated regarding the role of pain in patient care.

Acknowledging every pill administered properly absolutely matters as all care delivered is essential in optimal and cost-effective health care. Communicating the severity of need related to this crisis, encompasses opioid education for every individual. Nursing staff are key

instrumentalists in ending this plague; as patient and caregiver educational opportunities occur daily.

This Capstone report defines the recognized opioid problem, discusses basic opioid nursing staff education, and reviews the associated evidence. It also includes the results and findings from the Opioid Awareness (OA) implemented project, as well as a discussion of limitations, recommendations and implications for change of practice.

Problem Recognition and Definition

Statement of Purpose

According to a Center for Disease Control (CDC) report, over 18,000 deaths in the United States in 2014, were found to be associated with prescription opioids (Costello, Thompson, Aurelien & Luc, 2016). Messer (2017) claimed that education is essential in promoting opioid awareness and opioid utilization, demanding attention for action and culture change now. Costello et al. (2016) placed the responsibility of opioid education upon nurses as they play an integral role with patients holistically. To fulfill this responsibility, it is necessary to investigate the best educational methods for nursing staff, to obtain pain management knowledge as well as the skills and competencies required when dealing with opioids and patient care.

Sherman (2016) discusses, the need to prepare clinical nurses of all educational levels through in-service, continuing education and staff development activities to improve teaching abilities and nursing skills. Competency in recognizing key clinical signs and symptoms in pain management and treatment is essential in promoting positive patient outcomes. This imparts attention toward increasing educated awareness, inviting culture change and appropriate opioid administration and management. Antiquated teaching strategies such as the “See one, do one, teach one” method are inadequate in obtaining consistent, patient education and optimal

outcomes (Henneman, Cunningham, Roche, & Curnin 2007, p. 212). Over the past decade, didactic education, when accompanied by human patient simulation (HPS), has allowed nursing staff and students to close the gap between clinical practice and theory (Henneman et al. 2010).

The first purpose of the OA project served to improve nursing staff opioid education and to strengthen nurses' clinical skill competency and confidence. A second purpose reinforced the need for a standardized employee entrance and yearly competency pain management via didactic and simulation education. A third purpose included raising staff awareness in moving toward a transformational change of culture, by reintroducing the current refined anesthetic block technique procedures for first choice pain palliation. An example of this culture change is to utilize multi-modal therapy promoting opioids as a last resort, thus inviting culture change. The final purpose is to reduce antidote (Naloxone or Narcan) administration due to opioid over-sedation, with high goals of zero percent utilization. Solid understanding of the dangerous effects of opioids allows nursing staff to further educate patients and caregivers. Providing accurate opioid education to patients and caregivers will assist in reducing outpatient risks associated with adverse events and readmission rates and societal economic cost. These purpose statements support the necessity for effective nurse education and the implementation of an evidence-based project.

Problem Statement

The role of the Advance Practice Nurse (APN) Practitioner provider in an acute pain service inpatient setting emphasized the need for nursing staff to have basic opioid knowledge. Decreased opioid knowledge and pain management understanding along with failure to recognize early signs of clinical deterioration led to nurses administering Naloxone, opening educational doors of opportunity. Because there was a lack of opioid familiarity, comprehending

the difference between basic opioid medication and dosages such as Hydrocodone and Oxycodone was difficult. This knowledge is essential in controlling pain properly thus, assisting the patient to optimal health more rapidly.

Another important area of opportunity for education was found in unnecessary poly-pharmacy, which resulted in adverse events for patients. Additionally, multiple opioids administered concomitantly with benzodiazepines, anti-convulsants and/or hypnotics resulted in respiratory depression. At times, the affected patients required a transfer to higher levels of care. As Meisenberg, Ness, Rao, Rhule and Ley (2017) noted, the possible compromise of patient safety is highly dependent upon variable metabolism characteristics as well as opioid dosages, forms and types. These factors further emphasize the need for nurses to receive foundational opioid education. For effective pain management, nurses must understand when to treat subjective pain, discerning patient need from patient desire. This ability can be difficult for an experienced nurse and exponentially challenging for the novice nurse.

A final need was identified in the nursing staff's inability to recognize early signs and symptoms of decline. As opioids are currently the first-line choice for post-surgical pain, opioid-related adverse drug events (ORADE's) are possible and can lend to negative health outcomes, including death (Minkowitz, Gruschkus, Shah, & Raju, 2014). ORADE's can be causal to unnecessary economic and professional burden spurring the need for nurses to know how to properly administer Naloxone, thus requiring further education (Minkowitz et al. 2014). Additionally, those with ORADE's have a 7.4% higher median treatment cost, resulting in increased length of stay (LOS), personnel costs, time-intensive patient treatment, emergency department (ED) visits and costs associated with readmission visits (Minkowitz et al. 2014). Naloxone utilization was evaluated to provide further insight into earlier recognizable factors

surrounding excessive opioid administration. As patient complexity is the newer normal, Elder (2017) stated it is imperative nurses recognize early signs of decline, which will increase quality nursing care and safety.

Analyzing health care cost and innovative budget reductions are at the forefront of organizational survival. LOS is a major sphere for potential cost reduction and it remains a prioritized hospital analytic. According to The Kaiser Family Foundation State Health Facts (2017), the average cost per inpatient day in a Colorado non-profit hospital is \$2493.00 (see Appendix A- Average Cost Per Inpatient Day-excerpt of 12/50 state daily hospital inpatient cost comparisons). As previous assertions from Minkowitz et al. (2014) claim, ORADE' increase LOS, an approximate \$2500.00 per day inpatient cost can easily develop into \$100,000 cost if, for example, 20 patients per year required one extra hospital day incurred from an ORADE. Providing nurses with opioid education can lead to ORADE reduction giving further support for this evidence-based project. Timely and correct moments of response combined with climate cultural change therapy options (such as anesthetic block therapies) are critical to continue the effort toward optimal health outcomes. Elder (2017) also claims that nurse education is needed for early intervention and to avoid rescue failure events and negative health outcomes.

The OA project identified opportunities for change. These areas include implementing more effective basic opioid education; knowledge and exposure to commonly used regional nerve blocks; epidural management and increasing clinical skill competency in recognizing early deterioration. Another area identified for change was educating nurses about Naloxone: its routes, administration and a patient's need for utilization. Teaching nurses how to appropriately administer Naloxone and providing basic opioid education are equally important, therefore

providing instruction for both topics will assist in reducing the risks associated with adverse events.

As observed by Zaccagnini and White (2017), the role of an ANP who is obtaining a Doctoral Nurse Practitioner (DNP) degree is important for the implementation of didactic and simulation learning techniques. Their thoughts relating to educational implementations having profound impacts in improving the delivery of patient care and patient outcomes are recognized (Zaccagnini and White, 2017). The OA project utilized such an ANP to help facilitate clinical pathway change.

PICO and Research Question

PICO statement.

Zaccagnini and White (2017) claimed that nursing interventions and clinical pathway change begin with the assessment and proper formulation of a question regarding the population (P), the intervention (I), a comparison (C) and the outcome (O) also known as the PICO statement. The “Opioid Awareness Shaping Lives: One Mind, One Heart, One Pill at a Time” project involved the population (P) of nursing staff from medical, surgical and orthopedic units. The intervention (I) included a pre-test, 40-minutes of didactic education for nursing staff, a progressive simulation scenario and a post-test debriefing. While no prior standardized opioid nursing staff education has existed organizationally, the comparison (C) involved comparing pre and post-test knowledge (there were two separate post-tests; one immediate and one 30 days post-intervention). Other comparisons were also evaluated with inpatient Naloxone utilization for 30 days pre-implementation and 30 days post implementation. The identifiable outcomes (O) included measuring nurses’ change in knowledge and competency in basic opioid education, their use of anesthetic block techniques, their ability to recognize

patient deterioration related to opioid over-utilization, their retention of knowledge and the reduction of Naloxone administration. Because gaps have been identified, practice evidence was sought by addressing these issues with the following PICO statement and research question (Houser & Oman, 2011).

Research question.

OA project PICO/research question:

“In nursing staff, caring for patients with acute or chronic pain, would providing nursing staff with standardized pain management training and education, demonstrate increased competent clinical judgment, effective management of patient deterioration and result in increased post-test knowledge performance and reduce Naloxone utilization?”

Project Significance, Scope, and Rationale

OA project significance.

The project’s significance is multifactorial. Most notable is the need to increase nursing staff opioid awareness education, which requires direct instruction. One such method that should be taught is a regional block therapy technique called Transversus Abdominal Planus (TAP). According to Taylor et al. (2013), TAP partially blocks abdominal sensory pain and has subsequently led to less post-operative opioid utilization. Teaching the multiple refined anesthetic block techniques provides the following advantages: decreased opioid utilization, faster recovery and mobility and a quicker return to optimal health. With decreased opioid prescriptions, comes a decrease in the number of unused opioids available for the “unprescribed” taking. According to a recent review by Steiner (2018) from the Community Health Partnership (CHP) El Paso County Needs Assessment Report (2018) unveiled children ages 12 and 13 are most commonly using opioids for non-medicinal purposes. According to the National Institute

on Drug Abuse Drug Facts (2014), four out of five heroin users began first with prescribed opioids which indicates that opioid utilization too often leads to heroin use and addiction. The time is now to re-evaluate and dispense only the number of opioids truly needed.

The OA project was also significant due to its use of didactic education and simulation teaching methods to strengthen clinical knowledge and skills. Learning through a progressive simulation scenario as applied in OA, also supported by evidence from Rossler and Bennett (2017) compared student life to nursing life and established simulation was helpful in assisting in transitioning and solidifying knowledge. Additional critical aspects of foundational knowledge were found in the third and fourth significant project factors; strengthening identifying signs and symptoms of early clinical deterioration related to opioids and reducing Naloxone utilization. Minkowitz et al. (2014) noted early detection of possible ORADE's impacts patient recovery and inpatient cost. Further explored by Minkowitz et al. (2014), inpatients with one comorbidity post ORADE experience were found to cost \$14,000 more than an inpatient without an ORADE. These combined factors contribute to this project's significance in that it aims to provide opioid education, clinical assessment skills and knowledge. Fostering healthy cultural care changes for nursing staff, patients, caregivers and society will serve all in a positive manner.

OA project scope.

The scope of this project is best summarized as a pilot study that utilized a convenience sample of 38 (pre), 32 (post) and 22 (30-day post) nursing staff Registered Nurse's (RN) who were employed on medical, surgical or orthopedic inpatient floors. The project consisted of a computerized pre-test via Survey Monkey® (SM), a didactic educational session, and progressive group simulation scenarios. Debriefing was completed, and SM post-tests were taken after the simulation. A 30-day SM post- test link was emailed on the appropriate dates. Seven

project implementations were performed due to organizational staffing budget constraints. All tests given were of the same content. Naloxone data administration was obtained for 30 days pre and 30 days post-implementation via retrospective chart review.

The didactic education portion included basic opioid education, trending non-opioid palliative techniques (such as refined regional blocks), basic pain assessment skills, signs and symptoms of early deterioration and the challenges of pain palliation. As minimizing opioids is the focus of opioid prescribing practices of today, equipping nursing staff, patients and caregivers with enhanced non-opioid palliative techniques is crucial.

OA project rationale.

Providing nursing staff opioid education and knowledge to employ non-pharmacologic and pharmacologic techniques can lead to decreased pill burden and increased optimal health, which are outcomes that lend to this project's rationale. Additionally, Stenner, Carey and Courtenay (2012) found that after participating in pain medication training, nurses were using more mild forms of opioids 95% of the time, and 97% of nurses claimed they had adequate opioid knowledge. While current opioid prescribing practices and guidelines urge using the least amount of medication for the shortest length of time, the findings by Stenner et al. (2012) add substance to the OA study project significance, scope and rationale.

Theoretical Foundation for Project and Change

The OA project was formulated on three theoretical foundational theories: Acute Pain Management, Constructivist and Assimilation Theory which are described and correlated below.

Acute pain management theory.

The Acute Pain Management study by Good and Moore (1996) provided insight as a prescriptive nursing theory that focuses on balancing analgesia while assisting the patient and

guiding interventions. The overall goal is to minimize opioid utilization and progress toward non-opioid pain palliation techniques, thus, decreasing the possibility of opioid addictions and unintended consequences of overdose and death. As such this theory was highly applicable.

Constructivist theory.

The nursing profession requires dual skillsets: academic and clinical. Gerdeman, Lux, and Jacko (2013) use the Constructivist and Assimilation Theories to combine the skillsets, in simulation education. The Constructivist Theory focuses on learning through conflict resolution or the recognition of something amiss, specifically in the clinical or a simulation setting (the latter of which was implemented in the OA project). Other areas of communication, group functioning, clinical judgment and critical thinking are found in this theory and are essential in clinical or simulation environments (Gerdeman et al., 2013). This theory operates on the premise that learners self-select complex concepts in clinical practice, so they can achieve goals and self-construct their learning, two concepts that are portrayed abundantly by nursing staff in the simulation scenarios. This theory claims that increased communication, group functioning, critical thinking and clinical judgment are developed through the use of complex concept mapping, which was witnessed during simulation in the four domains of Tanner's Clinical Judgment Model (Noticing, Interpreting, Responding and Action) (Gerdeman et al., 2013).

Assimilation theory.

The final foundational theory for this study is the Assimilation Theory. This theory asserts that effective learning is a process by which new concepts are associated with previous meaningful learning and knowledge (Gerdeman et al., 2013). The OA project employed this "building block" theory with conjoined didactic and simulation educational teaching methods. Gerdeman et al. (2013) also propose that new brain structures are constructed when learning is

presented with previous meaningful characteristics. This concept was noted in the progressive simulation scenario; as nursing staff used evolving patient signs to form evolving care treatment plans. The integration of these theoretical educational underpinnings and components shed light on the need for the transformation of nursing staff educational pathways, as they are critical for patient safety.

Literature Selection

Literature was selected based upon OA project goals encompassing the overall purpose of increasing nursing staff opioid awareness. Although many articles were reviewed, five key articles were found to be pivotal in the project objectives (see Appendix B-Systematic Review of the Literature). The three key spheres and correlating articles which provided project direction, discussed societal need, nursing knowledge regarding the opioid deficit and best practices and methods for improving educational needs and objectives for nursing staff. The search terms: Nursing Staff, Education, Pain, Simulation, Opioid Misuse/Abuse, Pain, Discharge Education, Opioid Epidemic, Naloxone, Post-Operative Pain Management and Pain Management Techniques were utilized in the CINAHL database for collection of research. The American Association of Critical Nursing (AACN) Grading Level of Evidence (see Appendix C-Level of Evidence) was utilized to provide identification, hierarchy, design quality and validity for the OA project (Armola et al. 2009). The grading levels of evidence ranged from A-E and M and assisted in OA design development (Armola et al. 2009).

Scope of Evidence

Because the opioid epidemic has been defined, recognized and deemed a problem, the purpose for the OA project is to provide nursing staff basic opioid education so they can administer opioids safely and effectively. Summarizing the scope of evidence to fulfill the OA

project purpose begins with implementing education that will increase skill and clinical competency. As Russell (2017) examined, the 2016 American Nurses Association (ANA) commitment to arm nurses with an increased knowledge of opioid medications and discussions of alternative therapies, leads to inviting culture change in utilizing non-opioid therapies first. With the employment of this practice scope a hopeful domino effect of reducing societal pill burden will occur, which will also reduce less inpatient Naloxone need as less opioids will be administered. The final step is to reduce opioid-related sequelae by reducing and preventing the inappropriate use of opioids.

Review of Evidence

Background of the Problem

In establishing future pain medication education, historical background evidence was reviewed in the realm of opioids and the role it has contributed to today's problems associated with the opioid crisis. Baker (2017) discusses the philosophy proposed in the 1990's, to include viewing pain as the fifth vital sign. To improve patient satisfaction rates, this approach was mandated by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO); regrettably resulting in encouraging the use of opioids (Baker, 2017). This launched and set the stage for destruction. Unfortunately, this 30-year old prior philosophy has resulted in current, major, unintended consequences both mentally and physically.

Equally, if not more, Baker (2017) also discusses the detrimental Porter and Jick (1980) assertion that narcotic utilization rarely caused addiction. Although the publication lacked both methodology and generalizability and has since been labeled erroneous, its aftershocks continue to affect nations globally to this day (Baker, 2017). Aside from the Porter and Jick (1980) publication, multiple quality assurance standards and guidelines were developed,

implemented and supported by entities such as the American Pain Society (APS) to initiate opioids as first-line choice, for acute pain and cancer pain (Baker, 2017). The standards upheld by JCAHO began to realize patient opioid increases, from 40.4 mg morphine equivalent per patient in the year 2000 to 46.6 mg per patient by 2002; thus, the opioid epidemic sky-rocketed (Baker, 2017). In 2004, the mistake of naming pain the fifth vital sign was recognized and expunged from JCAHO manuals. Since 2011, standard manual additions have included the use of utilizing non-pharmacological pain management strategies, such as the regional block techniques as explored in the OA project (Baker, 2017).

Other contributing factors reviewed include unchecked historical opioid prescribing. The lack of accountability was set into motion with the joint commission (TJC) mandates that reimbursed organizations for increased patient satisfaction. Technological advances add years to life yet hail a price of living longer with disease processes that may include coping with increased pain and, as a result, utilizing opioids for longer periods of time. With budget restraints, continual readmission, LOS evaluations and nursing shortages, administrations and nursing staff are in a quandary: care for patients rapidly or take the time to get to the root of the pain challenge? While historical events have carved a harmful path, further review of the literature revealed that specific approaches (upon which the OA project was based) may assist with this quandary and the opioid epidemic.

Systematic Review of the Literature

According to the CDC (as cited by Fincham, 2017), an estimated 91 deaths occur daily in the United States due to opioid prescriptions and heroin. This startling statistic begs the question in how this heartbreak can be brought to end. Literature selection for the OA project was based on the overall opioid problem: inappropriate, overuse, misuse and abuse of opioids as all-time

high rates of over-sedation, addiction and death are recorded. Articles discussing the three key OA project spheres (societal need, nursing knowledge regarding the opioid deficit and best practices and methods for improving educational needs and objectives for nursing staff are discussed below.

Societal need literature review.

