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An Educational Program for Standardization of Care for the Acute Opioid Withdrawal

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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Abstract

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MS, Walden University, 2008

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Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

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Abstract

Opioid addiction is a widespread chronic disease affecting millions of Americans each year, resulting in medical, social, financial, and societal detriments. Patients experiencing opioid withdrawal benefit from a standardized and evidence-based approach to care. The purpose of this doctoral nursing project was to provide inpatient nursing education for a standardized clinical practice approach to optimize patient outcomes. The research question examined the impact of an educational program for nurses presenting a new standardized opioid withdrawal clinical practice guideline inclusive of assessment, nursing interventions, a symptom triggered order set, and follow up plan of care in terms of knowledge gained and optimization of care. Symptom triggered management is supported by Ida Jean Orlando's nursing theory which involves nurse responses to patient behavior and resulting interventions to relieve distress. Staff education was conducted using the analysis, design, development, implementation, evaluation model of professional development. Anonymous pre- and post-assessment surveys (n=16) were conducted with participant consent. The subjective assessment results, analyzed using statistical software, indicated the education program increased participant knowledge and confidence regarding this topic. Objective result assessed through post education examination of knowledge indicated a need for additional and ongoing education on this topic. Social change implications of this study will be achieved through application of evidence-based practice into bedside nursing care, resulting in nurses' improved ability to relate to patients, provide optimal evidence-based care, and improve patient outcomes.

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Dedication

This doctoral project is dedicated to my family who have been extremely supportive and patient throughout this academic journey. They have endured late dinners, missed dates, and extended time at the computer along my side. It is also dedicated to the nurses and patients who have and will benefit from the products created throughout the process.

Acknowledgments

Thank you to Dr. Lilo Fink, my DNP project chair and mentor, who provided the right amount of motivation at the right times to keep me on track and to keep my goals in perspective. Her knowledge and experience were a great match to supplement my areas of growth opportunity. I am grateful for Dr. Robert McWhirt, my DNP second committee member who was engaged in the review process and provided valuable input, recommendations, and encouragement. I would also like to thank Dr. Sharp, my assigned University Research Reviewer for his time and dedication to the process.

I thank my lifelong partner, Adam, and my sweet boys, Jayce and Jaxyn for their patience and support. This has been a long journey for all of us, but one that has allowed me to be a strong role model for my children as they grow. And, to my site preceptors, Cheryl Rife, Megan Christensen, and Doreen Timm for taking the time to help me grow personally and professionally. I truly enjoyed my time with each of them and appreciated their knowledge, experiences, and challenges to work beyond the typical comfort zone attraction.

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Section 1: Nature of the Project

Introduction

Natural and synthetic opioids reduce pain by blocking nerve cell receptors and cause central nervous system depression symptoms such as drowsiness, confusion, euphoria, nausea or vomiting, constipation and respiratory depression (American Psychiatric Association [APA], 2018). Opioid use disorder (OUD) involves compulsive use of opioids (heroin, oxycodone, fentanyl, methadone, hydrocodone, codeine, morphine) regardless of negative impacts suffered in regards to health, relationships, and finances (Moore, 2020; National Institutes of Health [NIH], 2020a). OUD is diagnosed when patients experience a combination of taking doses for a period that is greater or longer than prescribed, inability to wean or control use, spending extended time seeking opioids or recovering from them, craving and using opioids regardless of outcomes, lack of interest in activities, increased tolerance, and/or experiences withdrawal symptoms upon cessation (APA, 2018).

The 2019 National Survey on Drug Use and Health identified 19.3 million American adults diagnosed with substance use disorders; almost half of them were challenged with the use of illicit drugs alone or in combination with alcohol (Substance Abuse and Mental Health Services Administration [SAMHSA], 2020). OUD can lead to lost work time, relationship stress, frequent healthcare use and costs, and impaired functioning and ability to care for oneself or dependents. With more than 40,000 opioid related deaths annually, the Centers for Disease Control and Prevention (CDC) is

committed to fighting this epidemic through multiple initiatives including improved access to care for those seeking substance abuse treatment.