The emerging theme of improving opioid knowledge for nursing staff and, optimally, society focused on educating through didactic and simulation learning. Essential key theories such as Younger et al. (2011) sparked the quest for increased opioid awareness when pre- and post- MRI studies revealed irreversible brain changes after the N of 20 were administered opioids for 30 days. Although the study limitations of the small N and the population's honor system in taking the opioids as prescribed are apparent, the findings of neural irreversibility are daunting (Younger et al., 2011). These results corroborate the need for prescribers to recommend opioids only when completely necessary. Additional concerns also give way to close supervision and ending opioid use as soon as possible. Stempniak (2016) revealed that by 2012, 259 million opioid prescriptions had been written, an amount that would provide every adult in the country with his or her own bottle. Moreover, in the United States, there has been an opioid prescription sale increase noted of 300% since 1999, yet no major pain palliation has been realized (Stempniak, 2016). When considering risks versus benefits, these facts challenge the necessity of pain medication (Stempniak, 2016).

In the next key literature article, Costello et al. (2016) questioned if an educational intervention for opioids would be beneficial. They examined education regarding addiction risk, overdose signs and symptoms, withdrawal, tolerance and safe handling of opioids. Patient knowledge data was received via direct phone calls: 93 calls placed prior to the education

session and 100 calls after-ward (Costello et al., 2016). As a result, patient knowledge increased by 36% in the category safe storage of opioids, 46% in decreasing opioid use as pain decreases and 49% in not sharing opioids (Costello et al., 2016). These results indicate the need to continue the quest to increase nursing opioid knowledge (Costello et al. 2016). Also substantiated is the added societal benefit of positively affecting patient opioid knowledge.

Education and nursing knowledge/evidence-based practice literature review.

As the societal need and opioid nursing knowledge deficits were supported, OA literature review extended to the realm of supportive evidence-based practice in how best to educate for optimum results. Sherman (2016) studied whether clinical nursing staff would demonstrate increased knowledge performance via simulation after a didactic educational session, finding that knowledge increased from 83% pre-test to 89% post-test. Three questions revealed statistical significance in the areas of learner assessment, defining patient education and validating patient learning (Sherman, 2016). These findings also provided OA project support for educational teaching methods and associated positive impacts.

The next key literature article linked concept mapping and Tanner's Clinical Judgment model to improve clinical judgment (Gerdeman et al., 2013). Gerdeman et al. (2013) discusses the use of concept mapping through meaningful learning to facilitate knowledge acquisition. Concept mapping has been found to be especially effective in enhancing clinical judgment via correlation of patient diagnoses, signs, symptoms, nursing treatments and interventions (Gerdeman et al., 2013). Eight third-year baccalaureate nurses engaged in a pilot study. They provided 12 hours of inpatient care one day per week for six weeks and completed a weekly concept map based on patient diagnoses and the four domains of Tanner's Clinical Judgment Model: Noticing, Interpretation, Responding and Action (Gerdeman et al., 2013). Findings

resulted in 75% of the students verbalizing knowledge progression in problem identification to actual data utilization, priority determining assessment skills, interventions and effective outcomes. Added results include 87% reported communication, critical thinking and teambuilding skills which were felt to be enhanced upon the pilot study's completion (Gerdeman et al., 2013). The study noted that participants analyzed their strengths and weaknesses and recognized the benefits of this study (Gerdeman et al., 2013). Tanner's Clinical Judgement Model was central to the OA project in observing the application of knowledge with interventions in the model's four domains as the simulation scenario progressed (Gerdeman et al., 2013).

Methods to improve educational needs-literature review.

Developing a tool to measure knowledge for the OA project was necessary. Relatedly, the Human Patient Simulation (HPS) study by Henneman, Cunningham, Roche, and Curnin (2007) provided a model. Henneman et al. (2007) constructed a simulation tool for HPS to offer simulation scenario assistance; in the areas of developing and conducting the simulation. Four standard objectives were evaluated, including student introduction (hand hygiene, initial and follow-up assessments), identifying abnormal results, effective communication (all members, patient, family, colleagues, providers, etc.) and correct medication administration. As a result, the authors found instilling patient safety and establishing clear scenario objectives to be paramount. Tool development advice provided by Henneman et al. (2007) was utilized for idea simulation framework in the OA project. The project itself entwined basic nursing behaviors and, guidelines, and it also employed Tanner's Clinical Judgment Model of concept mapping, as previously discussed by Gerdeman et al. (2013). Additionally, guidance from an experienced simulation leader was sought; it was exceptionally beneficial in the OA project efforts.

Reviewing the historical background evidence of the opioid epidemic and systematically reviewing the literature provided methods for OA project implementation. Identifying the spheres of societal opioid educational need, nursing knowledge opioid deficit and best methods in how to improve through key literature articles influenced the OA project's planning and evaluation stages.

Project Plan and Evaluation

Market/Risk Analyses

As healthcare today is riddled with many concerns, focusing attention toward factors that contribute to the economic burden related to opioid sequelae is essential. In 2016, societal related opioids cost \$95 billion, and \$21.4 billion went toward opioid addiction treatment (Castelucci, 2017). Workforce losses due to opioid-related deaths are estimated at \$43.2 billion with a \$12.4 billion cost due to opioid survivor's loss in productivity, associated with grief etc., remain major unfortunate cost issues (Castelucci, 2017). Other startling statistics reported by Meyer, Patel, Rattana, Quock and Mody (2014) revealed workplace costs associated with loss of production and missed work in 2006 to be \$4.6 billion and \$1.4 billion in criminal prescription opioid abuse societal costs. Meyer et al. (2014) also provided statistical insight for the same year in comparing the cost of the non-abusers control group to the health-care costs of opioid abusers. They found that the mean annual private insurance costs range between \$14,054 and \$20,546, which indicates that those with opioid addiction need more health care and incur a greater cost of care (Meyer et al., 2104).

These enormous costs generate reason to reduce opioid consumption and focus on implementing healthier care habits. As the healthcare industry strives to provide quality effective care while remaining good stewards of cost, the estimated \$12.7 billion loss due to opioid related

health matters in 2016 speaks to the need for powerful and immediate process change (Castelucci, 2017). The emotional scars lasting a lifetime in all realms, physical, mental and spiritual remain priceless and in many instances remain engraved forever deeming high risk in remaining stationary in this tragedy. The failure to act is an unacceptable option.

Project Strengths, Weaknesses, Opportunities, Threats

Planning the OA project required an analysis of the project's, strengths, weaknesses, opportunities and threats (SWOT) (Appendix D-Opioid Awareness SWOT Analysis). This type of analysis provided an all-encompassing strategy to seize upon all accessible opportunities.

Strengths.

The strengths included increasing opioid education for nursing staff, who would then provide a waterfall effect for improved patient and caregiver education and thus, benefitting society, in its entirety. Didactic and simulation exercises that aimed to enhance staff learning abilities and instill confidence was also viewed as an added strength. A final major strength included optimizing patient health outcomes which will only benefits individuals, community and society by creating greater public opioid awareness and understanding.

Weaknesses.

Examining weaknesses was also found to be integral for awareness throughout the planning stages and implementation of OA. The lack of investigator experience in simulation implementation was acknowledged. In-depth research and learning discussions with experienced simulation leaders were completed to prepare for simulation implementation. The lack of staff participation due to time and interest was also considered a weakness, and it was an area of concern. Clinical managers valued this study and their support assisted in overcoming the participation hurdle. Another area viewed as a weakness was the potential lack of control in the

simulation exercise. The variabilities in nursing staff thought processes differed due to the nursing staff's experiences, ages and educational backgrounds. However, the opportunities were seized and utilized as teaching moments for all. This investigator explored and employed practice simulations prior to actual OA simulation implementation which was time well spent to gain experience.

Threats.

Understanding threats in the planning and implementation of OA were vital for attaining the study's outcomes. First, budget and cost restraints were analyzed for both on- and off-site implementation so there would be full understanding of expense if OA is re-implemented in the future (Appendix E-Timeframe, Budget and Resources). Factors such as room availability, room fees on and off-site, paid time for nursing staff, paid time for a nursing staff educator, refreshments and the cost of the Statistical Package for the Social Sciences Software (SPSS) version 23, data analytic tool were taken into full consideration (SPSS, Texas A and M, 2017). Because the OA project was implemented in an inpatient organizational setting, the room availability and mannequin rental fees were minimal issues. However, if the project were conducted off-site, it would require fees. Other threats included stakeholder support at all levels. Multiple meetings were conducted to obtain leadership and administrative support. Although staff mindset and attitude were viewed as initial threats, they were found to be minimal as the project progressed. As this threat was a prior OA project concern that could jeopardize results and hinder learning prior to implementation, upon completion, positive feedback from staff was received asking for further education simulation opportunities. A final threat consisted of staffing the floors while implementing the project. This threat was a reality and thus required the project

to be implemented seven times instead of one planned implementation with multiple same-day simulation sessions.

Opportunities.

Opportunities did abound with this project and included bridging the gap between administrative and clinical knowledge. Substantiating and supporting this need remains influential in future project and clinical pathway changes. The in-depth interaction with the staff was fully appreciated and exceeded investigator expectations for positive staff interactions and connections. While all opportunities were essential, endeavors to educate nursing staff in reducing over-sedation, LOS, possible emergency department visits and readmission visits were among OA project aspirations. These elements remain pivotal in reducing inappropriate opioid use and misuse and they provide further opportunities for cultural change, judicious provider prescribing, decreased societal pill burden, and a decrease in accidental opioid overdose and death.

Driving and Restraining Forces

Driving forces.

Assessing the driving, restraining and sustaining forces of the OA project provided meaning when analyzing the influences that work for and against change (Fallon, 2018). The driving forces included the opioid epidemic itself, student and organizational nursing education and the need to decrease LOS and readmission costs. The Institute for Healthcare Improvement found that early recognition of inpatient deterioration prevents unnecessary deaths (as cited by Elder, 2017). Studies by Hall, Levant, and De Frances (2013) found that of 564 hospital septicemic-related deaths in 2013, 64 were linked to the patient's declining condition without recognition or intervention by nursing staff (cited in Elder, 2017); this statistic supports the need

for continued nursing education related to opioid administration. Educating basic signs and symptoms of deterioration are a major driving force as the opioid and heroin epidemic rage. Although student nursing curricula dedicate varied hours of time to opioid training, Wolf et al. (2011) argued that teaching students about critical cue recognition should be included in clinical experience. This holds true as a driving force for students and licensed clinical nursing staff of today. The final driving forces for OA project implementation are minimizing LOS, adverse events and readmission because these factors all contribute to optimal patient care and health.

Restraining forces.

Restraining forces associated with the OA project included the hospital's budget, educational time and budget restraints. An additional major restraining force exists is nursing staff burnout fatigue. Multiple reasons exist for this state, including patient-to-nurse staffing ratio combined and the new normal of patient complexities. However, clinical manager project support helped nurses overcome their burnout fatigue.

Need, Resources, and Sustainability

The OA project also addressed needs, resources and sustainability prior to implementation.

Needs.

The recognized needs were space, time (investigator, educator and staff), mannequin, SM and SPSS access. Facility discussions resulted in granted permission for the use of an existing mannequin. SM access was sought by this investigator and was found to be exceptionally user friendly; it will be utilized in future projects. SPSS was accessed through Regis University and was essential for the resulting data.

Resources.

The OA project utilized resources through clinical manager and facility support. Room space was by granted by the organization.

Sustainability.

Upon completing the OA project sustainability considerations will be reviewed. These considerations are related to the implementation of employee entrance, quarterly and yearly pain didactic and simulation staff requirements. These considerations could easily be achieved and provided by this investigator. Continued educational efforts are critical to enhancing nursing abilities, skills and knowledge, and they are pivotal in conquering this crisis. Increasing confidence and empowering nursing staff will be heightened by effort and sharing caring attitudes in improving patient care.

Feasibility, Risks, Unintended Consequences**Feasibility.**

In addressing the feasibility aspects of the OA project, difficulty was found in attempting to educate the entire staff with one implementation, requiring seven total implementations. Other reasonable methods of educating a core group of nursing staff to assist in responding to other nurses' pain management-related questions are attainable. Future processes would include initiating a monthly mini-series or attending staff meetings to present case scenarios that correlate with pain medication administration or assisting with scripting to manage the exceedingly challenging patient.

Risks.

The risks that surround the OA project's planning and evaluation are reiterated with teaching nursing staff to provide optimal care to patients. If the opportunity is not taken, then

further opioid related sequelae will continue to occur. Time is a risk, given the budget restraints as well as the investigator taking time away from patient care. Cost also plays a major role (staff, ANP and organizationally) yet as the OA project unfolded the interest, desire and aspirations of nursing staff to make change became excitingly apparent.

Unintended consequences.

The OA project's unintended consequences warrant discussing. As previously discussed the cost of mental and health care costs will continue to escalate, therefore providing sustained educational opportunities in this realm seem prudent for optimal patient care. Other possible additional costs include those associated with increased ED visits, LOS and readmission costs. Uncontrolled pain requires the source to be exposed and deserves to be treated individually. Other unintended positive consequences, although not delineated to be studied, found increased community, collaboration and connection in the nursing staff as they progressed through the didactic and simulation phases

Stakeholders and Project Team

Stakeholders.

Stakeholders associated with the OA project include first, and foremost, the patients, caregivers and families. Also identified as stakeholders are nursing staff, clinical managers and administrative leadership. This project sought to reduce nursing knowledge gaps to enhance appropriate opioid knowledge education which can positively impact consumer physical health and organizational financial health.

Project team.

The project team members included Dr. Lora Claywell, PhD, MSN, RN (Regis University project chair), who provided extensive guidance throughout the process; Dr. Raquel

Hernandez (Anesthesiologist and mentor); and Diana Patterson, MA, BSN, RN (nurse educator). Thorough discussions with all team members were conducted, and they fully supported project implementation.

Cost/Benefit Analysis

The cost-benefit analysis for the OA project included the benefits of reducing ORADE's. Minkowitz et al. (2014) discussed over-sedation respiratory depression (OSRD), the monetary cost of one associated event and the impacts these occurrences have on mental and physical health. As previously discussed, a patient with ORADE's and two or more comorbidities incurs an exorbitant associated cost that can be avoided if the benefit of up-to-date nursing staff opioid education is provided.

Tadros (2016) discussed the results of a six-year retrospective pediatric (age 0-17) opioid poisoning ED visit study by the Agency of Healthcare Research and Quality (AHRQ). Tadros (2016) found that of the 21,000 visits for unintentional overdoses, 65% (more than 16,000 patients) were treated and released at a total cost of \$30 million. Insurance related findings found by Tadros (2016) noted 42% of the patients had private insurance, and 44% were covered under the Medicaid program. Eleven of these patients died, 39 required mechanical ventilation measures and of the 3,599 patients who required admission due to unintentional opioid poisoning, costs of \$51 million were incurred. Because this study focused on ED diagnoses of unintentional opioid overdoses in one age group over a short six-year time span, these results fully substantiate the need to educate to the extent that "every pill matters" to include prescribed, administered, publicly available and ingested (Tadros, 2016). The benefits of nursing staff opioid education far outweigh the total cost of opioid treatment, which substantiates the need for this OA project.

Mission, Vision, Goals**Mission.**

The mission statement, “Increasing Opioid Awareness Shaping Lives: One Mind, One Heart, One Pill at a Time,” remains the essence of this project and was communicated to the nursing staff at OA project presentations. The evidence is clear that patients require individualized care by evaluating the whole person. Although Naloxone interventions are utilized and have saved multiple lives, the triumph in saving one life is considered successful, supporting the idea that every pill taken really does matter. The investigator-developed philosophy of “Personal Pain, Individualized Care, Collective Victory” emphasizes the unique, specific and distinct journeys of individuals affected by inappropriate opioid use and misuse. The “Collective Victory” implies that saving a life is a win for all individuals, communities and society.

Vision/goals.

The project’s visions and goals include maximizing anesthetic and palliative pain techniques while minimizing opioid utilization whenever possible. The OA study’s mission, philosophy and vision are timely, appropriate, and align with all project goals

Process, Outcomes, Objectives

The current yearly organizational pain education requirement, for every RN consists of two hours in the subject of pain per individual staff nurse choice. As the choices are vast and inconsistent this leaves an obvious gap that establishes the need for standardized opioid education. Evidence from the AHRQ (2016) deemed patient safety, care coordination, effective treatment, healthy living, care affordability and person-centered care as high priority benchmark targets; these targets also contribute to the OA outcome objectives. The most

effective way to implement the project's three major objectives was determined through researching related benchmark studies.

First OA project outcome.

The first outcome focused upon increasing nursing staff opioid education and clinical skill competency by comparing the pre-test, post-test and 30-day post-test scores. In the benchmark clinical study, Sherman (2016) observed that clinical nurses who were prepared through, in-service, continuing education and staff development, resulting in improved patient outcomes, via a structured educational approach. This previously discussed study by Sherman (2016) with pre to post-test improvement correlates with OA outcome objectives due to organizational discovery regarding the lack of standardized education processes, increased LOS and readmission visits. Incongruent patient and nursing staff education was felt to contribute to this needed study which correlates with the first outcome OA project objective.

Second OA project outcome.

The second OA project outcome centers upon in-depth nursing staff knowledge in demonstrating palliative anesthetic techniques by comparison of pre and post-test scoring after didactic education and simulation. The next benchmark study, by Zigmont et al. (2015) utilized the experiential learning approach (simulation and standardized patients) with the Learning Outcomes Model (comprising the individual, the environment and experiences) and found improved communication in all realms. There was also a significant cost savings due to the integrated teaching method. It resulted in the established residency program to be shortened due to dramatic educational improvement.

Third OA project outcome.

The third OA project outcome was to reduce Naloxone utilization for inpatient opioid over-sedation by 50-100%. It is important to teach nursing staff how to identify early clinical signs of deterioration related to excess opioid administration and concomitant sedating medications. This focus will minimize LOS and reduce ORADE's. The benchmark study by Minkowitz et al. (2014) discussed the use of multi-modal therapy for approaches in managing pain and provided further insight into recognizing high risk patients for ORADE's. Of the study's 6,285 patients, 6,274 received opioids (99.8%) post operatively, and 11.5% of them experienced an ORADE (Minkowitz et al. 2014). These OA process outcome project objectives grow directly from the benchmark studies; there is great need for the OA project's plan to educate nursing staff via didactic and simulation methods.

Logic Model

Because there is a lack of opioid education for nursing staff, The Conceptual Logic Model of Shaping Opioid Awareness (Figure 1) was developed for this project to delineate the process. The Opioid Awareness Logic Model description begins with defining the problem of basic opioid medication education. It is important for nursing staff to gain clinical knowledge and skills in patient assessment and specifically that they understand the signs and symptoms of rapid decline or deterioration. Next, the staff need to have a thorough understanding of how to administer Naloxone in a timely manner. Challenges and opportunities in factors such as funding, lack of facility space and leadership preconceptions were identified and overcome. Positive forward actions of this logic model include retrospective Naloxone administration chart review administration data 30 days prior to a pre-test of basic opioid education. This study included a didactic educational session, group simulations with a realistic

inpatient pain progressive scenario and an immediate opioid post-test followed by a 30-day opioid post-test. Thirty days after this experience, Naloxone administration was evaluated for nurse and patient sensitive outcomes. The remaining logic model elements define the outputs of decreased Naloxone utilization, increased staff recognition of patient decline, increased staff awareness of refined anesthetic techniques and promoted cultural pain palliation. The short-term results, as outlined in this model, include standardized employee entrance and yearly competency pain management education, increased use of refined anesthetic techniques and prescription practices that reflect changes as a result of pain palliation techniques. The long-term results include community collaboration, ongoing cultural transformations and a decrease, in societal pill burden. Increased staff knowledge will result in better-educated patients and caregivers, which will lead to cultural change. This domino effect remains critical in battling the opioid epidemic. Other conclusive impacts include community Naloxone education awareness that will assist in reducing the amount of accidental opioid overdoses and deaths. The study's final expectations include utilizing non-opioid modalities first, increasing nursing staff education, increasing opioid community awareness and improving societal health.

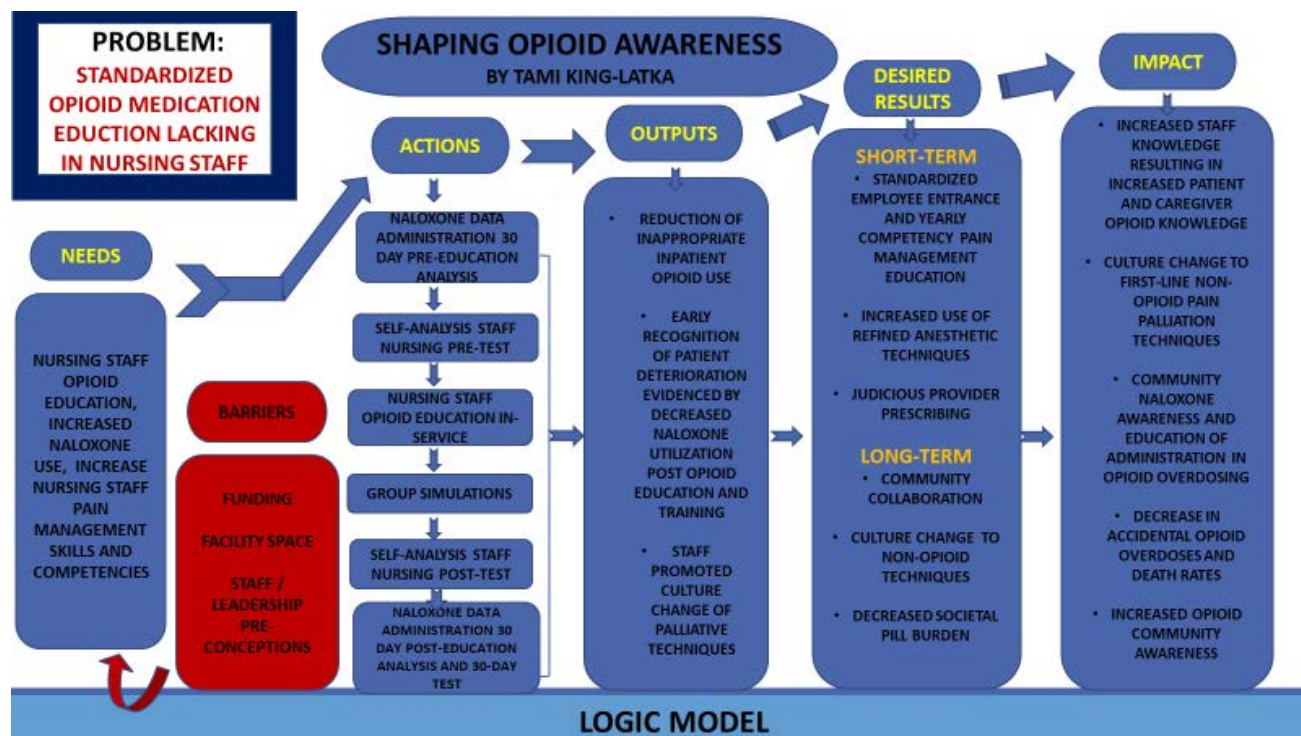
Objectives Research and Design

Kane and Radosevich (2011) discussed how the relationship between improved results and better patient care compels nursing professionals to seek evidence-based care. Because the objectives for OA hinge upon improving nursing staff opioid education, taking action by implementing projects will be instrumental in guiding the change that clinical pathways need. Currently, nursing professionals are having discussions about potentially implementing studies and comparing them to the effectiveness of alternative treatments (Kane & Radosevich, 2011).

These discussions indicate that the OA project's objectives and design are applicable and desirable.

Figure 1.

SHAPING OPIOID AWARENESS LOGIC MODEL



Population/Sampling

Inclusion criteria.

The population for the OA project was initially comprised of 38 RNs, employed longer than three months. Inclusion criteria consisted of being employed on either the medical/surgical/orthopedic units or clinical management staff. A convenience sample of staff nurses was used with recognition given to the selection bias possibly contributing to confounding the results. It was recognized participant motivations may differ and exist due to those choosing to participate, opening the possibility the overall population may not necessarily be fully

represented (Terry, 2015). As all nursing staff participants possess differing experiences in daily exposures in managing and treating pain, this substantiates the homogenous factor of encompassing studying a population with similar characteristics (Terry, 2015). Terry (2015) also reviews although complete accuracy is desired, a margin of error is anticipated in all studies, and increases with smaller populations.

Exclusion criteria.

Exclusion criteria consisted of RN's employed less than three months, pediatric and/or OB nursing staff.

Internal/external validity related to population.

Extraneous variables were noted to exist such as previous pain management experience, years of nursing staff experience and previous professional or personal management experiences. Threats to decrease internal validity included thoughts of selecting a representative sample and historical events occurring outside the experimental setting, such as inter-communication between the simulation groups and the timing of the post-tests. Other threats to internal validity include staff experience maturity levels and testing effects from taking a pre-test, possibly improving the results of the post-test. Threats to external validity include unprotected populations, being sensitized to the pre-test and scenario information and reducing selection bias, by minimizing communication of experiment with research subjects prior to experiment (Terry, 2015).

Setting

The setting for project implementation occurred in meeting rooms conducive to handling the participants, capable of viewing a power point presentation and conducting

simulation. Refreshments were provided. A short break was given between the didactic and simulation session. Restrooms were available nearby.

EBP Design

Kane and Radosevich (2011) discussed the goal of outcomes research is to focus upon the effect of treatment, categorizing OA as a quantitative, quasi-experimental research method design. Terry (2015) discusses quantitative research centers attention upon patterns being unique to a certain population and is valuable in examining the efficacy of an intervention. Upon completing a thorough literature review, a pre, post, and 30-day post-test, didactic education and simulation methodology (Figure 2) was selected (Terry, 2015). As the two major aims of this study encompassed developing a standardized nursing opioid education to employ and implement upon employee entrance and establish a required yearly nursing staff opioid education, the literature analysis indicated the chosen OA implementation methodology would be most effective and achievable in educating nursing staff. Terry (2015) also confirms the pre/post-test design is preferential, as outcomes of interest are evaluated before and after the intervention. Terry (2015) further discusses how quantitative research can allow correlational and causal relationship to be established between variables. Additionally, this study did not have primary objectives in evaluating human emotions, experiences or interactions, therefore ruling out a mixed or qualitative study design (Terry, 2015).

Pre-test phase.

Implementation began with pre-tests given to participants via SM developed by this investigator (see Appendix F- Opioid Awareness Shaping Lives: One Mind, One Heart, One Pill at a Time Pre-Post-30-Day Post Test Via Survey Monkey) and were completed prior to the

didactic education provided. Anonymity was assured for all testing results. All SM tests contained the same content and were developed by this investigator.

Didactic phase.

The next phase involved a didactic opioid educational PowerPoint® presentation written by this investigator (see Appendix G- Opioid Awareness Shaping Lives: One Mind, One Heart, One Pill at a Time-Refining Pain Management) and was completed in approximately 40-50 minutes depending upon participant questioning throughout the class. The didactic educational portion focused on aspects of basic opioid medications, refined anesthetic block techniques, nursing assessment skills review, Naloxone utilization and possible challenging issues in caring for patients with pain acute or chronic.

Simulation phase.

After a 10-minute break, the next methodological phase began with distribution of the simulation scenario history and “Capstone Scenario 1” (see Appendix H-Opioid Awareness Capstone Scenario-History, Initial Scenario, #1, #2 and #3) to randomly assigned group participants numbered one through six, with participants #1 and #2 being primary and secondary while participants #3, 4, 5, and 6 observe. Throughout the simulation scenarios, the four domains based on Tanner’s Clinical Judgment Model (Noticing, Interpreting, Responding and Action) discussed by Gerdeman et al. (2013) were recorded as “Observed/Not Observed” on the investigator self-developed and adapted Opioid Awareness Simulation Observation Tool (OASOT) (see Appendix I-Opioid Awareness Simulation Observation Tool). As the simulation scenarios progressed into the second and third stages the participants rotated, giving all a

chance to be primary, secondary and observers respectively (see same Appendix I-Capstone Scenario).

Post-test/debriefing phase.

Upon completion of the progressive simulation scenario, the SM post-test was distributed via email link and a debriefing was performed as time allowed. Participants were also asked to anonymously answer a four-question project evaluation form (see Appendix J-Project Evaluation Form).

30-day post-test phase.

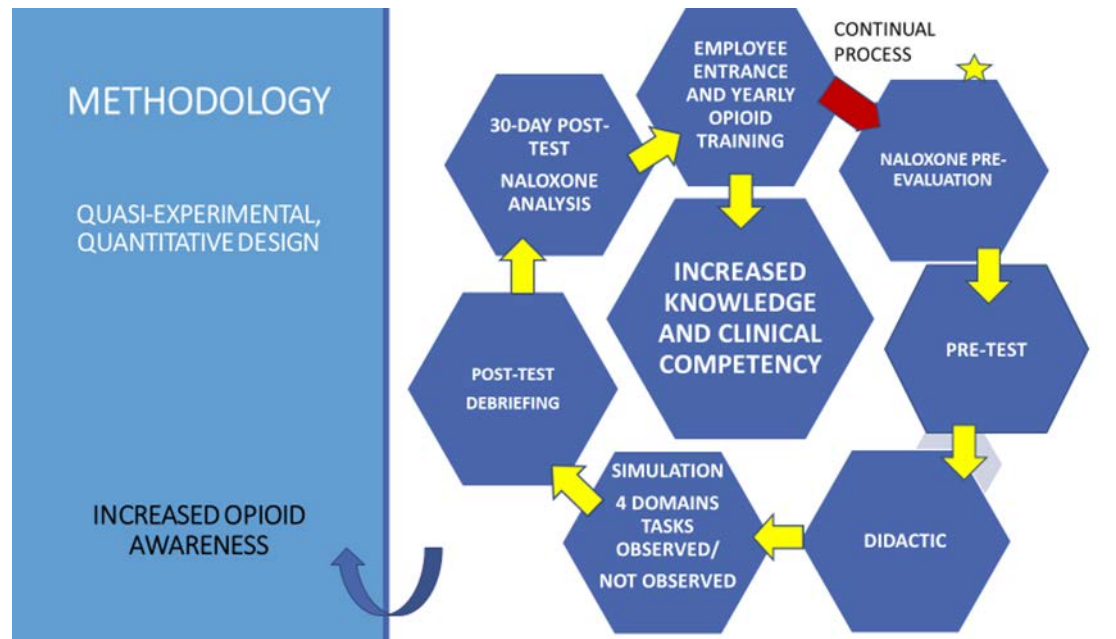
The project phasing completed 30 days post-project implementation as the 30-day post-test was sent to participants via SM link to measure knowledge retention, again maintaining anonymity.

Secondary methodology-Naloxone evaluation.

Secondary methodology (30 days pre and 30 days post) included evaluating inpatient Naloxone utilization data for inappropriate opioid administration and was performed by this investigator via retrospective chart review (see Appendix K-Naloxone Data Evaluation Tool). The evaluation period included 30 days prior to implementation and 30 days after the last implementation. Naloxone data was obtained and evaluated for multiple descriptive attributes to include age, gender, body mass index (BMI), patient history of prior opioid and benzodiazepine utilization, floor Naloxone administration occurred, creatinine pre-event and event, transfer to higher level of care and if pain service was consulted.

Figure 2.

**OPIOID AWARENESS SHAPING LIVES: ONE MIND, ONE HEART, ONE
PILL AT A TIME PROJECT METHODOLOGY**



Evidence-based practice measurement provided.

The OA project utilized nominal, ordinal and interval level data. The levels of measurement provided by the SM tests were intended to analyze pre/post and 30-day post test scores after the didactic and simulation intervention to achieve goals of increased opioid knowledge and clinical skill opioid assessment competency. Inferential testing included a T-Test (aggregate means), Cronbach's Alpha and Analysis of Variance (ANOVA) (Polit, 2010) which were employed for OA project resulting and analysis. Descriptive statistics were measured from the OASOT and analyzed critical thinking, scenario patient interpretation and verbal and action responses. The Naloxone Data Evaluation Tool (NDET) also resulted in

descriptive statistics measuring the categories previously discussed such as history of opioid use requiring a transfer to a higher level of care and comorbidities.

Protection of Human Rights Procedure

IRB approvals.

As this research was conducted in an established/common educational setting involving normal education type of practices such as didactic and simulation (category one) and involved research which evaluated testing scores of aptitudes (category two), submission and approval from Regis University (see Appendix L-Regis University IRB Approval Letter) and Catholic Health Initiatives (see Appendix M-Catholic Health Initiatives IRB Approval Letter) Review Boards (CHIRB) were obtained. Letters of support were also obtained from the organization (see Appendix N-Letters of Support). This study did not involve children or prisoners. This study involved the collection of patient data and was completely de-identified. Collaborative Institutional Training Initiatives (CITI) (see Appendix O-CITI Training Certificates) were completed per Regis University and CHIRB requirements and validated with certificate of completion prior to study implementation.

Employee participation information.

Participants were recruited via flyers posted on applicable floors (see Appendix P-Opioid Awareness Recruitment Flyer). Upon IRB (Regis University and CHIRB) request an Information Recruitment Script Verbal Consent for Participation in a Research Study Sheet (see Appendix Q-Information Recruitment Script) was formulated, approved and provided to the participants prior to study implementation. The Information Recruitment Script included details of the study process, expectations, participant rights, possible minimal participant discomforts, ethical

considerations and the option to terminate the study at any time without any penalty. All participant questions were satisfied, and participant study forms were signed and dated.

All employees meeting the inclusion criteria could participate without coercive action. Finally, all participant information received, and data collected will be regarded as personal health information (PHI) and maintained with confidentiality in adherence to the Regis University and CHIRB guidelines. All data will be kept in a password protected computer available only to the researcher, stored in a locked office. All results will be reported in aggregate form.

Instrumentation Reliability/Validity and Statistics.

As previously discussed the instruments utilized in OA were developed by this investigator and included the pre, post and 30-day post-tests, the OASOT and the NDET. The simulation observation tool originally developed by Tanner's Clinical Judgment Model, was modified and adapted for utilization in this study (Gerdeman et al. 2013).

Instrumentation reliability.

Test reliability involves test outcome measures which were produced and would be reproducible if tested again (Kane & Radosevich, 2011). Due to time constraints the further reproduction of this project was not performed therefore the instruments (SM, OASOT and NDET) developed were unable to be retested. Opportunities are expected to become available for future project replication. As reliability is concerned with random error, the possibility of inconsistent survey responses, coding and transcription errors, or data entry errors are possible with the developed instruments.

Internal reliability, commonly used with scales, led to analysis of Cronbach's alpha coefficient and was performed for the knowledge questions on the SM (Kane & Radosevich,

2011). Expectations of Cronbach's alpha is to increase as the questions constructed are correlated with the items being measured, a score closer to "1" indicates the questions are more closely correlated in content (Kane & Radosevich, 2011).

Instrumentation validity.

Kane and Radosevich (2011) discuss validity as having reliability as a prerequisite. Validity is core to the measurement process focusing upon the concept of measuring what it was intended to measure and may allow for inferences to be created regarding those who have generated the test scores (Kane & Radosevich, 2011). The SM pre, post and 30-day posttest were reviewed by two reviewers (field expert and an educator). A review of the project and simulation was performed with educator experts, feedback was received and applied prior to implementation.

Potential threats to validity were noted with the multiple implementations in the delivery of the education and simulation portions of the project. Variables of clear, objective goal communication and the ability to teach, to all levels of the participants, was given high consideration in reducing potential threats to validity. Henneman et al. (2007) also discusses the importance of reducing variability, by the instructor, as controlling the participant response variability intermittently. Responses such as participant nursing maturity and attention were noticeable however did not appear to impact the group learning.

Cullen (2017) discusses minimizing threats to internal validity are sought by utilizing appropriate design, reliable, valid and standardized instrumentation tools; combined with analytical methods, which are suitable and sound. The three C's of validity, Content, Criterion and Construct, discussed by Kane and Radosevich (2011), as all are considered domains of interest; knowledge and skill competencies have been previously addressed. Criterion

validity explored by Henneman et al. (2010) assisted in designing and establishing the OASOT which included objectives of patient safety, systematic assessment, critical thinking and communication. Construct validity was analyzed as the relationship of education was compared to that of increased knowledge post education and simulation (Kane & Radosevich, 2011). An additional threat to internal validity is the acknowledged researcher simulation scenario leader inexperience.

Statistics for the SM instrumentation tool.