Withdrawal from opioids is often managed on an outpatient basis, but there are times when an inpatient hospitalization is required. Withdrawal may occur as a primary or secondary diagnosis. In either situation, it is essential that the nursing care team is able to identify opioid use and effectively manage withdrawal for optimal patient outcomes. Standardization in care can lead to better recognition of substance use disorders and improved management of withdrawal symptoms (Koch et al., 2017). At the site organization, a gap existed in terms of lack of resources for the nursing team providing care for patients experiencing withdrawal.

The purpose of this project was to positively influence social change through educating nursing staff regarding how to optimize care for opioid withdrawal patients using a standardized clinical practice guideline that is inclusive of assessment, nursing interventions, a symptom triggered order set, and a follow up plan of care. Pre- and post-education assessments were administered to determine the impact of education in terms of nursing support and improving patient outcomes.

Problem Statement

In the state of Illinois, the 2018 rate was 20.7 opioid related deaths per 100,000 persons, which is higher than the national average (NIH, 2020b). An increase in deaths was seen with the reported use of fentanyl, heroin, and prescription opioids (NIH, 2020b). State efforts at prevention have included implementation of opioid prescribing guidelines, naloxone prescriptions, and substance abuse screening (Illinois Department of

Human Services [IDHS], 2017). Past training and education have focused on providers, pharmacies, and patients. Nurses caring for these patients need to understand the disease process and management in order to assist patients through successful withdrawal and recovery processes.

Interventions to decrease risk exposure and prevent complications involving substance use disorder have been successful in terms of reduction but not elimination of prevalence. Even with treatment, relapse rates can be as high as 77% for short stay inpatient treatment (Nunes et al., 2018). Inpatient treatment programs in northwest rural Illinois are very limited. Illinois has recognized the need to release funds in support of increased opioid abuse treatment access to reduce unmet treatment needs and opioid overdose deaths (IDHS, 2017). The intent is to meet these goals through an increase in availability of medication-assisted treatment programs, recovery support services, overdose prevention programs such as naloxone, and improving prescription drug monitoring (IDHS, 2017).

In this site hospital, no current standardized nursing or medical plan of care existed for care of patients presenting with acute opioid withdrawal. Patients with substance use disorders are some of the most frequent users of healthcare and are associated with higher costs of healthcare and high readmission rates (Donroe et al., 2016). Even with this expense, addiction or withdrawal interventions are widely underused (Donroe et al., 2016). Nurses at this organization have requested additional education regarding care of substance abuse patients through their learning needs assessments and shared governance councils. A standardized treatment plan that is

inclusive of nursing assessment, interventions, and follow up care can help reduce disparities caused by OUD. Structured symptom-triggered protocols linked to formal assessments have been found to not only improve the quality of patient care but also decrease the length of detoxification treatments (Koch et al., 2018).

Providing nurses with the knowledge, skills, and tools to approach care in a standardized evidence-based manner empowers them to optimize care and influence patient outcomes in a positive manner. This standardized approach to care has been applied through clinical practice guidelines successfully for other disease processes such as chronic obstructive pulmonary disease, stroke, and congestive heart failure. Dissemination of project results allows for other healthcare organizations to implement similar programs to further develop nurses professionally.

Purpose Statement

The gap in practice at the site organization was lack of education and standardization of care for patients experiencing opioid withdrawal. Opportunities existed in terms of consistency in assessment and care for this patient population. This problem is not unique to this one organization; successful implementation and dissemination can influence care for the identified patient population at the macro level. Through education regarding the use of standardized clinical practice guidelines, care for opioid withdrawal can shift from sporadic and subjective to objective and evidence-based practice.

The guiding practice-focused question for this project was: Does educating nursing staff on a new standardized opioid withdrawal clinical practice guideline that is inclusive of assessment, nursing interventions, a symptom triggered order set, and follow

up plan of care improve knowledge needed to optimize care provided for opioid withdrawal patients as compared to non-standardized treatment options during a training period of 6 weeks?