The SM pre/post-tests were developed to include three demographic and 17 opioid related questions. The demographics afforded information regarding nursing unit, experience and degree level. The remaining questions focused on basic knowledge of caring for patients with epidurals, basic opioid knowledge, opioid conversions and equivalencies, refined anesthetic neuraxial and regional blocks and common patient care scenarios. The SM test also consisted of nursing assessment skills associated with evaluating pain, signs and symptoms of clinical deterioration related to opioids and information necessitating the administration and utilization of Naloxone. Costello et al. (2016) discussed pre and post-test development and content validation by employing the expertise of nurse and pain physician experts, this method was employed for all tools utilized in this study. The statistics measured from the SM included either a correct or not correct response which was then coded into SPSS and analyzed via T-Test and ANOVA. Analysis of the aggregate scores for increased knowledge and retention of knowledge were the measured statistics.

Statistics for the OASOT instrumentation tool.

The next OA project instrument is the OASOT (see Appendix I) designed to record observed/not observed nursing staff clinical judgments during the three-stage progressive

simulation “Capstone Scenario” (see Appendix H). Combining Tanner’s Clinical Judgment Model examined by Gerdeman et al. (2013) and the research expertise offered from Henneman, Cunningham, Roche and Curnin (2007), concerning the elements necessary to develop an optimal learning experience, the OASOT was adapted and developed to suit OA project goals and objectives. Outcomes of the scenario were evaluated by this investigator using four domains based upon Tanner’s Clinical Judgment Model and concept mapping are: 1.) Noticing, 2.) Interpreting, 3.) Responding and 4.) Action (Reflection) (Gerdeman et al., 2013). The statistical measurements derived from the OASOT were descriptive from recorded observations of scenario behaviors and domains.

Statistics for the NDET.

The NDET (see Appendix K) was designed by this investigator with intentions to compare rates of inpatient Naloxone utilization related to opioid over-sedation before and after nursing staff OA education. As external validity focuses upon the ability to be generalizable, the N in this study is not significant to presume causal relationship (Kane & Radosevich, 2011). Although generalizability was not originally intended, the current state of personal health, insurance and hospital reimbursement and societal benefits overall remain significant factors as the study is considered a victory with even one life changed. The measured statistics were descriptive of the categories evaluated.

Data collection and treatment procedure/protocol

Terry (2015) states that the method of data collection should be appropriate for the problem in question, formulated to suit the hypothesis testing, research setting and the population. All elements of this research project play a vital role in establishing evidence-based practice for pain management education and simulation for nursing staff; perhaps the realm of

data analyses is central in initiating future change. Specific data tools, collection and thorough data examination processes, are essential, in substantiating clinical interventions and pathway changes to improve quality care outcomes, individually and comprehensively (Terry, 2015). The OA data collection and treatment procedure involved a pre, post and 30-day post survey which was distributed anonymously via a website link. The results were coded and analyzed with the inferential analysis tests: T-Test and ANOVA.

The progressive simulation involving a fictitious motor vehicle trauma patient, experiencing complications was initiated and data was collected by this investigator marking either observed or not observed on the OASOT. The total number of observed/not observed were counted and divided by 32 resulting in the descriptive statistics (%) of nursing simulation performances. These results were analyzed for comparison and characterization of relationships in applying nursing knowledge and clinical skills to the scenario such as noticing altered mental status, respiration rate, interpreting a hemoglobin level or taking action to administer an opioid for example. Although challenging, this is commonplace for actual patient care scenarios in the healthcare realm of today.

The Naloxone data was collected beginning September 21, 2017 through January 1, 2018. This data was analyzed categorically with results of descriptive statistics (%) analyzed for comparison and characterization of relationships of patients who were administered Naloxone during this time period. Further categorical analysis was also performed to evaluate possible common diagnoses for comparison.

Project Findings and Results

Organized by Objective-Goal #1

The first goal of the OA project was to, “Increase nursing staff opioid education and clinical skill competency by comparing pre-test, post-test and 30-day post-test aggregate scoring.” This goal was analyzed using SPSS version 23 statistical analysis T-test and the Analysis of Variance (ANOVA) (Texas A and M Software Center SPSS, 2017).

Goal #1 T-test results.

The t-test was utilized to evaluate for statistical significance when comparing group answer comparisons in the pre, post and 30-day post-test. Three separate runs were analyzed: Pre to Post, Pre to 30-day Post and Post to 30-day Post. The t-test analyzes, “...the sampling distribution of the difference between two means.”, (Polit, 2010, p. 115) and provides information to conclude whether or not the difference between the two groups was due to the intervention.

Table 1 displays a statistically significant difference indicating improvement in comparing the Pre to Post ($t=-6.231$, $p < 0.05$) (Confidence Interval (CI) -0.244 to -0.127) in comparing the aggregate pre-test knowledge to the aggregate post-test knowledge following the didactic and simulation interventions.

Scores in the Pre to 30-day Post (Table 1) were also found to have a statistical significant difference indicating score improvement ($t=-6.138$, $p < 0.05$) (CI -0.289 to -0.149) in comparing the aggregate pre-test knowledge to the 30-day post-test knowledge following the didactic and simulation interventions.

Table 1 also displays scores resulting in no statistical significant difference between the two groups Post and 30-day Post ($t= 0.143$, $p > 0.05$) (CI -0.068 to 0.079) indicating the knowledge was retained 30 days after the didactic and simulation intervention.

Table 1.

Opioid Awareness Capstone Project Results T-Test Goal #1 (Aggregate Form)**Pre-Post-30-Day Post**

| | MEAN | N | t | SIG. 2-TAILED |
|---------------------|---------------|-----|--------|---------------|
| PRE to POST | 300.39-300.57 | 544 | -6.231 | 0.001 |
| PRE to 30-DAY POST | 300.36-300.58 | 374 | -6.138 | 0.001 |
| POST to 30-DAY POST | 300.59-300.58 | 374 | 0.143 | 0.886 |

Analysis of Variance (ANOVA).

The ANOVA was utilized in the Opioid Awareness Project because first the groups being compared were chosen randomly, second the dependent variable (the measurement of opioid knowledge) was assumed to be normally distributed in the population, third the group population variances were assumed to be equal and finally the groups were independently sampled and not matched (Polit, 2010). The ANOVA was utilized to evaluate possible correlating descriptive statistical analyses of the participants and the unit worked, years as an RN and level of degree after the interventions of education and simulation.

The ANOVA was run on all questions, the following two demonstrated statistical significance. First, question 7 (Pre-question 4) (Table 2), focused on knowledge of Naloxone route administration and Years RN Experience (YRNE)) resulted in ($F=4.063$, $p < 0.05$) actual p value is 0.009. This statistical significance indicates a moderate level of correlation of YRNE and knowledge of Naloxone route administration in this sample population.

Second, question 17 (Pre-question 14) (Table 2), explored knowledge of Fentanyl properties and YRNE and resulted in ($F= 2.902$, $p > 0.05$) actual value is 0.037. This statistical significance also indicated a higher positive correlation that YRNE has a relationship to the knowledge of Fentanyl properties from this sample population.

Table 2.

ANALYSIS OF VARIANCE YEARS RN EXPERIENCE

| | | Sum of Squares | df | Mean Square | F | Sig. |
|-----------------------------|----------------|----------------|----|-------------|-------|-------|
| Question 7 Pre-question 4 | Between Groups | 2.996 | 4 | 0.749 | 4.063 | 0.009 |
| | Within Groups | 6.083 | 33 | 0.184 | | |
| | Total | 9.079 | 37 | | | |
| Question 17 Pre-question 14 | Between Groups | 2.362 | 4 | 0.591 | 2.902 | 0.037 |
| | Within Groups | 6.717 | 33 | 0.204 | | |
| | Total | 9.079 | 37 | | | |

Objective Goal #2.

The second goal of the OA project stated, “Demonstration of nursing staff knowledge of palliative anesthetic techniques by comparing pre and post-test scoring,” and was analyzed using the same SPSS version 23 statistical analyses tests-the T-test and the ANOVA (Texas A and M Software Center SPSS, 2017). Palliative anesthetic techniques commonly include neuraxial and regional nerve blocks to block nerve pain sensation and are utilized as a mainstay for post-operative multi-modal pain management. Anesthetic nerve blocks are placed by an anesthesiologist, typically prior to surgery and are continued for three to five days. The placement of nerve blocks has the potential to markedly decrease opioid requirements necessitating thorough understanding and knowledge from nursing staff to provide proper care and education to the patient. This objective holds extreme significance related to the opioid sequelae and is explicitly key when considering the concept that Every Pill Matters. The project findings and results of objective #2 are further discussed in the exploration of the t-test results and the ANOVA test results.

T-test.

In Table 3 the t-test score results are displayed for a question pertaining to managing an adductor canal nerve catheter (question 19) finding a statistical significant difference indicating improvement between the two groups Pre and Post ($t=-5.463$, $p < 0.05$) (CI-0.815 to -0.372).

Scores from question 19 (Table 3) were also found to have a statistically significant difference indicating score improvement between the two groups Pre and 30-day Post ($t=-5.02$, $p < 0.05$) (CI -0.771 to -0.319) in comparing the aggregate pre-test knowledge to the 30-day post-test knowledge following the didactic and simulation interventions.

Table 3 also displays scores in question 19, which resulted in no statistically significant difference between the two groups Post and 30-day Post ($t= 0.624$, $p > 0.05$) (CI -0.394 to 0.212). This indicates the knowledge was retained 30 days after the didactic and simulation intervention. The CI for these three analyses indicates 9% answered the question correctly on the pre, 69% answered correctly on the post and 64% on the 30-day post. The post to 30-day post indicates 64% retained the knowledge and were able to draw upon more information in the elapsed 30 days than what was answered correctly on the pre. This gives some suggestion of satisfactory education methodology.

Table 3.

Opioid Awareness Capstone Project Results T-Test Goal #2

PRE-30-DAY POST TEST (Aggregate Scores)

| | MEAN | N | t | SIG. 2-TAILED |
|---------------------------------------|-------------------------|-----------|---------------|---------------|
| PRE to POST (ques. 19) | 300.09 to 300.69 | 32 | -5.463 | 0.001 |
| | | | | |
| PRE to 30-DAY POST (ques. 19) | 300.09 to 300.64 | 22 | -5.02 | 0.001 |
| | | | | |
| POST to 30-DAY POST (ques. 19) | 300.55 to 300.64 | 22 | -0.624 | 0.54 |

Objective-Goal #3

The third OA goal: Reducing Naloxone utilization for inpatient opioid over-sedation by 50-100% was analyzed by comparing the 30 days prior to the intervention to 30 days after the intervention. The OA project timeframe began September 21 and ended January 1, 2018. A

Naloxone evaluation was performed finding n=5 suiting the criteria of 37 total Naloxone administrations. It is difficult to conclude if there were more or less Naloxone utilizations based upon study impacts due to the seven implementations provided on various dates, compared to the one planned intervention (due to staffing and census issues).

Table 4 contains key descriptive elements of a high-risk profile patient for ORADE's, found upon retrospective chart review which included; elderly male, prior history of opioid use and two comorbidities.

80% of the patients were found to have two or more co-morbidities. The baseline creatinine levels resulting in being normal prior to the event were four (80%) of five and a median creatinine level of 1.22. Comparatively, the event creatinine to baseline level was four (80%) of five with a mean creatinine level of 1.374.

Three (60%) required transition to a higher level of care for closer observation and 0% of the patients were consulted by the pain service - (one patient was found to have altered mental status by the pain service practitioner upon initial consultation).

Table 4.

Opioid Awareness Retrospective Naloxone Chart Review Analysis

| KEY DESCRIPTIVE ELEMENTS OF NARCAN ADMINISTRATION ANALYSIS | |
|---|--|
| n=5 | Mean/% |
| AGE | 71 |
| GENDER-MALE | 60% |
| BMI | 29.65 |
| PRIOR OPIOID | 100% |
| PRIOR BENZODIAZEPINE | 40% |
| 2 OR MORE COMORBIDITIES | 80% |
| CREATININE NORMAL RANGE | 80% |
| OPIOIDS GIVEN PRIOR TO EVENT | 40% UNINTENTIONAL |
| TRANSFER TO HIGHER LEVEL OF CARE | 60% |
| CONSULTED BY PAIN SERVICE | 0% (1 pt. found impaired by pain service) |

Key Elements/Instrumentation Findings

The first key element is noted the SM survey/test tool combined with didactic and simulation methodology indicating statistical significance in the pre and post-test scores. This education provides guidance for future nursing staff opioid education subject matters.

The second key element requires review of the staff demographics. In comparing the frequency results of the unit worked, 19 (50%) of the 38 participants worked on a medical floor, while eight (21.1%) worked on a surgical floor and nine (23.7%) worked on the orthopedic unit.

The frequency of years of RN experience resulted in three months to one year 12 (31.6%) of 38, one to five years was 12 (31.6%), five to ten years found 5 (13.2%), ten to twenty years also 5 (13.2%) and 4 (10.5%) of 38 had 20 plus years of experience.

Regarding the level of degree frequency, the Associate Degree in Nursing was ten (26.3%), Bachelor of Science in Nursing resulted in 24 (63.2%), Master of Science in Nursing was three (7.9%) and Other was one (2.6%) of 38.

In evaluating the results of the unit worked, the majority of this project's population have less than five years of nursing experience supporting the need to further appraise retention methods.

The third key element acquired from the NDET analysis highly correlated with the findings of Minkowitz et al. (2014) in defining a high-risk patient profile for ORADE's. The recognized small n=5 of this study revealed similarities to that which was also defined by Minkowitz et al. (2014) to include being male, over the age of 65, history of prior opioid use and a cardiac related diagnosis. Further essential correlating outcomes put forth by Minkowitz et al. (2014) and OA results involve the aspects of two or more comorbidities and 60% requiring transfer to a higher level of care, incurring higher mean costs due to ORADE's. This element is essential in establishing the necessity for nursing staff opioid education.

The fourth key element was noted from the OASOT observation domains as the building block assimilated learning and clinical skill strengthening were reinforced throughout the simulation scenarios. Presenting the didactic education and following with knowledge application was an excellent learning experience as voiced anecdotally from the participants. Comments such as, "Presentation and scenarios were very pertinent and informative to the types of patients we see", "Much needed as my floor has had very little training with blocks," and, "Looking forward to the next training," provided presentation reflection and future direction.

The OASOT domains related to nerve block and alternative therapy appeared to be observed, appreciated and acted upon by the majority of nursing staff with scenario progression. Physical assessment and laboratory interpretation reveal additional learning and simulation may be beneficial. The OASOT result domains are further explained:

Table 5.

Opioid Awareness Simulation Observation Tool (OASOT) Results

| OPIOID AWARENESS SIMULATION OBSERVATION TOOL ANALYSIS | | | | | | | | | |
|--|--|-----------------|---------------------|--|----------|--|--|--|--|
| | | | | | | | | | |
| OPIOID AWARENESS SIMULATION OBSERVATION BEHAVIORS AND DOMAINS | | | | | | | | | |
| | | | | | | | | | |
| OPIOID AWARENESS SIMULATION OBSERVATION BEHAVIORS | | | | | | | | | |
| | | OBSERVED | NOT OBSERVED | | % | | | | |
| HAND HYGIENE | | 31 | 1 | | 97 | | | | |
| PTIDARM | | 29 | 3 | | 91 | | | | |
| PTIDNAME | | 31 | 1 | | 97 | | | | |

Table 5 represents the Opioid Awareness Simulation Observation Tool (OASOT) results. Basic patient identification behavior results which were performed, by the majority of, the participants and followed by the “Noticing” domain OASOT results (Table 6) also with the majority of areas were “observed” by the participants. Highly “noticed” areas include lab values, respirations, vital signs, psychological status and pain level in the different simulation phases (1, 2 and 3). Areas of need for “Noticing” included urine output, lower extremity status change and although participants evaluated the TAP block, six (19%) did not notice it was inadvertently clamped off. These observations indicate future educational opportunity should also include reinforcing basic physical assessment skills in addition to exploring new techniques and technologies.

Table 6.

Opioid Awareness Simulation Observation Tool (OASOT) Results

| OPIOID AWARENESS SIMULATION OBSERVATION DOMAIN- NOTICING | | | | | |
|--|-----------------------------------|----------|--------------|--|-----|
| | | OBSERVED | NOT OBSERVED | | % |
| #1 | TAP BLOCKS LEFT ABDOMEN OFF | 26 | 6 | | 81 |
| #1 | VS | 30 | 2 | | 94 |
| #1 | LAB | 32 | 0 | | 100 |
| #1 | PAIN LEVEL | 31 | 1 | | 97 |
| #1 | O2 | 31 | 1 | | 97 |
| #1 | RESPIRATIONS | 32 | 0 | | 100 |
| #1 | VS | 32 | 0 | | 100 |
| #2 | LAB | 32 | 0 | | 100 |
| #2 | LETHARGY/CONFUSION | 31 | 1 | | 97 |
| #2 | URINE OUTPUT | 26 | 6 | | 81 |
| #2 | IV | 27 | 5 | | 84 |
| #2 | PAIN LEVEL | 31 | 1 | | 97 |
| #2 | CHANGE IN RIGHT LOWER EXTREMITY | 25 | 7 | | 78 |
| #3 | ADDUCTOR CATHETER | 29 | 3 | | 91 |
| #3 | VS | 31 | 1 | | 97 |
| #3 | LAB | 31 | 1 | | 97 |
| #3 | H/H | 30 | 2 | | 94 |
| #3 | URINE OUPUT | 24 | 8 | | 75 |
| #3 | PSYCHOLOGICAL | 32 | 0 | | 100 |
| #3 | PAIN LEVEL | 32 | 0 | | 100 |
| #3 | O2 | 27 | 5 | | 84 |
| #3 | CHANGE IN BILATERAL LOWER EXTREMI | 28 | 4 | | 88 |

Table 7.

Opioid Awareness Simulation Observation Tool (OASOT) Results

| OPIOID AWARENESS SIMULATION OBSERVATION DOMAIN- INTERPRETING | | | | | |
|--|-------------------------------------|----------|--------------|--|-----|
| | | OBSERVED | NOT OBSERVED | | % |
| #1 | ANXIETY VS. PAIN | 28 | 4 | | 88 |
| #1 | VS | 32 | 0 | | 100 |
| #1 | LAB | 32 | 0 | | 100 |
| #1 | PAIN LEVEL | 28 | 4 | | 88 |
| #2 | RESPIRATIONS | 29 | 3 | | 91 |
| #2 | VS | 32 | 0 | | 100 |
| #2 | LAB | 28 | 4 | | 88 |
| #2 | LETHARGY/CONFUSION | 31 | 1 | | 97 |
| #2 | IV | 29 | 3 | | 91 |
| #2 | PAIN LEVEL | 25 | 7 | | 78 |
| #2 | CMS CHANGE | 27 | 5 | | 84 |
| #3 | NEED TO CHANGE PAIN INFUSION SETTIN | 26 | 6 | | 81 |
| #3 | VS | 28 | 4 | | 88 |
| #3 | LAB | 27 | 5 | | 84 |
| #3 | URINE | 25 | 7 | | 78 |
| #3 | PSYCHOLOGICAL | 26 | 6 | | 81 |
| #3 | PAIN LEVEL | 25 | 7 | | 78 |
| #3 | CMS CHANGE | 25 | 7 | | 78 |

Table 7 displays results of the “Interpreting” domain with the high ranking observed in the areas of pain, vital signs and lethargy. Table 7 also displays staff having more difficulty interpreting in the areas of pain level, extremity status change and urine output.

Table 8.

Opioid Awareness Simulation Observation Tool (OASOT) Results

| | OPIOID AWARENESS SIMULATION OBSERVATION DOMAIN- RESPONDING | | | | |
|----|--|----------|--------------|--|-----|
| | | OBSERVED | NOT OBSERVED | | % |
| #1 | VERBAL REASSURANCE | 32 | 0 | | 100 |
| #1 | NON-VERBAL | 32 | 0 | | 100 |
| #1 | VS | 27 | 5 | | 84 |
| #1 | LAB | 27 | 5 | | 84 |
| #1 | PAIN LEVEL | 28 | 4 | | 88 |
| #2 | VERBAL | 31 | 1 | | 97 |
| #2 | NON-VERBAL | 32 | 0 | | 100 |
| #2 | VS | 28 | 4 | | 88 |
| #2 | LAB | 27 | 5 | | 84 |
| #2 | PAIN LEVEL | 28 | 4 | | 88 |
| #3 | VERBAL | 32 | 0 | | 100 |
| #3 | NON-VERBAL | 32 | 0 | | 100 |
| #3 | VS | 32 | 0 | | 100 |
| #3 | LAB | 29 | 3 | | 91 |
| #3 | PAIN LEVEL | 27 | 5 | | 84 |

Table 8 displays results of the “Responding” domain which portrayed positive analyses including 100% participant response observation in verbal and non-verbal reassurance throughout the progressive simulation scenario. Five (16%) of the participants were observed to respond incorrectly to the vital signs, abnormal lab and pain level throughout the three phases of the progressive scenario.

The final domain, “Action” (Table 9) found six (19%) of the participants were not observed to act upon abnormal lab values, calling to clarify orders and initial assessment of the adductor and popliteal nerve block catheters. This was followed by five (16%) not observed to take action in assessing the TAP blocks or leg pain. The last actions not observed by four (13%) included offering alternative techniques, initial assessment of legs bilaterally (CMS) and administering the medication-Naloxone.

Table 9.

Opioid Awareness Simulation Observation Tool (OASOT) Results

| | OPIOID AWARENESS SIMULATION OBSERVATION DOMAIN- ACTION | | | | |
|----|---|-----------------|---------------------|--|----------|
| | | OBSERVED | NON-OBSERVED | | % |
| #1 | TURN ON TAP BLOCK | 29 | 3 | | 91 |
| #1 | ALTERNATIVE TECHNIQUES | 28 | 4 | | 88 |
| #1 | MEDICATIONS | 29 | 3 | | 91 |
| #1 | VS | 28 | 4 | | 88 |
| #1 | LAB | 26 | 6 | | 81 |
| #1 | CALL FOR CLARIFICATION OF ORDERS | 26 | 6 | | 81 |
| #1 | PAIN LEVEL | 29 | 3 | | 91 |
| #1 | O2 | 32 | 0 | | 100 |
| #1 | INITIAL ASSESSMENT OF LEGS BILAT (CM | 28 | 4 | | 88 |
| #2 | ASSESS TAP BLOCKS/LEG | 27 | 5 | | 84 |
| #2 | ALTERNATIVE TECHNIQUES | 31 | 1 | | 97 |
| #2 | MEDICATIONS | 28 | 4 | | 88 |
| #2 | VS | 31 | 1 | | 97 |
| #2 | LAB | 29 | 3 | | 91 |
| #2 | CALL FOR ORDERS | 30 | 2 | | 94 |
| #2 | PAIN LEVEL | 32 | 0 | | 100 |
| #2 | O2 | 32 | 0 | | 100 |
| #3 | ASSESS ADDUCTOR/POPLITEAL NERVE C | 26 | 6 | | 81 |
| #3 | ALTERNATIVE TECHNIQUES | 30 | 2 | | 94 |
| #3 | MEDICATIONS | 29 | 3 | | 91 |
| #3 | VS | 32 | 0 | | 100 |
| #3 | LAB | 31 | 2 | | 94 |
| #3 | CALL FOR ORDERS | 29 | 3 | | 91 |
| #3 | PAIN LEVEL | 32 | 0 | | 100 |
| #3 | O2 | 32 | 0 | | 100 |

In the OASOT results, the overall analysis found the majority of skills and competencies to be observed. Comparison of simulation only as compared to the OA project of didactic and simulation would be interesting future data to collect. The small percent of not Noticing urine output and physical assessment may correlate with the “newness of a simulation scenario, staying after work to participate or various other reasons. Further research may shed light on correlation of the non-observed domains of the unit worked, years RN experience or level of degree but were not evaluated for this project.

The fifth key element relates to the results of the Naloxone administration evaluation. The dates of Naloxone administration suiting the inpatient analysis criteria ranged from October 28 through November 18 with the first presentation on October 20 and the final on December 1. Study intentions of one presentation unfolded into seven presentations due to staff ability to

attend (high patient census and low staff census), thus making it somewhat difficult to pinpoint the 30-day pre and 30-day post-date mark of Naloxone. Project criteria for inclusion of an opioid over-sedation event first occurred on October 28, rendering the OA project goal #3 unattainable.

However, with the available data, the correlation discussed by Minkowitz et al. (2014) and the OA results revealed stunning similarities. As Minkowitz et al. (2014) described the high-risk profile features to include; being male, age over 65, two or more comorbidities and a history of prior opioid use. OA found similarities in the results with four (80%) having two or more comorbidities, being male and a mean age of 71. This learning opportunity will be essential in continued dialogue with nursing staff to identify a high-risk patient profile to avoid ORADE's. The surprising baseline creatinine levels, prior to the event, found four (80%) were within a normal range giving a median of 1.22. Comparing the event creatinine to baseline level was again surprising, with four (80%), yet the mean was 1.374.

Additional valuable analyses from the study, Table 10 depicts the diagnoses found with the OA Naloxone chart review with an unexpected finding of Rheumatoid Arthritis to be more common than back pain, depression and anxiety.

Although small, the n of five provided invaluable insight to share with staff for future recognition of high-risk profile patients.

The final key element in the OA study results indicate 0% of the high-risk OA patients were consulted by a pain service specialist demonstrating a high need in appropriate pain service consultations. While inappropriate opioid administration is multi-faceted, preventing unnecessary patient risk and increasing patient safety is top priority organizationally. Specialty prepared pain management providers will likely contribute to less ORADE's, decreased LOS and fewer readmission rates due to misused opioids (Minkowitz et al., 2014).

Table 10.

Opioid Awareness Retrospective Naloxone Common Diagnoses Analysis

| COMMON DIAGNOSES | % |
|-------------------------------|---------------|
| DEPRESSION/ANXIETY | 3 (60) |
| CHRONIC PAIN | 100% |
| BACK | 2 (40) |
| RA | 4 (80) |
| CARDIAC (HTN, CAD DVT) | 4 (80) |
| PULMONARY | 1 (20) |
| RENAL | 1 (20) |
| SUICIDAL ATTEMPT | 1 (20) |
| BPH | 2 (40) |

Reliability of Findings

The reliability of the findings indicated by the Cronbach's alpha of 0.590 found nine of the 17 questions to be of satisfactory content. Although many questions were correlated in content such as blocks or opioid dosages; reviewing and revising test questions, as established by the Cronbach's alpha content and increased clarity is essential in future implementations.

Results According to Evidence-Based Practice Question

The need for standardized and continued educational offerings was introduced. Providing methods to increase basic opioid knowledge education to nursing staff will provide a foundational basis for clinical knowledge and skill competency building. Patient acuity levels continue to rise and require in-depth nursing awareness, wisdom and available resources to reduce ORADE's and enhance optimal outcomes. Increased competent clinical judgment was demonstrated by the majority of participants throughout the simulation scenario and will only be enhanced if simulation opportunities continue to recur. The simulation scenario provided

opportunity for thought process and action in managing a deteriorating patient. Nursing staff handled the situation well, allowing for group learning to occur.

The final research question portion addressing inpatient Naloxone reduction, offered substantial insight from the retrospective chart review. The study period revealed 37 patients who were administered Naloxone with five (n=5) fitting the study criteria. After thorough reviews unexpected results offered knowledge in defining a high-risk profile patient for ORADE's. This information is critical to convey in daily and future nursing staff educational opportunities. OA project results add to previous literature research findings of combined didactic and simulation nursing staff educational learning methods.

Multiple reviewers for instrumentation are also viewed as essential specifically for improving the SM test, though would be beneficial for all OA study instrumentation tools developed.

Limitations, Recommendations, Implications for Change

Limitations

Multiple limitations were acknowledged for study implementation. The first is acknowledgment of investigator novice in performing simulation, data collecting and analysis. Future implementations will enhance abilities and experience with expected differing simulation circumstances with nursing participant experiences.

Next, is the tool reliability as they were developed by this investigator. The nine correlating questions in OA represented links with anesthetic block techniques, commonly used medications and basic case scenarios minimizing opioid use, of which are moderately closely connected. Although moderate correlation was noted with the Cronbach's alpha analysis, future

implementation would bare consideration in examining if question revision would improve clarity and thus reliability. This provides an opportunity to improve and rewrite the remaining six questions with audience suited educational content and clarity.

Although strong reliability of each instrument was not established, the use of the three methods together were valuable. Applying pain management knowledge via linking the OASOT behavior observations and Tanner's Clinical Judgment Model reinforced learning opportunities (Gerdeman et al., 2013). Developing the SM test, clinical scenario and NDET provided in-depth thought process in delineating significant factors necessary for research. Although tool reliability was not performed for the SM or OASOT, due to time restraints, test-retest opportunities will be sought for future implementations. Additional individual simulation test retest observations are also a consideration for future implementations.

The small n (SM test and simulation 38, 32, 22, Naloxone n=5) of the project is fully recognized. Time and cost budgets were acknowledged by all involved and were overcome with multiple presentations with clinical manager support. Limiting the inclusion criteria to two nursing units provided a certain range of nursing knowledge due to the small number of staff able to participate.

A final limitation may be viewed as the typical patient information for nursing staff is in the electronic health record however, the OA simulation scenario was presented in paper form to nursing staff. Adding another "new" facet to the "new" learning activity may affect the learning process. Paper form was used due to time and budget restraints. Future consideration is for electronic format.

Recommendations of Contribution to Nursing; Theory, Research, Advanced Practice, and Health Policy

While the opioid epidemic spans the globe, clinical pathway recommendations include standardization of employee entrance and yearly opioid education with simulation. Other recommendations include requiring passing a yearly test combined with a simulation skill lab. Next, requiring focused pain education for all staff is highly recommended as techniques, methods and opioids are ever-changing.

Finally, equally if not more important, are recommendations of frequent (monthly) mini meetings to maintain clinical thought processes. This is easily accomplished through verbal discussion of patient case scenarios and would be further enhanced if presented by a staff nurse with the assistance of the advanced practice pain management provider. This nature of staff nurse engagement invites empowerment, teamwork and collaboration; all of which enhance the individual nurse professionally, improving care for the patient and ultimately improving patient outcomes. Including specialty units presenting pain caveats and case scenarios to other specialty units with advanced practice assistance will also invite empowerment, collaboration and pertinent knowledge sharing.

Theory.

Recommendations from this study with respect to contribution to nursing theory portrayed intertwining the acute pain theory discussed by Good and Moore (1996) enveloping the patient in his or her own care. This connection necessitates knowledgeable and competent nursing staff to be well educated in pain content to assist with this process. Incorporating the Constructivist and Assimilation Theories and Tanner's Clinical Judgment Model examined by Gerdeman et al. (2013) utilizing building blocks and concept mapping to facilitate learning was found to be essential in the OA didactic and simulation education methodology. Reinforcing the concepts of these theories will assist nursing staff to have the full perspective of daily

patient care. Nursing theory remains foundational to nursing care and is involved in daily nursing care.

Research.

Study contributions may provide some valuable background information to inform future studies. Expanding simulation requirements to nursing specialties requires further study implementations, as pain has no bounds or limitations to patient type. Further research can be sought with alternative scenarios as patients are individual and ever-changing. Initiating group simulation integrating nursing students, newly graduated nurses and staff may also add to evidence-based research while increasing collaboration and cognitive and clinical skills. Based on the OA project results and continued future research results, strong consideration should be given to implement required employee entrance level and yearly pain management education (Kane & Radosevich, 2011).

Advanced practice nursing contribution.

Study recommendations contributing to the realm of advanced practice nursing lies in the realm of role modeling for nursing staff. As Blackburn, Harkless and Garvey (2014) discuss the APN role has expanded further into distribution of services, educational opportunities and technology as health care continues to change. Additional influences imparted by a Doctoral Nurse Practitioner (DNP) exists in the invaluable clinical wisdom and experience brought forth to the learning environment. Future DNP roles also hinge on formulating simulations for APN's, as the realm of continued learning is critical at every level of advanced education.

Health policy contribution.

As every individual plays a major role in this crisis, self-appraisal begins the wave of transformation. Formulating policies for opioids distributed upon discharge and close follow-up

post discharge are areas requiring attention sooner rather than later. Nurses are as vital to policy development as to patient care and are pivotal in providing information to lawmakers.

Furthermore, APN/DNP has the ability to lead in health policy as first-hand knowledge and experience are quintessential in the key issues of today.

Implications for Change

Findings from this study provide insight into the heightened need for education for nurses on correct and appropriate opioid medication administration. The multi-faceted issue of opioid abuse, addiction, misuse and unintentional overdose has escalated into unforeseen detrimental societal effects (Clarke et al., 2016). The increased communication, collaboration and teamwork assessed in the nursing staff throughout project implementation and beyond is reaping positive effects in the realm of clinical judgment and administering opioid medication. The continued education required to remain well-informed of procedural and technological advances is a necessary component in the culture change challenge. As monetary challenges persist, recognizing high-risk profile patients, clinical signs and symptoms of deterioration will minimize, and preferably negate, ORADE's further impacting length of stay and overall inpatient care cost.

Conclusion

In conclusion, the OA project clearly identified the background and current state of the opioid epidemic. Providing opioid education and increased awareness specifically to nursing staff, encourages all to consider what role he or she can play. As the evidence surrounding the opioid epidemic and the influence nursing staff holds was explored, the OA project plan was developed and implemented to assist with clinical pathway change. With clear objectives of exposing nursing staff to basic opioid knowledge, multi-modal pain techniques such as refined

anesthetic block procedures, the mission of Increasing Opioid Awareness; One Mind, One Heart, One Pill at a Time begins with the described methodologies and evaluation plans. While the use of simulation is being utilized throughout educational institutions, this study has provided valuable information in employing these combined educational methods in the inpatient setting. Further critical recommendations include continuing implementation consistently.

Meyer et al. (2014) reported inpatient hospital admissions are 12 times more prevalent for opioid abusers as compared to those who are non-opioid abusers; this summons action. As uncontrolled pain can have a negative impact on health status, quality of life and economic productivity, the same holds true for addiction. Clarke et al. (2016) provided information of current opioid related legislation has occurred at all levels, yet the central issue is minimizing the access to opioids by decreasing or eradicating avoidable exposure. Seeking healthy methods of pain relief remains the central quest (Clarke et al. 2016).

All members of society have an influential role in reducing the unintended consequences of current pain palliation approaches. Nursing staff, patients and caregivers merit education which contributes to positive health outcomes. Targeting multi-modal therapy approaches are the recommended current day methods. Utilizing DNP/ANP to provide the critical guidance for nursing and patients can contribute to enhanced patient care. With the reality that “Every Pill Matters”, providing opioid awareness can shape lives, one mind, one heart, one pill at a time.