Standardized clinical practice guidelines in terms of managing opioid withdrawal patients improves quality of care, reduces the length of time needed for withdrawal, and has the potential to increase participation in outpatient treatment programs, leading to long-term sobriety (Koch et al., 2017). A strong nursing knowledge of how to care for this patient population is also necessary to obtain positive outcomes (Moore, 2020). This project aimed to overcome the gap within this organization while disseminating results to aid other organizations to do the same.

Nature of the Doctoral Project

A comprehensive literature review involved search terms related to opioid withdrawal in rural inpatient settings, standardized treatment options, and nursing education for care of this patient population. I used the following databases: Cumulated Index to Nursing and Allied Health Literature (CINAHL), Google Scholar, PubMed, and ProQuest through the Walden University Library. Additional sources of evidence included credible and established organizations such as the CDC, NIH, National Institute on Drug Abuse [NIDA], and SAMHSA. A literature review matrix (see Appendix A) was used to organize and analyze selected articles by theoretical or conceptual framework, research question or hypothesis, methodology, analysis and results, conclusions, implications for future research, and implications for practice.

The Walden University Manual for Staff Education provided guidance for following each step of program development, including planning, implementation, and evaluation. The Analyze, Design, Develop, Implement, and Evaluate (ADDIE) model was used to design educational activities. The planning phase involved determining needs and criteria for the education program. This was done through personal communications with the site administration and nursing professional development department. Content experts were identified based on their knowledge and experience of opioid withdrawal management and conduction of staff education. Measurable educational learning objectives are included in the planning phase of the ADDIE model. The main objectives were that participants would be able to discuss the importance of standardized care in terms of optimizing patient outcomes, demonstrate competency when using a standardized withdrawal assessment scale, provide instructions regarding discharge planning and follow up plan of care, and apply the new opioid withdrawal order set to patient care in collaboration with the nursing plan of care. The education was delivered via the organization's computer learning software module. Ethical approval by the Walden University Institutional Review Board (IRB) was addressed during this planning phase and obtained in May 2021.

The implementation phase included delivery of education after key stakeholders, hospital leadership, and identified content experts had the opportunity to provide feedback and approve the final education program. Participants included all inpatient staff nurses and nursing supervisors. I evaluated learner participation via pre- and post-test evaluations (see Appendix B) of education intent based on identified learning

objectives. Results were used to determine the effectiveness of the program in alignment with the practice-focused question. Post-evaluation, results were disseminated to key stakeholders and nursing leadership via presentation at Nurse Executive Board meetings, Clinical Quality Council and Professional Practice Council meetings, and the site organization's electronic nursing newsletter.

Significance

Stakeholders include anyone involved with or affected by the project implementation or outcomes (White et al., 2016). Stakeholders for this project included patients, employees from the professional development department, the clinical quality department, nurses and nursing leadership in the inpatient setting, and the emergency department. Another key stakeholder from a medical staff perspective was the physician champion for development and implementation of a standardized order set. In developing nursing education to guide care for a specific patient population, it was important to ensure alignment with organizational goals, follow quality and risk regulatory guidelines, ensure the ability of nursing departments to provide these services, and include appropriate support areas to assist in registration and evaluation of the program.

Projected contributions of this doctoral project to nursing practice at the site organization include an enhanced ability to provide care for patients experiencing opioid withdrawal, leading to improved patient outcomes and further institutional financial sustainability. This project included the ability to indirectly and positively enhance care of alcohol withdrawal patients as well with the inclusion of a systematic and consistent

application of symptom-triggered management. Upon successful completion and dissemination, this project is repeatable in any organization caring for patients with OUD.

Walden University (2014) described social change as "involvement in activities that improve the lives of individuals and communities locally and around the world" (p. 1). This evidence-based educational project supported social change through application of evidence-based practice into bedside nursing care. Through an improved understanding of the disease process and management, nurses were better able to relate to patients and impact patient outcomes in a positive manner. This education promoted a change from a randomized practice of patient care management to structured consistency that is inclusive of best practices. It also equipped nurses with appropriate tools to meet patient needs.