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Appendix A

Average Cost Per Inpatient Day Across 12/50 States in 2012 (updated November 2014)

| LOCATION | GOVERNMENT HOSPITALS | NON-PROFIT HOSPITALS | FOR-PROFIT HOSPITALS |
|----------------------|-------------------------|-------------------------|-------------------------|
| United States | \$1,831 | \$2,214 | \$1,747 |
| Alabama | \$1,493 | \$1,400 | \$1,253 |
| Alaska | \$1,521 | \$2,369 | \$2,809 |
| Arizona | \$1,730 | \$2,462 | \$2,002 |
| Arkansas | \$1,382 | \$1,688 | \$1,407 |
| California | \$2,767 | \$3,275 | \$2,084 |
| Colorado | \$1,950 | \$2,493 | \$2,522 |
| Connecticut | \$3,146 | \$2,369 | \$2,363 |
| Delaware | N/A | \$2,675 | \$3,510 |
| District of Columbia | \$759 | \$2,926 | \$2,006 |
| Florida | \$2,132 | \$2,178 | \$1,551 |
| Georgia | \$922 | \$1,756 | \$1,462 |
| Hawaii | \$1,166 | \$2,320 | N/A |
| | | | |

The Kaiser Family Foundation State Health Acts, 2017

Appendix B

Systematic Review of the Literature Key Articles

SOCIETAL NEED

| Study | Author | Level of Evidence | Purpose | Findings |
|---|---|-------------------|---|---|
| Prescription Opioid Analgesics Rapidly Change the Human Brain | Younger, J. W., Chu, L. F., D'Arcy, N. T., Trott, K. E., Jastrzab, L. E., & Mackey, S. C. (2011). | B | Chronic Opioid Neural Changes | Post MRI indicated irreversible neural brain changes with short term use of opioids for chronic pain |
| The Opioid Epidemic/H&HN: Hospitals & Health Networks | Stempniak, M./2016 | E | To inform the healthcare professionals of facts regarding prescription opioid overdose death rates, hospital barriers and recommended prescribing practice changes. | To inform the healthcare professionals of facts regarding prescription opioid overdose death rates, hospital barriers and recommended prescribing practice changes. |

NURSING KNOWLEDGE OPIOID DEFICIT

| Study | Author | Level of Evidence | Purpose | Finding |
|---|--|-------------------|---|--|
| Patient Opioid Education: Research Shows Nurses' Knowledge of Opioids Makes a Difference. MEDSURG Nursing25(5), 307-333 | Costello, M. Thompson, S., Aurelien, J. & Luc, T. (2016) | B | Literature has found patients may begin opioid use due to a lack of education when first receiving opioids. Nurses are in a prime position to teach the correct and safe way to take opioids in | Pre-test, one hour education regarding opioids, addiction, tolerance, disposal, post-test. Prior to testing and education, calls were placed to patients regarding |

| | | | | |
|--|--|--|--|--|
| | | | managing pain. The purpose of the study was to evaluate the effects of an educational intervention ultimately affecting patient's knowledge and safe utilization of opioids. | discharge opioid instructions, post education calls were also placed. Findings- significant difference in nurse's knowledge before and after intervention. |
|--|--|--|--|--|

HOW TO IMPROVE

| Study | Author | Level of Evidence | Purpose | Findings |
|--|---|-------------------|---|---|
| Using Concept Mapping to Build Clinical Judgment Skills | Gerdeman, J.L., Lux, K., & Jacko (2013). Using concept mapping to build clinical judgment skills. Nurse Education in Practice, 13 (1), 11-17. | B | Tanner's Clinical Judgment Model utilizes concept mapping to enhance clinical judgment. | Student nurses formulated their own concept map base on Tanner's Theory. 5 of 8 found they progressed with clinical prioritization in critical aspects of patient care. |
| Human patient simulation: teaching students to provide safe care. Nurse educator, 32(5), 212-217. TOOL | Henneman, E. A., Cunningham, H., Roche, J. P., & Curnin, M. E. (2007). | B | Goal is to provide practicality in developing a Human Patient Simulation (HPS). Bridges the gap between theory and clinical practice. | Challenges of HPS simulations as they all play out differently, therefore important to minimize variability and define clear, specific observable objective behaviors. |

Appendix C

Grading Level of Evidence

Level A-Meta-analysis of multiple controlled studies or meta-synthesis of qualitative studies with results that consistently support a specific action, intervention or treatment.

Level B- Well-designed controlled studies, both randomized and nonrandomized, with results that consistently support a specific action, intervention, or treatment.

Level C- Qualitative studies, descriptive or correlational studies, integrative reviews, systematic reviews, or randomized controlled trials with inconsistent results.

Level D-Peer-reviewed professional organizational standards, with clinical studies to support recommendations.

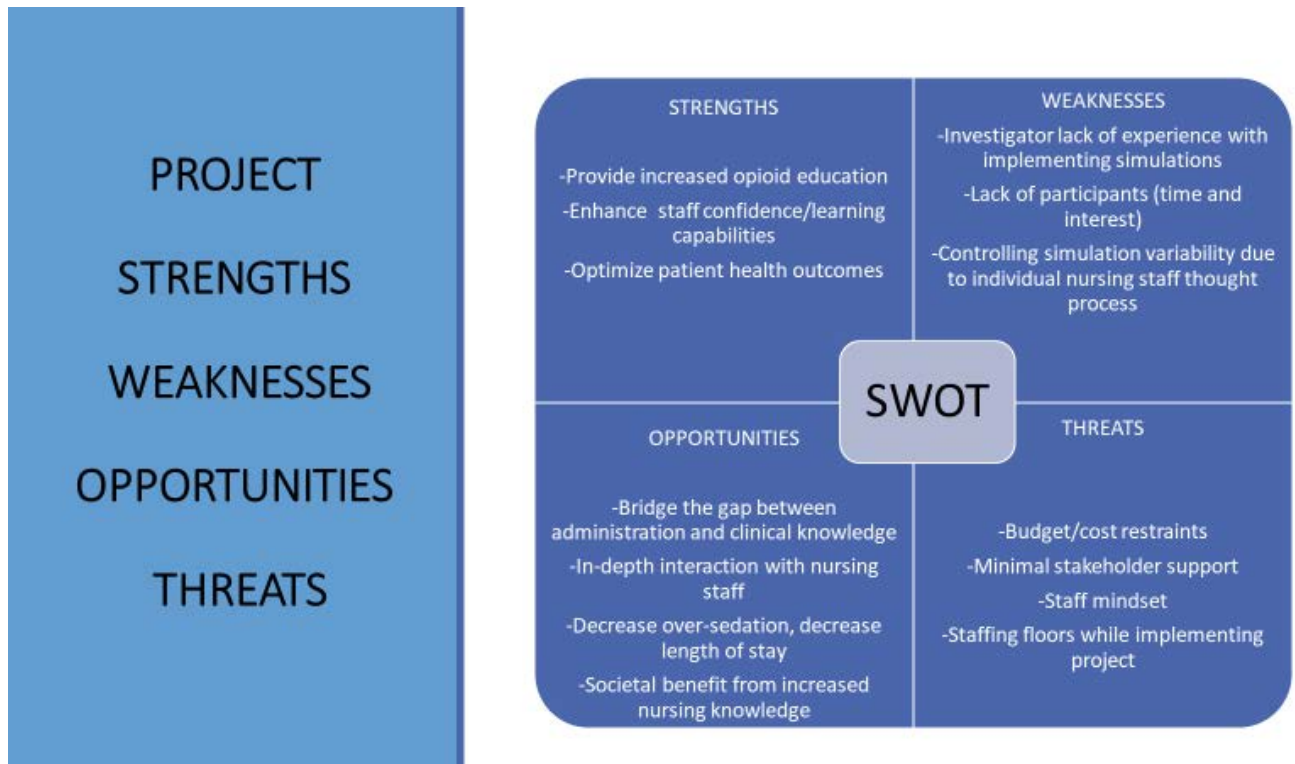
Level E- Theory-based evidence from expert opinion or multiple case reports.

Level M- Manufacturers' recommendations only

Armola, R., Bourgault, A., Halm, M., Board, R., Bucher, L., Harrington, L., & ... Medina, J. (2009). AACN levels of evidence: what's new?. *Critical Care Nurse*, 29(4), 70-73.
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Appendix D

Opioid Awareness Project SWOT Analysis



Appendix E

Timeframe, Budget and Resources**TIMEFRAME**

IRB Approval August, 2017 Catholic Health Initiatives (CHIRB)

Regis IRB Approval 9-21-17

Implementation (7 presentations) 10-20-17 through 12-1-2017

Naloxone Retrospective Review 9-20-17-1-1-18)

BUDGET/RESOURCES

| BUDGET AND RESOURCES OPIOID CAPSTONE PROJECT | | | |
|---|--------------------------|--|--|
| OBJECTIVE | ITEM | COST | RESOURCES |
| Skill competency, Blocks, Simulation | NURSING STAFF 30 x \$30 | \$900 | Organization |
| Skill competency, Blocks, Simulation | Educator 10 hours x \$40 | \$400.00 | Organization |
| Skill competency, Blocks, Simulation | Mannequin | \$2,000.00 | Already owned by organization and able to borrow |
| | Facility use | \$500.00 | Organization furnished room |
| | Refreshments | \$100.00 | Furnished by investigator |
| Data Analysis/Results | SPSS | \$14,000.00 ESTIMATED | Regis University |
| | | | |
| TOTAL | | \$17,900 | |
| INVESTIGATOR | | \$100.00 | |
| REGIS | | COST OF SPSS \$14,000 Est. | |
| ORGANIZATION | | \$3800.00 FURNISHED BY ORGANIZATION | |

Appendix F

Opioid Awareness Shaping Lives: One Mind, One Heart, One Pill at a Time
Pre-Post-30-Day Post Test Via Survey Monkey

Opioid Awareness Shaping Lives: One Mind, One Heart, One Pill at a Time

1. What nursing unit do you currently work on?
 - a. SFMC 5th floor-South
 - b. SFMC 5th floor-North
 - c. SFMC 6th floor-Ortho
 - d. Float Pool SFMC
 - e. Other
2. How many years have you been a Registered Nurse?
 - a. Less than 3 months
 - b. 3 months to 1 year
 - c. 1-5 years
 - d. 5-10 years
 - e. 10-20 years
 - f. 20+ years
3. What level of degree do you have?
 - a. AND
 - b. BSN
 - c. MSN
 - d. DNP/PhD
 - e. Other (please specify)
4. Paravertebral blocks will assist in reducing pain and are commonly seen after:
 - a. Lumbar spinal decompression surgery
 - b. Colectomy
 - c. Total Shoulder
 - d. Mastectomy
5. Naloxone is ordered by the provider to be given 0.04mg IM. What would be the appropriate action given your patients respirations are 8/hr?
 - a. Give it even though, this order is incorrect
 - b. Call the provider
 - c. Give half of the dose IV and call the provider
 - d. Give the ordered dose, as this is a correct order

6. The equivalent of Oxycodone 10 mg PO is approximately equal to:
 - a. Dilaudid IV 0.1mg
 - b. Morphine Sulfate CR 10mg
 - c. Fentanyl 12mcg patch
 - d. Dilaudid 1mg IV
 - e. Dilaudid 0.8 mg PO
7. Naloxone can be given:
 - a. IM, transdermal, PO and IV
 - b. IM, PO, IV, SC
 - c. Transdermal, Intranasal
 - d. IM, IV, SC, Intranasal
 - e. All of the above
8. Methadone is
 - a. Used for short acting and long acting pain relief and should be monitored with telemetry and pulse oximetry
 - b. Has a short half-life and is initiated at every 8 hours to begin in order to attain levels to achieve pain palliation rapidly and should be monitored with telemetry and pulse oximetry.
 - c. A safe medication when taken as ordered and should be monitored with telemetry and pulse oximetry
 - d. Is typically administered with a Fentanyl patch and Ativan to deter withdrawal and associated agitation; should be monitored with telemetry and pulse oximetry
 - e. Both b and c

For the next three questions, consider this scenario for your answers: Ms. E is a 65-year old female, opioid naïve, s/p colectomy POD #1, has a thoracic epidural Bupivacaine 0.1%/Fentanyl 2 mcg at 12cc/hr, has orders for titration of epidural rate from 4cc-12cc. Pain level is 1/10, she feels light headed and dizzy, orders are to ambulate x 3 today, she has not yet been out of bed post-op:

9. Ms. E is experiencing hypotension (85/40), the best immediate actions include
 - a. Increase the rate to 16cc/hr, apply oxygen and give 1L bolus of NS and call the provider
 - b. Decrease the rate to 10cc/hr, apply oxygen, give 500 cc bolus NS and call the provider
 - c. Decrease the rate to 6cc/hr, apply oxygen, give 2 L bolus of NS and call the provider
 - d. Discontinue the epidural catheter, apply oxygen, give 1L bolus of NS and call the provider
10. Ms. E is now normotensive after you successfully stabilized her. She is no longer light headed or dizzy, pain level is 2/10, rate is at 8cc/hr now, you set goals to ambulate with

her in 30 minutes and she replies, “I’m tired and Dr. Z told me I could walk tomorrow, plus I can’t move my right leg.” Your best response is; followed by your next action is:

- a. We will check with you later and let her sleep for 3 hours, check her leg sensation at 1500
- b. Since your pain is well palliated, I will turn off the epidural and the sensation will return and then we can walk
- c. Yes, you are right, you need to sleep and turn the epidural down by an increment of 2cc/hr
- d. We can help you to the chair, check dermatome levels and notify the provider

11. Ms. E is POD #4 it is 1000, her pain level is 4/10 after she finished ambulating, which is tolerable for her. Additionally, you and the provider have learned she has a hx of DVT and A-fib. You have received orders to begin Xarelto 30 mg now, discontinue the epidural now, discontinue the foley 2 hours after the epidural catheter is removed, Percocet 5/325 1-2 q 6 hrs prn moderate pain, Dilaudid IV 0.25-0.5mg q3 hrs prn severe pain and discharge home when pain is palliated. She had a dose of Lovenox at 0900 yesterday, which was not discontinued. You should:

- a. Discontinue the epidural now, give Xarelto 30 mg now, give Percocet 5/325 2 tabs now, and discontinue the foley in 2 hours, discharge her when pain level is 4/10, call the provider to update
- b. Discontinue the epidural now, give Xarelto 15mg now, give Percocet 5/325 1 tab now and discontinue the foley in 6 hours, discharge her as her pain level is 4/10, call the provider to discuss the rest of the Xarelto dosing
- c. Give Percocet 5/325 1 tab now, give Xarelto 30 mg now, discontinue epidural in 2 hours and discontinue the foley 2 hours post discontinuance of epidural catheter, pain level is 4/10, call the provider to discuss her pain level
- d. Give Percocet 5/325 2 tabs now, discontinue the epidural, hold the Xarelto, discontinue the foley catheter 2 hours post discontinuance of epidural catheter, pain level is 4/10, she is tired, A and O x 3, pulse ox is 89%, call the provider to discuss her status and the Xarelto dosing
- e. Give Percocet 5/325 2 tabs now, discontinue the epidural, hold the Xarelto, give Lovenox 40 mg sc now, discontinue the foley catheter 2 hours post discontinuance of epidural catheter, pain level is 4/10, she is tired, pulse ox 89%, call the provider to discuss her status and the Xarelto dosing

12. A comparable dose of 4 mg Morphine Sulfate IV is approximately equal to:

- a. 12mg PO Morphine equivalent (Approximately 2 ½ tabs of Oxycodone 5mg)
- b. 25mg PO Morphine equivalent (Approximately 5 tabs of Oxycodone 5mg)
- c. 2mg PO Dilaudid
- d. 25 mcg Fentanyl patch

13. Which opioid drugs are long acting?
- a. Morphine Sulfate sublingual and Oxycodone IR and Methadone
 - b. Dilaudid and Tramadol
 - c. Morphine Sulfate CR, Hydrocodone ER and Tramadol
 - e. Oxycontin, Duragesic 50mcg patch
 - f. Both a and e
 - g. Both c and d
14. A medication(s) which works well for neuropathic pain is (are):
- a. Diazepam and Gabapentin
 - b. Gabapentin and Tylenol
 - c. Gabapentin or Pre-Gabalin
 - d. Lorazepam and Pre-Gabalin
 - e. Both a and b
15. A 75-year old patient is S/P Right Total Shoulder, opioid naïve, has pain level 5/10 and has an Interscalene nerve catheter of Bupivacaine 0.2% at 6cc/hr. What are your next best plans of action to palliate pain given a history of CAD, OSA, HTN, anxiety and CKD stg II. He has orders for range of Bupivacaine 0.2% 6-12cc/hr, Percocet 5/325 ½ to 2 tabs q 4 hrs prn moderate pain, MS IV 2-4 mg q 3 hrs prn severe pain, Toradol 15 mg IV x 2 doses q6 hrs prn pain, Diazepam 5mg 1 po q 6 hrs prn spasm. He also has orders written for discharge home today to the care of his wife and son.
- a. Increase the IS catheter to 12cc/hr, Toradol 15 mg IV now and reevaluate in 30 minutes
 - b. Increase the IS catheter to 8cc/hr and give Percocet 5/325 two tabs, reevaluate in 30 minutes
 - c. Give Percocet 5/325 ½ tab, Valium 5mg and increase IS catheter to 8cc/hr, reevaluate in 30 minutes
 - d. Increase the IS catheter to 8cc/hr, give Percocet 5/325 1 tab now, reevaluate in 30 minutes
 - e. Give MS IV 2mg now, increase the IS catheter to 10cc/hr, give Percocet 5/325 ½ tab now and reevaluate in 30 minutes

16. Mr. M. is a 45-year old patient with PMH of anxiety, MMJ use, chronic back pain and is taking Oxycodone IR 30 mg q4 hrs on a daily basis is now S/P motorcycle accident with T7-T10 left rib fractures. What options of pain palliation and comfort techniques would you discuss with the provider?
- a. Left paravertebral block with Bupivacaine 0.2% 7cc/hr, Dilaudid 0.5mg IV q2 prn severe BTP, Oxycodone IR 30-40mg q 3hrs prn severe pain
 - b. Left TAP block and orders for Oxycodone CR 30 q8 prn severe pain and Dilaudid PCA 0.2 mg q 10 min
 - c. Left paravertebral block with Bupivacaine 0.1%/Fentanyl 2mcg at 7cc/hr, Oxycodone IR 30-40 q 3 hrs prn severe pain
 - d. Epidural of Bupivacaine solution
 - e. Both a and b
17. Fentanyl IV is preferred over Morphine IV for fast acting severe pain relief because it is:
- a. Long acting, lipophilic and is approximately 100 to 150 times more potent than MS IV.
 - b. Short acting, lipophilic and is approximately 100 to 150 times more potent than MS IV
 - c. Short acting, hydrophilic and is approximately 100 to 150 times more potent than MS IV
 - d. Long acting, lipophilic and is approximately 10 times stronger than MS IV
 - e. Short acting, lipophilic and is approximately 10 times stronger than MS IV
18. Mr. T. is a 38-year old admitted for DKA, today is hospital day #3. He has a hx of IDDM, has an insulin pump, anxiety and chronic back pain for which he takes Norco 7.5/325 2 tabs every 4 hours. His Cr today is slightly elevated from the normal range of 0.6-1.36 to 1.46. The on-call provider gave orders at 0030 for a Morphine Sulfate PCA at 1mg q 10 min. As the RN you go to clear the pump at the beginning of your shift and see he has 38/125 attempts. He is attempting to order pancakes with 3 tubs of syrup and he is not quite sure what year it is. He reports back pain at a level of 7/10, which is his usual home baseline pain level. He appears slightly different than when you first admitted him. You also have orders for Percocet 7.5/325 1-2 q4 hrs prn moderate pain, Dilaudid IV 0.25mg q 2 hrs prn severe pain. What would be the best medication for him at this time as he has a right to have his pain palliated.