Summary

The focus of Section 1 was to introduce the educational doctoral project as well as the problem statement, purpose, nature of the project, and its significance or impact. OUD is a long-standing chronic issue with many physical, social, and financial consequences. Although preventative efforts to reduce substance use disorders have been made, individuals still require treatment for opioid withdrawal. Most often, this type of treatment can be completed in outpatient settings. However, in acute care settings, recovery from a primary acute diagnosis can be severely complicated by adjunct symptoms of opioid withdrawal. Effective treatment is enhanced with a standardized and structured approach to care; education for nurses on how to implement this standardized

plan is essential. Section 2 will include information about the background and context in more details. Included is a review of Ida Jean Orlando's nursing theory, further detail regarding use of the ADDIE professional development model, explanation of this project's relevance to nursing practice, exploration of the context of OUD and treatment, and explanation of the role of doctoral nursing students in this specific project.

Section 2: Background and Context

Introduction

The practice problem identified in this DNP project was the gap in practice for standardized care for patients experiencing opioid withdrawal. This evidence-based DNP project focused on enhancing nurses' knowledge in order to successfully apply standardized care guidelines to improve patient outcomes. The practice-focused question was: Does educating nursing staff regarding a new standardized opioid withdrawal clinical practice guideline that is inclusive of assessment, nursing interventions, a symptom triggered order set, and follow up plan of care improve knowledge needed to optimize care provided for opioid withdrawal patients as compared to non-standardized treatment options during a training period of 6 weeks? This section will introduce identified models and theories, further explore the relevance of this project to nursing practice, provide more extensive local background information and context, and describe the role of the doctoral nursing practice student in this project.

Concepts, Models, and Theories

Ida Jean Orlando's Deliberative Nursing Process Theory involves three main concepts: The patient's behavior, the nurse's reaction to the behavior, and interventions by the nurse to alleviate distress (Petiprin, 2016). This cycle continues until the patient's needs are met and no patient behaviors exist. This is important in terms of identifying patients who may be at risk of withdrawal due to a secondary diagnosis of OUD presenting with another primary concern. The key to optimal patient outcomes is to collaboratively develop a plan of care that meets patient needs in order for positive

outcomes to be achieved. Through identification of expected patient withdrawal symptoms and behaviors, nurses can be prepared regarding how to react and intervene to advocate for positive patient outcomes.

Procedural steps for project completion followed the Walden University Manual for Staff Education. The planning phase includes researching literature, developing learning objectives, developing the educational program plan guided by chosen instructional methods and theoretical frameworks, and seeking IRB approval (Walden University, 2019). The implementation phase includes final approval from the host site for education, final development and revisions to education using evidence-based references, development of questionnaires, and recruitment of staff to attend educational sessions (Walden University, 2019). Finally, the evaluation phase includes a participant impact evaluation addressing learning objective attainment, analysis of results, and communication of results to the host site leadership along with any further recommendations, followed by completion of the final doctoral project (Walden University, 2019).

The ADDIE model of professional development involves the steps of analysis, design, development, implementation, and evaluation (Jeffrey et al., 2015). This model originated with the U.S. Army in the early 1950s and took on a more formalized structure in 1975. During initial analysis, key stakeholders are identified and engaged during the process to develop goals and develop education plans (Jeffrey et al., 2015; Kurt, 2018). This phase also includes the review of literature and professional references in preparation for next steps. The design and development phases involve identification of

theories and models to support identified learning needs (Jeffrey et al., 2015). This is when goals are further defined, evaluation measurements are considered, and education is developed (Kurt, 2018). Implementation includes completing modifications to programs to ensure optimal outcomes and results are achieved (Kurt, 2018). Opportunities to optimize these modifications include content expert involvement and use of the shared governance structure for feedback. It is during this time when final decisions are made about who will be receiving information, when they will be receiving, and mode of delivery (Jeffrey et al., 2015). The final step includes evaluation of not only learners' growth, but also the education program itself (Jeffrey et al., 2015).

Relevance to Nursing Practice

Since 2008, opioid overdose deaths have quadrupled and patients admitted for substance abuse treatment have grown sixfold supporting the need to better manage withdrawal (Canamo & Tronco, 2019). Individualizing care is important in meeting patient needs; however, a standardized approach allows for consistency and promotes the application of evidence-based practice. Even with initiation of standardized treatment plans, it is essential for strong initial and ongoing education to occur to prevent gaps in knowledge and nursing practice (Rosenthal et al., 2018). Nursing education in opioid withdrawal management increases nursing confidence, knowledge, preparation, and attitudes in terms of caring for patients experiencing opioid withdrawal (Corrigan et al., 2018).

Implementing a standardized and evidence-based assessment tool accompanied by interventions such as social services consultation, nonopioid medications for symptom

management, and patient education has led to improvements in terms of withdrawal management and patient outcomes (Canamo & Tronco, 2019). Education, along with return demonstration of competence in terms of using assessment tools, can be successful when flexibility of education options and nurse workflow is taken into consideration (Rosenthal et al., 2018).

This doctoral project advanced nursing practice through providing education and competency advancement in the care of opioid withdrawal patients. It was designed to address standardization of care, introduce an evidence-based assessment, and provide education needed for successful intervention.

Local Background and Context

Stephenson County statistics report the death rate due to substance abuse is currently 24 per 100,000 persons (Lischwe, 2019). This is a slight local decline compared to 2013-2017 statistics where the average substance abuse death rate was 27.2, significantly higher than state (15.9) and national (21.4) rates at the time (Beintema, 2014). Healthy People, a CDC program initiative, provides guidance on health promotion and disease prevention efforts. The Healthy People 2020's recommended target for substance abuse death is 11.3 or less per 100,000 persons (Beintema, 2014). For these reasons, the county has made substance abuse one of the top three focus areas for improvement in population health.

The site hospital is a 100-bed rural acute care independent community-based organization. The mission of the organization is to provide health improvements through quality healthcare delivery with the vision to provide healthcare excellence for local

communities (FHN, 2020). The hospital is monitored via regulatory surveillance by the IDPH, CMS, and The Joint Commission (TJC). The sole certified substance abuse provider had recently left the organization, leaving a vacancy involving ongoing support of substance withdrawal management. The organization continues to work on contracts with other organizations involving chronic substance use disorder management.

Role of the DNP Student

This site organization had a robust outsourced inpatient substance abuse treatment in the past. For multiple reasons, including financial implications, the program was ended over a decade ago. Since that time, an evidence-based structured program was created to address the care of the acute alcohol withdrawal patient but there were no resources for staff caring for the opioid withdrawal patient. This became abundantly clear when a provider printed an assessment tool and requested nursing staff to use the tool to evaluate this patient population. Although well intended, this was not the proper process for implementing a new assessment or standardized treatment plan.

I had the opportunity to care for the substance use disorder population as both a staff nurse and a charge nurse. Later, I was involved in the revisions of the evidence-based plan of care and symptom-triggered protocol for the alcohol withdrawal patient. Current day, I field many questions from providers and staff about how to best manage those experiencing acute opioid withdrawal as either a primary or secondary diagnosis. In addition to focusing on nursing development through education, practicum hours were used to develop the patient plan of care, provider order set, and to establish a formalized discharge planning process. The primary motivation for this doctoral project, without

bias, was the identified gap in practice. Care standardization and education is essential in improving outcomes for this patient population.

Summary

Section 2 introduced Ida Jean Orlando's influential nursing theory in application to opioid withdrawal management including a focus on the key concepts of the patient's behavior, the nurse's reaction to the behavior, and the following interventions to relieve those behaviors (or symptoms). The application steps for use of the ADDIE model in developing an educational program following the steps of analysis, design, development, implementation, and evaluation was further defined in the context of this DNP project. Finally, further insight into the local relevance, context of this doctoral project, and of the role of the doctoral nurse was explored. Section 3 will focus on the sources of evidence including the methods used to retrieve, organize, analyze, and synthesize the project findings.