- a. Stop the MS PCA, give Percocet 7.5/325 2 tabs now, continue to monitor the patient's condition and monitor urine output
 - b. Obtain orders for a Dilaudid PCA, notify the provider of patient condition and monitor urine output
 - c. Continue the MS PCA and continue to assess his urine output, notify the charge nurse of patient condition
 - d. Stop the MS PCA, notify the provider of patient condition, seek orders for a nerve catheter
 - e. Notify the provider, stop the MS PCA
 - f. Both b and d
19. A 55- year old patient has an adductor catheter nerve block of Bupivacaine 0.2% at 8cc/hr. She is s/p L TKA, POD #1. She is rating her pain at 6/10 at the anterior and posterior aspects of her left knee at 0800, she will be working with PT x 2 today. She has No Known Allergies, healthy, athletic and has taken Percocet before without any issues for a hysterectomy 15 years prior and is opioid naive. You have orders of Tylenol 650 PO q 6 hrs prn mild pain or fever, Ketorolac 15 mg IV q6 hrs prn pain, Tramadol 50-100mg po q6 hrs prn moderate pain, Norco 5/325 1-2 q 6 hrs prn severe pain and if ineffective give Percocet 5/325 1-2 q 6 hrs prn severe pain and Dilaudid IV 0.25 to 0.5mg q3 hrs prn severe pain. What should you do?
- a. Call the provider for Percocet 5/325 1-2 q4 prn moderate pain and increase the adductor nerve catheter to 14cc/hr
 - b. Increase the adductor nerve catheter to 10cc/hr, give Tylenol, Toradol IV and Tramadol 50mg now
 - c. Increase the adductor nerve catheter to 12cc/hr, give Tylenol PO, Toradol IV and Norco 5/325 2 tabs
 - d. Increase the adductor nerve catheter to 12cc/hr, give Dilaudid 0.5mg, ½ hour later give Percocet 5/325 2 tabs
 - e. Increase the adductor nerve catheter to 14cc/hr, give Tylenol PO, Toradol IV and Dilaudid IV 0.25mg now
20. Your patient is 90 years old, admitted for a right colectomy he is POD #4 and has a history of severe dementia. He is able to take PO and the provider has asked for him to be discharged to a rehab facility today. You notice he has facial grimacing and is agitated.

He was given Tramadol 100 mg 6 hours prior and the day RN did not report any unusual history, he is alert and oriented to self only. What next action would be the best?

- a. Obtain an order for Percocet, as the Tramadol was ineffective
- b. Give Tylenol 650 PO now and reevaluate
- c. Give another dose of Tramadol 100 mg now
- d. Give the ordered Dilaudid IV 0.5mg and reevaluate in 30 minutes
- e. Both b and c

Appendix G

Opioid Awareness Shaping Lives: One Mind, One Heart, One Pill at a Time-Didactic
Education

Developed by Tami King-Latka, DNP-c, AGACNP-BC

**OPIOID AWARENESS SHAPING LIVES:
ONE MIND, ONE HEART, ONE PILL AT A
TIME**

REFINING PAIN MANAGEMENT

By: TAMI KING-LATKA, DNP-c, AGACNP-BC
DNP STUDENT REGIS UNIVERSITY
OCTOBER 20, 2017



OBJECTIVES



1. Increase nursing staff opioid education and increase clinical skill competency
2. Standardize employee entrance and yearly competency pain management education
3. Refined anesthetic block techniques-180 degree culture change-opioids last choice
4. Reduction in Naloxone utilization

This study is originally intended as an Evidence-Based Practice (EBP) project/Quality Improvement (QI) Initiative Project; not meant to develop new knowledge or to be generalized outside of the agency.

ONE PILL MATTERS

CULTURE
CHANGE

GOAL
MINIMIZE OR NEGATE SEDATING DRUGS

WHO???
YOU...
BECAUSE WE NEED CHANGE FOR EVERYONE

HOW???
REFINED TREATMENT MODALITIES

WHEN???
YESTERDAY

WHO IS AFFECTED?



Neuraxial Block

E=Epidural

DELIVERY SYSTEMS

Regional Blocks

I= Interscalene

T=Transversus Abdominus Planus (TAP)

F= Femoral

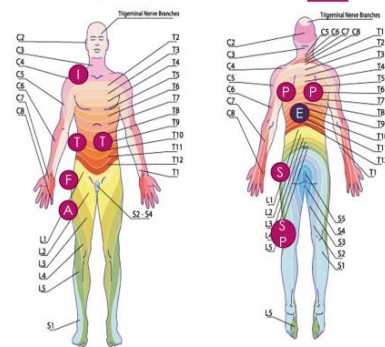
A=Adductor

P=Paravertebral

S=Sciatic

SP=Sciatic/Popliteal

DERMATOME CHART



Q&M Patient Dermotome chart (2017). Retrieved from: <http://E://Portofor%20dermatome%20chart%20-%20head%20-%20trunk%20-%20chart.html>

OPIOID EPIDEMIC

NATIONAL

- ▶ 1999-08 OD DEATH RATES
ALMOST QUADRUPLED 
- ▶ 2012 259 RX WRITTEN
- ▶ 2015 LEADING CAUSE OF US DEATH
 - ▶ 52,404 20,101 RX OPIOIDS
 - ▶ 12,990 HEROIN
- ▶ 4/5 HEROIN USERS BEGAN WITH
RX OPIOID

American Society of Addiction Medicine (2016). Opioid addiction 2016 facts and figures. Retrieved from: <https://www.asam.org/docs/default-source/addiction/opioid-addiction-disease-facts-figures.pdf>

COLORADO

- ▶ 2000-2015 10,552 OD DEATHS
- ▶ 2000 351
- ▶ 2015 880
- ▶ 2016 91 LIVES DAILY
- ▶ 2013-2014 4.9% 12 AND OLDER USED
RX PAIN RELIEVERS FOR
NON-MEDICAL PURPOSES

"NEURONAL DEVELOPMENT UNTIL AGE 25"

Rosenfield, A., Bell, K. & O'Connell, B. (2014). Examining Opioid and Heroin-Related Drug Overdose in Colorado. Retrieved from: <http://www.cdphs.state.co.us/Resources/pubs/Colorado-Opioid-and-Heroin-Overdose.pdf>

ASSESSING PAIN

- ▶ SUBJECTIVE
 - ▶ PMH-COMORBIDITIES, HOME MEDS, DAILY BASELINE PAIN LEVEL
- ▶ OBJECTIVE
 - ▶ ESTABLISH YOUR PERSONAL HEAD TO TOE ASSESSMENT (TRACE LINES)
- ▶ ASSESSMENT
 - ▶ ESTABLISHED PAIN GOALS PT AND CARE PROVIDER
 - ▶ WHAT CAN I DO?
 - ▶ WHAT SHOULD I DO?
- ▶ PLAN
 - ▶ LOW AND SLOW
- ▶ EVALUATE-?? RE-EVALUATE RE-ASSESS RE-EVALUATE RE-ASSESS.....

BASIC OPIOID TOOLS

COMMON ADJUNCT MEDICATIONS

- ▶ Tylenol
- ▶ ASA
- ▶ NSAIDS
- ▶ Anti-Convulsants
(NEURONTIN, LYRICA)

SHORT ACTING OPIOIDS

- ▶ Tramadol
- ▶ Hydrocodone
- ▶ Oxycodone
- ▶ Morphine
- ▶ Dilaudid
- ▶ Fentanyl 

LONG ACTING OPIOIDS

- ▶ MS Contin (CR, ER)
- ▶ Oxycontin (CR, ER)
- ▶ Fentanyl Patch
- ▶ Methadone

Opioid Equivalency table. Retrieved from: https://www.google.com/search?q=opioid+conversion+table&rlz=C1EKKP_enUS698Us698Btm-lch&imgl=EBeEqe-dQjC3MfWZS3Aqk2538Kx3886yV0XIMFv2538Htpz25253Aqk25252PZr25257w-wn.phinterest.com%25252Prpz2525256326421005591Y2P0G0R25252Source=&lpt=m&fr=EBeEqe-dQjC3MfWZS3Aqk25252C8kx3886yV0XIMFv2538_dwg_-OpJ7RhUdz_nTioMboocAjClc3D&bkw=I5222btm734Cvd=bnOhtURoZWSP_SLUAHUPCIYKHekdPWgvjjciOWseiv-vPaqqYZSB364fmAHtILbAQg#mgr=EBeEqe-dQjC3

REVERSAL AGENTS



OPIOIDS

- ▶ **NARCAN (NALOXONE)**
 - ▶ Routes
 - ▶ Dosing
 - ▶ Mix 0.4mg/ml with 9ml of NS = 10ml
 - ▶ 1ml = 0.04mg IV
 - ▶ IM, SC, = Give 1ml of **UNDILUTED**
 - ▶ **INTRANASAL** Use undiluted 1 mg each nostril
 - ▶ Narcan gtt?
- ▶ **BENZODIAZEPINES**
 - ▶ **ROMAZICON (FLUMAZENIL)**
 - ▶ Routes-IV
 - ▶ Dosing
 - ▶ 0.2 mg IV over 15-30 seconds; IF no response give 0.3mg over 1 minute

PAIN CHALLENGES

- ▶ SAFETY FIRST
 - ▶ ESTABLISH CURRENT PAIN LEVEL/HOME BASELINE PAIN LEVEL
 - ▶ RESOURCES
 - ▶ MANAGING PAIN
 - ▶ RESOURCES
- FIRST QUESTION ALWAYS WHAT CAN WE DO TO MANAGE PAIN WITHOUT OPIOIDS?**

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¹American Society of Addiction Medicine (2014). Opioid addiction 2014 facts and figures. Retrieved from: <https://www.asam.org/docs/default-source/advocacy/opioid-addiction-disease-facts-figures.pdf>

²Indiana Car Crashes Into House. (2017). Retrieved from: <http://www.foxnews.com/us/2017/08/19/qit-17-to-be-tried-as-adult-offer-crashing-car-into-house-while-high-on-opiates-killing-two-teen-girls-inside.htm>

³Indiana Car Crashes Into House (2017). Retrieved from: https://www.google.com/search?q=pictures+of+indiana+home+car+crash&tr=IC1CHZL_enUS754US756&tbm=isch&imgl=mclUP9t2BicDjcM%253A%2538yARM61608LIM%2538http%25253A%25252F%25252Fwww.theindychannel.com%25252Fnews%25252Flocal-news%25252Fmultiple-people-injured-after-vehicle-crashes-into-home-in-clinton-county&source=rl&ofm=&f=mclUP9t2BicDjcM%253A%25253A%2538yARM61608LIM%25252C_&usq=_yAJx0HPapePfu8dDlPelQoon_Q%3D&blw=1922&bh=97&ved=0ahUKEwIRK_WfndDWAxmhFQKHc1N8&eqjCjQ&ei=dkvRWZGAMQJ0glNm52Cg#imgrc=5wFb_6Xp0WbdM_13

⁴Katzman, J. G., Comer, G. D., Landen, M., Lofing, L., Jenik, S. M., Arora, S., & ... Geppert, C. A. (2014). Rules and values: a coordinated regulatory and educational approach to the public health crises of chronic pain and addiction. *American Journal of Public Health*, 104(8), 1356-1362. [doi:10.2105/AJPH.2014.301881](https://doi.org/10.2105/AJPH.2014.301881)

⁵Opioid Equianalgesic table. Retrieved from: https://www.google.com/search?q=opioid+conversion+table&tr=IC1EKKP_enUS698US698&tbm=isch&imgl=EEbeqE-dqjCSM%253A%2538yVokIm%2538http%25253A%25252F%25252Fwww.pinterest.com%25252Fpin%25252F536421005591929060%25252F&source=rl&ofm=&f=EEbeqE-dqjCSM%253A%25253A%2538yVokIm%25252C_&usq=_Opqj78nVQ-zn_TlaMbcACAJic%3D&blw=1522&bh=734&ved=0ahUKEwIu25WP_3LUANUPCYKHeKQb8wQyCjQw&ei=vPgqWZ3BC44mAH1blgAQ#imgrc=EEbeqE-dqjCS

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Rosenthal, A., Bol, K & Gabella, B. (2016). Examining opioid and heroin-related drug overdose in colorado. Retrieved from: <http://www.chd.dphe.state.co.us/Resources/pubs/Colorado-Opioid-and-Heroin-Overdose.pdf>

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Stempniak, M. (2016). The opioid epidemic. H&HN: Hospitals & Health Networks, 90(3), 22-28 6p

Appendix H

Opioid Awareness Capstone Scenario-History, Scenario #1, #2 and #3**Developed by Tami King-Latka, DNP-c, AGACNP-BC**

Patient: Mary Mae Penrose

Date of Birth: Oct. 1, 1978 Weight 120kg Ht-60"

MR # 987654321-0015

No Known Drug or Food Allergies

Location: 5th floor surgical

Diagnosis: MVC S/P Colectomy POD #1

PMH:

HTN

OSA no CPAP

Chronic back pain

Anxiety

DM

PSH:

Colectomy

Banding-GI Bleed 1 year prior due to ETOH abuse age 37

Hysterectomy age 35

Tonsillectomy age 5

FH: Adopted-Noncontributory**Social History:**

50 pk yr smoker 2ppd since age of 12, MMJ, ETOH abuse since age 17 to age 37, went to AA, sober until 2 weeks ago- has been drinking 1/5 vodka daily.

Attorney, married has 2 children.

Home meds: Oxycontin CR 20 q 12

Norco 5/325 2 tabs max 8 tabs per day on pain contract

Ativan 0.5 bid and can have 1 additional prn anxiety daily

Wellbutrin 300 mg po qd

HCTZ 25mg po qd

Atrovent inhaler 2puffs q4 prn wheezing.

Home baseline pain level: 6/10.

INITIAL SCENARIO SETTING

This 38-year old female was involved in a MVC 2 nights prior and sustained a perforated colon and crush injury to her left leg.

Diet: Advanced to clear liquid diet

VS

B/P 155/89 P 104 T 99.5 R 24 Pulse Ox 92% **Pain level:** 8/10 per pt report, she appears anxious and having pain, facial grimacing.

Orders available: Bupivacaine 0.2% TAP blocks bilaterally at 6cc/hr, 6cc-12cc/hr, Dilaudid IV 0.5-1.0mg q 1 hr prn severe pain, Dilaudid PCA 0.2 q 10 **PCA Utilization:** 18/100 attempts past 3 hours.

Tylenol 650 q6 prn mild pain or fever, Tramadol 50-100mg PO Q6 hrs prn mild pain if Tylenol is ineffective, Percocet 7.5/325 1-2 tabs PO q4 hrs prn severe pain.

LAB:

H/H 10.0/30.6 WBC 13,000 Pl 155,000 Na 138 K 4.0 BUN 45 Cr. 1.3

SCENARIO #1

She reports pain level 8/10, appears anxious, states her left abdomen is hurting more than her right mid abdomen, left leg pain is 7/10. Pt states she knows she has rights to have her pain taken care of after the surgeon, "Took out half of my guts!" She begins to beg you for pain relief and is crying hysterically. What medications would you give her at this time?

SCENARIO #2

WBC 14,000 H/H VS: 135/95 P 112 R 8 T 100.0 Pulse Oximetry 78% Urine output past 24 hours is 300

Pt now appears very lethargic, confused, yelling out she is severe pain in spite of medications you have given of Dilaudid 1mg IV x 3 doses, had Dil PCA at 0.2 q 10. You find the IV on the floor and she is bleeding at the IV site. What is your priority action?

SCENARIO #3

WBC 17,000 H/H 7.4/20.6 VS 105/40 P 107 R 24 T
100.0 Pulse Oximetry 90% 2L/NC

Urine output 60 past 2 hours Adductor catheter at 10cc/hr

Pt taken to the OR emergently last HS while you were off shift now has Left BKA with a LEFT adductor nerve and LEFT sciatic/polpliteal nerve catheter with orders of Bupivacaine 0.2% may titrate 6-8cc/hr. She reports pain level 5/10 and is adamant she is having severe pain on the anterior aspect of her right knee. What is your next action?

Appendix I

Opioid Awareness Simulation Observation Tool (OASOT)

Simulation Observation Tool developed by Tami King-Latka (6-2017)

| Behaviors Observed/ Domains | | #1 | #1 | Behaviors Observed/ Domains | #2 | #2 | Behaviors Observed/ Domains | #3 | #3 | Observer's Initials |
|---------------------------------|-------------------------------------|----------|--------------|--------------------------------|----------|--------------|--------------------------------|----------|--------------|------------------------|
| | | Observed | Not Observed | | Observed | Not Observed | | Observed | Not Observed | |
| Hand Hygiene | | | | Hand hygiene | | | Hand hygiene | | | |
| Identify patient- 2 identifiers | | | | | | | | | | |
| | Arm band | | | Arm band | | | Arm band | | | |
| | Ask patient's complete name | | | Ask patient's complete name | | | Ask patient's complete name | | | |
| Noticing | | | | Noticing | | | Noticing | | | |
| | TAP block left abdomen disconnected | | | Respirations | | | Add catheter | | | |
| | VS | | | VS | | | VS | | | |
| | Lab | | | Lab | | | Lab | | | |
| | | | | Lethargy/ Confusion | | | H/H | | | |
| | | | | Urine output | | | Urine output | | | |
| | | | | IV | | | Psychological | | | |
| | Pain Level | | | Pain Level | | | Pain Level | | | |
| | O2 | | | O2 | | | O2 | | | |

Opioid Awareness Simulation Observation Tool (OASOT)

| Interpreting | | | Interpreting | | Interpreting | | |
|--------------|------------------------|--|------------------------|--|---------------------------------------|--|--|
| | Anxiety vs. pain | | Respirations | | Need to change pain infusion settings | | |
| | VS | | VS | | VS | | |
| | Lab | | Lab | | Lab | | |
| | | | Lethargy/confusion | | Urine | | |
| | | | IV | | Psychological | | |
| | Pain Level | | Pain Level | | Pain Level | | |
| Responding | | | Responding | | Responding | | |
| | Verbal reassurance | | Verbal | | Verbal | | |
| | Non-verbal | | Non-verbal | | Non-Verbal | | |
| | VS | | VS | | VS | | |
| | Lab | | Lab | | Lab | | |
| | Pain Level | | Pain Level | | Pain Level | | |
| Action | | | Action | | Action | | |
| | Reconnect TAP block | | Assess TAP blocks/leg | | Assess adductor catheter | | |
| | Alternative techniques | | Alternative techniques | | Alternative techniques | | |
| | Medications | | Medications | | Medications | | |
| | VS | | VS | | VS | | |
| | Lab | | Lab | | Lab | | |
| | Call for orders | | Call for orders | | Call for orders | | |
| | Pain Level | | Pain Level | | Pain Level | | |
| | O2 | | O2 | | O2 | | |

Appendix J

Opioid Awareness Project Evaluation Form

Anonymous Four-Question Opioid Awareness Shaping Lives: One Mind, One Heart, One Pill at
a Time Project Evaluation Form

By Tami King-Latka, DNP-c, AGACNP-BC

Please provide any added feedback if you feel goals were or were not met.