Section 3: Collection and Analysis of Evidence

Introduction

OUD impacts millions of Americans, leading to health disparities, psychosocial consequences, and financial burdens. Successful recovery from this chronic disease requires recognition, assessment, and a standardized care approach that is inclusive of a follow up plan upon hospital discharge. The practice problem identified in this educational DNP project was the gap in practice involving standardized care of patients experiencing acute opioid withdrawal in the inpatient setting. At the site hospital, there was a lack of standardization for this patient population involving the use of order sets, assessments, and plan of care. In order for these tools to be implemented successfully, the inpatient nursing team must have a thorough understanding of potential outcomes of the standardized approach to opioid withdrawal management.

The rates of opioid use, relapse, and overdose are rising amidst the COVID-19 pandemic, further warranting the need for action (Weiner, 2020). Early research suggests an increased use of nonprescribed fentanyl of 32% as detected in random urine drug screens during the pandemic (Weiner, 2020). Rural access to opioid withdrawal treatment is extremely limited, increasing the likelihood of patients presenting to hospitals for acute illnesses also experiencing opioid withdrawal. Nurses need to be equipped with proper knowledge and tools to care for this patient population in order to optimize outcomes. This section includes research methods applied in this doctoral project, sources of evidence, and identified processes to ensure validity of evidence.

Practice-Focused Question

Opioid use is rising despite efforts to reduce access to opioids and overdose incidence. At the site organization, a gap existed in terms of resources available to care for acute opioid withdrawal patients. Education regarding evidence-based assessment, nursing interventions, a symptom triggered order set, and formalized follow up plan of care for opioid withdrawal management was used to positively influence social change for improved patient outcomes and long-lasting recovery.

The practice focused question for this DNP project was: Does educating nursing staff on a new standardized opioid withdrawal clinical practice guideline that is inclusive of assessment, nursing interventions, a symptom triggered order set, and follow up plan of care improve knowledge needed to optimize care provided for opioid withdrawal patients as compared to non-standardized treatment options during a training period of 6 weeks? The purpose of addressing this practice-focused question was to provide support for the nursing care team while improving patient experiences and outcomes through evidence-based approaches. Standardized clinical practice guidelines have been used to improve quality of care, reduce the length of time patients experience acute withdrawal symptoms, and increase participation in outpatient or extended treatment programs (Koch et al., 2017).

Sources of Evidence

As presented in Section 1, a preliminary literature search was done to identify evidence to support this project. A literature review matrix was used to organize findings (see Appendix A). The following databases were searched: CINAHL, Google Scholar,

PubMed, and ProQuest through use of the Walden University Library to identify additional articles outlining best practices to manage hospitalized patients experiencing acute opioid withdrawal. The CDC, NIH, NIDA, and the SAMHSA were credible organizations identified as sources to address the practice-focused question.

The project curriculum was developed following the literature review and included information that was specific to the site organization. Themes identified within the literature included withdrawal assessment using an evidence-based tool, nursing interventions that are inclusive of a nursing plan of care template, a symptom-triggered order set created in collaboration with healthcare providers, and a consistent discharge process to reduce follow up emergency room visits and readmissions post discharge.

Content experts from the site organization were used to support development of the project and to evaluate the curriculum and presentation methods. A hospitalist physician champion and nursing professional development specialist were identified as content experts to ensure the project was in alignment with identified content areas for evidence-based application as well as with the site organization. The first content expert, the lead hospitalist physician, held a leadership role in a former hospital substance abuse program and is currently the director of the inpatient hospitalist program. The second content expert, the nursing professional development specialist, is a master's prepared nurse who is responsible for the education and professional development of the hospital nursing care team.

The purpose of this doctoral project was to reduce the gap in practice at the site organization through education and standardization of care. Literature was separated into

the themes of nursing education, withdrawal assessment, nursing intervention, and discharge planning. Proper nurse education for OUD is associated with improved patient outcomes (Fournier Bell & McCurry, 2020). The opioid epidemic is a public health crisis requiring nurses of all levels to be educated and build skills to effectively care for this population. There is no standardized process for inpatient education of OUD (Fournier Bell & McCurry, 2020). With over 2 million persons experiencing substance abuse disorder in the United States at any given time, it is likely that all hospital nurses will experience caring for this patient population (Moore, 2020). A solid foundation of knowledge can lead to improved patient care experiences, reduction of readmission rates, and life-saving measures.

Opioid withdrawal nursing education has been taught through many modalities. Some of the most successful studies include use of simulation (online or in person) for application and demonstration of competency. There are many barriers to in-person training, including staggered shifts, around the clock unit coverage needs, winter weather implications, and other scheduling conflicts, which can lead to a much smaller participation rate with in-person offerings as compared to virtual or electronic delivery methods (Rosenthal et al., 2018). Significant improvement in the nurses' confidence level with opioid withdrawal assessment has been identified with the use of verbal scenarios, scenarios with simulation, and scenarios with simulation in addition to debriefing (Corrigan et al., 2018). The current COVID-19 pandemic has placed constraints on the number of people gathered in one location, making face-to-face simulation a challenge. Opportunely, simulated results were comparable between online and in-person training,

allowing for multiple effective options in terms of training amidst pandemic-related restrictions.

Assessment tools used to screen for opioid use primarily exist for use in outpatient settings and can take up to 10 minutes to administer (Mdege & Lang, 2011). This amount of time is likely less feasible in emergency department or inpatient settings. Screening assessments should include the type and amount of opioid used, route of administration, last use, treatment history, and any problems resulting from drug use (American Society of Addiction Medicine [ASAM], 2020). The severity and onset of withdrawal symptoms can vary by type, amount, and frequency of drug used (Kosten & Baxter, 2019; Turner et al., 2018). This screening assessment is an important step in terms of determining the difference between a nonproblematic social substance use as compared to more frequent and continued use, increasing the risk of withdrawal. Honesty in responses can be encouraged through proper question phrasing and approaches by staff performing the assessment (Turner et al., 2018). Patients can be categorized as those who are compliant in terms of appropriately taking prescribed opioids, those who are stable within a medication-assisted treatment program, and those who have OUD and will most likely need intervention (Turner et al., 2018). Early detection of the potential for withdrawal and need for treatment can lead to avoiding advanced severity of symptoms (Kosten & Baxter, 2019).

There have been more than 18 published opioid withdrawal scales used in assessment (Nuamah et al, 2019). Use of an objective withdrawal scale in addition to staff education has been shown to improve treatment outcomes (Specka et al., 2011). The

most recent, timely to administer, and widely used assessment tool is the Clinical Opiate Withdrawal Scale (COWS). The COWS scale is an 11-item assessment evaluating symptoms which occur along the continuum of active withdrawal including resting pulse rate, diaphoresis, restlessness, pupil size, aches, rhinorrhea or tearing, gastrointestinal upset, tremors, yawning, anxiety or irritability, and gooseflesh skin (Wesson & Ling, 2003; Canamo & Tronco, 2019). This scale allows the practitioner to determine when mild to moderate withdrawal symptoms are present and requiring medical intervention (Wesson & Ling, 2003).

Recognizing and treating substance use disorders in the acute care setting has led to better patient outcomes, reduced use of emergency services, improved patient engagement, higher rates of therapy completion, and more consistent follow up with outpatient treatment (Trowbridge et al., 2017). Nursing interventions for the patient experiencing opioid withdrawal extend beyond assessment and medication management. Patients can be concerned with the stigma associated with substance abuse leading to dishonesty in amount and/or frequency of use (Moore, 2020). Developing a rapport with patients and utilizing tools such as motivational interviewing can improve patient outcomes during these times of brief intervention (Rosenthal et al., 2018; Specka et al., 2011). Other comfort measures, such as providing a low stimulating environment can help reduce anxiety and restlessness. Insomnia is a commonly reported symptom which can be managed by environmental influences and sleep aids (Kosten & Baxter, 2019). Gastrointestinal upset can lead to dehydration and resulting orthostatic hypotension so supplemental fluids may be needed. Other complications to monitor for include narcotic

bowel syndrome or constipation as well as intravenous use related infections such as endocarditis, cotton fever, HIV, or hepatitis (Moore, 2020).