1. Increase nursing staff opioid education and increase clinical skill competency. Yes____
No____
2. Standardized employee entrance and yearly competency pain management education.
Yes____ No____
3. Refined anesthetic block techniques-180-degree culture change-opioids last choice.
Yes____ No____
4. Reduction in Naloxone utilization needs. Yes____ No____
5. Other feedback/Reflection/Debriefing Comments:

Narcan Data Evaluation Tool (NDET)

[illegible]

Appendix L
Regis University IRB Approval Letter

REGIS UNIVERSITY

REGIS.EDU

Institutional Review Board

DATE: September 23, 2017
TO: Tami King-Lethin, DNP-c
FROM: Regis University Human Subjects IRB
PROJECT TITLE: [1097001-1] Opioid Awareness Shaping Lives: One Mind, One Heart, One
Pill at a Time
SUBMISSION TYPE: New Project
ACTION: DETERMINATION OF EXEMPT STATUS
DECISION DATE: September 23, 2017
REVIEW CATEGORY: Exemption category # (2,4)
Thank you for your submission of New Project materials for this project. The Regis University Human
Subjects IRB has determined this project is EXEMPT FROM IRB REVIEW according to federal
regulations 45 CFR 46.101 (b).

We will retain a copy of this correspondence within our records.

If you have any questions, please contact the Institutional Review Board at irb@regis.edu. Please
include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Regis
University Human Subjects IRB's records.

REGIS UNIVERSITY IRB APPROVAL LETTER

Appendix M

Catholic Health Initiatives IRB (CHIRB) Approval Letter

| | |
|---|--|
|  | IRB Number: IRB00000014 CHIRP #IS Number: 1800000712 |
| DATE: | August 22, 2017 |
| TO: | Tami King-Latta, DNP-c |
| PROJECT TITLE: | [202659-2] Opioid Awareness Shaping Lives: One Mind, One Heart, One Place a Time |
| SUBMISSION TYPE: | New Project |
| ACTION: | APPROVED |
| APPROVAL DATE: | August 16, 2017 |
| EFFECTIVE DATE: | August 16, 2017 |
| EXPIRATION DATE: | August 15, 2018 |
| REVIEW TYPE: | Expedited Review |
| REVIEW CATEGORY: | Expedited review category # 5 and 7 |

Thank you for your submission to the Catholic Health Initiatives Institute for Research and Innovation Institutional Review Board (CHIRB). The CHIRB has APPROVED your submission. All research must be conducted in accordance with this approved submission. The following documents have been approved or noted as part of this approval:

- Advertisement - NURSING STAFF RESEARCH VOLUNTEERS NEEDED 8-5-17(2).docx (UPDATED: 08/14/2017)
- CHI - Research Application - CHI - Research Application (UPDATED: 08/14/2017)
- Consent Waiver - Waiver or Alteration of Authorization Request Form v-05 JUN 2015.docx (UPDATED: 08/9/2017)
- Data Collection - NR 7008 NARCAN DATA TABLE 7-8-17.xlsx (UPDATED: 08/17/2017)
- Letter - CHIRB LOI 08more 8-21-17.pdf (UPDATED: 08/14/2017)
- Letter - CHIRB LOI 1 Crislarin 8-2-17.pdf (UPDATED: 08/17/2017)
- Protocol - Human Subjects Research Protocol Template7-30-17.doc (UPDATED: 08/14/2017)
- Questionnaire/Survey - Survey Monkey Link to Opioid Awareness Shaping Lives.docx (UPDATED: 08/14/2017)
- Questionnaire/Survey - NR 7062_WK2_KingLta Opioid PreAssent 8-22-17.docx (UPDATED: 08/14/2017)
- Other - CHIRB 202 Internet Form
- Other - Capstone PowerPoint
- Stamped Document - ***APPROVED FOR USE - Revised Information Sheet/Consent Form
- Other - Revised Information Sheet/Consent Form
- Other - Capstone Scenario
- Other - Letters of Intent

- 1 -

Generated on 08/22/17

This study meets the criteria for a waiver of consent for medical record review and a waiver of documented consent for enrolling nurse participants according to federal regulations pertaining to human subject research.

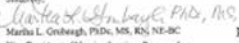
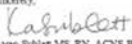
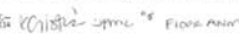

Informed consent is a process that must continue throughout the duration of the study via a dialogue between the researcher and the research participant. Federal regulations require that informed consent be documented by the

CATHOLIC HEALTH INITIATIVES IRB (CHIRB) APPROVAL LETTER

Appendix N

Agency Letters of Support

LETTERS OF SUPPORT

| Letter of Agreement May 30, 2017 | Letter of Agreement 6-7-17 |
|---|--|
| <p>To Regis University Institutional Review Board (IRB):</p> <p>I am familiar with Tami King-Laska's research project entitled Opioid Knowledge Research Project. I understand Centura Health's involvement to be that of allowing employees to participate in the pre-post testing, didactic, simulation and debriefing project study. The employees will be asked to complete a survey in Survey Monkey prior to the didactic and simulation session, followed by a post-testing and debriefing. A 30 and 90-day posttest survey will also be distributed to participants to delineate project knowledge sustainability. Naloxone data and chart review 30 days pre-post intervention, will also be conducted to analyze Naloxone utilization. Participants will include 5th and 6th floor medical surgical nursing staff who have been employed for three or more months, with possible extension to ASCENT nursing staff participants.</p> <p>I understand that this research will be carried out following sound ethical principles and that participant involvement in this research project is strictly voluntary and provides confidentiality of research data, as described in the proposal.</p> <p>Therefore, as a representative of Centura Health, Penrose St. Francis, I agree that Tami King-Laska's research project may be conducted at our agency/institution.</p> <p>Sincerely,  Martha L. Ombough, PhD, MS, RN, NE-BC Vice President of Nursing Services Penrose-St. Francis Health Services St. Francis Medical Center Office: 719-571-2122 Fax: 719-571-2113 6001 East Woodman Rd. Colorado Springs, Colorado 80923 martha.ombough@centura.org </p> | <p>To Regis University Institutional Review Board (IRB):</p> <p>I am familiar with Tami King-Laska's research project entitled Opioid Knowledge Research Project. I understand Centura Health's involvement to be that of allowing employees to participate in the pre-post testing, didactic, simulation and debriefing project study. The employees will be asked to complete a survey in Survey Monkey prior to the didactic and simulation session, followed by a post-testing and debriefing. A 30 and 90-day posttest survey will also be distributed to participants to delineate project knowledge sustainability. Naloxone data and chart review 30 days pre-post intervention, will also be conducted to analyze Naloxone utilization. Participants will include 5th and 6th floor medical surgical nursing staff, who have been employed for three or more months, with possible extension to ASCENT nursing staff participants.</p> <p>I understand that this research will be carried out following sound ethical principles and that participant involvement in this research project is strictly voluntary and provides confidentiality of research data, as described in the proposal.</p> <p>Therefore, as a representative of Centura Health, Penrose St. Francis, I agree that Tami King-Laska's research project may be conducted at our agency/institution.</p> <p>Sincerely,  Karen Schubert MS, RN, ACNS-BC, AOCNS, OCN Penrose St. Francis Health Services EBP Research Council Chair karschubert@centura.org </p> |
| Instructions: (Select one) | |
| AGENCY LETTERS OF SUPPORT TO COMPLETE OPIOID AWARENESS PROJECT | |
| <h1 style="margin: 0;">LETTERS OF SUPPORT</h1> | |
| <p>St. Francis Medical Center</p> <p>Centura Health</p> <p>Letter of Agreement 8-2-</p> <p>17</p> <p>To Regis University Institutional Review Board (IRB) and Catholic Health Initiatives (CHI):</p> <p>I am familiar with Tami King-Laska's research project entitled Opioid Knowledge Research Project. I understand Centura Health's involvement to be that of allowing employees to participate in the pre-post testing, didactic, simulation and debriefing project study. The employees will be asked to complete a survey in Survey Monkey prior to the didactic and simulation session, followed by a post-testing and debriefing. A 30 and 90-day posttest survey will also be distributed to participants to delineate project knowledge sustainability. Naloxone data and chart review 30 days pre-post intervention, will also be conducted to analyze Naloxone utilization. Participants will include 5th and 6th floor medical surgical nursing staff, who have been employed for three or more months, with possible extension to ASCENT nursing staff participants.</p> <p>I understand that this research will be carried out following sound ethical principles and that participant involvement in this research project is strictly voluntary and provides confidentiality of research data, as described in the proposal.</p> <p>Therefore, as a representative of Centura Health, Penrose St. Francis, I agree that Tami King-Laska's research project may be conducted at our agency/institution.</p> <p>Sincerely,  Fiona Annin </p> <p>Instructions: (Select one)</p> <p>* Fax with original signature to (303) 964-5528</p> <p>* Email as pdf file with original signature to irb@regis.edu from an official agency email address.</p> <p>* Adobe electronic signature to irb@regis.edu</p> <p>For Regis University sponsored research in cooperation with other organizations or agencies</p> <p>* A Letter of agreement from each organization or agency cooperating in Regis University sponsored research is necessary to ensure that relevant information</p> | <p>St. Francis Medical Center</p> <p>Centura Health</p> <p>Letter of Agreement 10-9-</p> <p>17</p> <p>To Regis University Institutional Review Board (IRB) and Catholic Health Initiatives (CHI):</p> <p>I am familiar with Tami King-Laska's research project entitled Opioid Knowledge Research Project. I understand Centura Health's involvement to be that of allowing employees to participate in the pre-post testing, didactic, simulation and debriefing project study. The employees will be asked to complete a survey in Survey Monkey prior to the didactic and simulation session, followed by a post-testing and debriefing. A 30 and 90-day posttest survey will also be distributed to participants to delineate project knowledge sustainability. Naloxone data and chart review 30 days pre-post intervention, will also be conducted to analyze Naloxone utilization. Participants will include 5th and 6th floor medical surgical nursing staff, who have been employed for three or more months, with possible extension to ASCENT nursing staff participants.</p> <p>I understand that this research will be carried out following sound ethical principles and that participant involvement in this research project is strictly voluntary and provides confidentiality of research data, as described in the proposal.</p> <p>Therefore, as a representative of Centura Health, Penrose St. Francis, I agree that Tami King-Laska's research project may be conducted at our agency/institution.</p> <p>Sincerely,  Duane Roggenbach </p> <p>Instructions: (Select one)</p> |
| AGENCY LETTERS OF SUPPORT TO COMPLETE OPIOID AWARENESS PROJECT | |

LETTERS OF SUPPORT

- * Fax with original signature to (303) 964-5328
- * Email as pdf file with original signature to info@regis.edu from an official agency email address.
Adobe electronic signature to irb@regis.edu

AGENCY LETTERS OF SUPPORT TO COMPLETE OPIOID AWARENESS PROJECT

Appendix O

CITI Training Certificates

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

COMPLETION REPORT - PART 1 OF 2 COURSEWORK REQUIREMENTS*

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

- **Name:** Tami King-Latka (ID: 6121140)
- **Institution Affiliation:** Regis University (ID: 745)
- **Institution Email:** tkinglatka@regis.edu
- **Institution Unit:** Nursing
- **Phone:** 719-338-6931

- **Curriculum Group:** Human Research
- **Course Learner Group:** Social Behavioral Research Investigators and Key Personnel
- **Stage:** Stage 1 - Basic Course

- **Record ID:** 22159965
- **Completion Date:** 16-Feb-2017
- **Expiration Date:** 16-Feb-2020
- **Minimum Passing:** 80
- **Reported Score*:** 89

| REQUIRED AND ELECTIVE MODULES ONLY | DATE COMPLETED | SCORE |
|--|----------------|------------|
| Belmont Report and CITI Course Introduction (ID: 1127) | 15-Feb-2017 | 3/3 (100%) |
| History and Ethical Principles - SBE (ID: 490) | 16-Feb-2017 | 4/5 (80%) |
| The Federal Regulations - SBE (ID: 502) | 16-Feb-2017 | 4/5 (80%) |
| Assessing Risk - SBE (ID: 503) | 16-Feb-2017 | 5/5 (100%) |
| Informed Consent - SBE (ID: 504) | 16-Feb-2017 | 4/5 (80%) |
| Privacy and Confidentiality - SBE (ID: 505) | 16-Feb-2017 | 5/5 (100%) |

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

Verify at: www.citiprogram.org/verify/?k61617625-1f6a-445a-a3b9-26110a53a470-22159965

Collaborative Institutional Training Initiative (CITI Program)

Email: support@citiprogram.org

Phone: 888-529-5929

Web: <https://www.citiprogram.org>

CITI Training Certificates

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

COMPLETION REPORT - PART 2 OF 2
COURSEWORK TRANSCRIPT**

** NOTE: Scores on this Transcript Report reflect the most current quiz completions, including quizzes on optional (supplemental) elements of the course. See list below for details. See separate Requirements Report for the reported scores at the time all requirements for the course were met.

- **Name:** Tami King-Latka (ID: 6121140)
- **Institution Affiliation:** Regis University (ID: 745)
- **Institution Email:** tkinglatka@regis.edu
- **Institution Unit:** Nursing
- **Phone:** 719-338-6931
- **Curriculum Group:** Human Research
- **Course Learner Group:** Social Behavioral Research Investigators and Key Personnel
- **Stage:** Stage 1 - Basic Course
- **Record ID:** 22159965
- **Report Date:** 16-Feb-2017
- **Current Score**:** 89

| REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES | MOST RECENT | SCORE |
|--|-------------|------------|
| History and Ethical Principles - SBE (ID: 490) | 16-Feb-2017 | 4/5 (80%) |
| Belmont Report and CITI Course Introduction (ID: 1127) | 15-Feb-2017 | 3/3 (100%) |
| The Federal Regulations - SBE (ID: 502) | 16-Feb-2017 | 4/5 (80%) |
| Assessing Risk - SBE (ID: 503) | 16-Feb-2017 | 5/5 (100%) |
| Informed Consent - SBE (ID: 504) | 16-Feb-2017 | 4/5 (80%) |
| Privacy and Confidentiality - SBE (ID: 505) | 16-Feb-2017 | 5/5 (100%) |

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

Verify at: www.citiprogram.org/verify/?k61617625-1f6a-445a-a3b9-26110a53a470-22159965

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Appendix P

Opioid Awareness Recruitment Flyer

NURSING STAFF RESEARCH VOLUNTEERS NEEDED


LEARN MORE AND SHARE OPIOID KNOWLEDGE

In 2015, more than 15,000 people died from overdoses involving prescription opioids.

Among those who died from prescription opioid overdose between 1999 and 2014:

Overdose rates were highest among people aged 25 to 54 years.

Unintentional drug overdose deaths, United States, 2002-2015

WHO: Nursing Staff employed at SFMC on 5th or 6th floors for longer than 3 months or ASCENT staff are eligible.

WHAT: A research study on opioid education, recent anesthetic techniques-blocks, pain assessments, pain challenges and basic opioid medications.

WHERE: St. Francis Medical Center, ASCENT-Penrose Hospital

DATE: TBD **TIME:** Approximately 1 ½ to 2 hrs.

This study involves a pre-test survey, attending a 30-minute educational session, a 15-minute group simulation experience (6 in a group) with role and observation rotations, immediate post-testing and debriefing. A 30-day post intervention test will also be required. All surveys will be anonymous through Survey Monkey. Signed participation Information/Consent Forms will be required. Attendance time will be paid and yearly required pain education credits (2) will be given after completion of intervention, post-test and 30-day post-test.

Appendix Q

Information Sheet Participant Recruitment Consent**Information Sheet/Recruitment Script
Verbal Consent for Participation in a Research Study**

Study Title: Opioid Awareness Shaping Lives: One Mind, One Heart, One Pill at a Time
Principal Investigator: Tami King-Latka, DNP-c, AGACNP-BC, MSN
CHIRB Study #: 1092659-1
Version Date: 7-10-17

You are being asked to be in this research study because there is a need to increase awareness and education to nursing staff of opioids utilized in the inpatient hospital setting. Education regarding medication administration and refined palliative anesthetic techniques will enhance nursing care also influencing education being provided to patients and caregivers.

If you join the study, you will be fully informed to the best of the Principal Investigator's ability, of the expected study tasks and participation. You will be asked to take a pre-test via Survey Monkey, convene for a 30-minute didactic education session, participate in a 6-person group simulation exercise lasting for 15 minutes, take an immediate post-test and participate in a debriefing. There will also be a required 30-day test to be taken via Survey Monkey.

This study is designed to learn more about Opioid Awareness, Education, pain assessment skills and refined palliative anesthetic techniques.

Possible discomforts or risks include *test taking anxiety, participating in a group simulation activity with nursing staff colleagues*. There may be risks the researchers have not thought of.

Every effort will be made to protect your privacy and confidentiality by coding data and research abiding by CHI and Regis University IRB regulations.

[This research is being paid for by current clinical floors you are employed upon (Penrose-St. Francis Healthcare System).

Participation in this study is completely voluntary. You do not have to be in this study if you do not want to be. Refusing to participate will involve no penalty or loss of benefits to which you are otherwise entitled such as employability or health care benefits.

If you have questions, you can call Tami King-Latka, DNP-c, at 719-338-6931. You can call and ask questions at any time.

You may have questions about your rights as someone in this study. If you have questions, you can call the Catholic Health Initiatives Institute for Research and Innovation Institutional Review Board (CHIRB) at the following toll-free number: 1-888-626-2299 or by email: CHIRB@CatholicHealth.Net.