Discharge planning and follow up care is essential for successful sobriety and readmission prevention post treatment for opioid withdrawal (Moore, 2020). Patients with substance use disorder are more likely to leave without completing treatment against medical advice and to be return to the emergency department or be readmitted (Trowbridge et al., 2017). There are many barriers to specialized treatment including lack of qualified specialists and treatment centers, access to care, long waiting lists, and the cost including delayed or partial insurance authorization (Compton & Blacher, 2020). Discharge teaching should include information about follow up services for any medical conditions, use of naloxone in overdose situations, community resources, and addiction treatment services (Moore, 2020). Determining the need for outpatient or inpatient services upon discharge often requires a substance abuse referral and interview process (J. Ditto, personal communication, March 27, 2020). Collaboration with outside agencies can ensure patient needs assessed and an ongoing follow-up plan is created.

Evidence Generated for the Doctoral Project

The persons who received education on this standardized approach were inpatient nurses within a rural community hospital who have the potential to care for acute opioid withdrawal inpatients in Northwest Illinois. The departments included were the intensive care unit, the telemetry unit, the medical-surgical units, and the nursing supervisors. As presented in Section 1, a pre- and post- assessment (see Appendix B) were administered to evaluate the level to which the learning objectives were met. These evaluation tools

were created specifically for this project referencing the Kirkpatrick model for training evaluation with a focus on the first two levels of reaction and learning. Reaction evaluation determines the level to which participants found the education to be relevant and presented in an engaging and satisfactory manner (Kirkpatrick & Kirkpatrick, 2016). Learning evaluation determines to what level participants understand the knowledge and have confidence in applying the knowledge after receiving education (Kirkpatrick & Kirkpatrick, 2016). Once the standardized approach to care is implemented, the third and fourth levels of evaluation could be completed. These levels evaluate the degree to which the knowledge is applied to practice and the outcomes which occur as a result (Kirkpatrick & Kirkpatrick, 2016).

Similar to the nurse providing bedside care, the nurse providing staff education is held to ethical guidelines such as the American Nurses Association Code of Ethics (Jeffery et al, 2015). Ethical behaviors include respect for others, advocating for the patient, creating education based on needs, providing a safe environment for this education and for the patient, and being respectful of staff and patient privacy (Jeffery et al., 2015). Upon approval from the Institutional Review Board, each participant was provided the opportunity to establish informed consent for participation in the education assessments. Participants were educated on the option to decline or withdraw from this evidence-based education at any time. The informed consent included the purpose of the doctoral project, the educational objectives, the right to receive an explanation of any benefits or risks associated with participation, and information about the intended questionnaires for inclusion in data reporting. All participant feedback was submitted

anonymously through use of an identification number assigned at the beginning of the project and used throughout. The anonymity of the organization has been maintained throughout the project and dissemination.

Analysis and Synthesis

Analyzing data is essential to determine the effectiveness of an intervention (Zaccagini & White, 2017). Data generated during this project was inclusive of pre- and post- assessment surveys (see Appendix B) of participants who received the education utilizing a quantitative design. This quantitative data was sorted and analyzed using the Statistical Package for Social Sciences (SPSS) software. The pre- questionnaire included a separate demographics information collection and a baseline assessment of the participant's knowledge of the topic. The post presentation assessment evaluated the training program, the subjective degree of knowledge and resources, and the objective evaluation of understanding pertaining to opioid withdrawal assessment, nursing interventions, a symptom triggered order set, and the follow up plan of care. Anonymity was maintained throughout data collection and analysis.

Assessment tools for opioid educational programs are most often individualized to the study (Fournier Bell & McCurry, 2020). Four validated and reliable tools have been identified; two of these are specific to mental health care workers perceptions and the other two pertain specifically to the use of withdrawal assessments only. Question items were aligned to nursing standards and practice recommendations as done in previously published studies. The content experts were consulted to ensure survey reliability through a collaborative review of terminology and question appropriateness. Consistency in

survey administration was achieved through the use of the site hospital's online learning system. The validity of the assessment was maintained with alignment directly to the program outcomes. Responses to all questions were required before electronic submission would be accepted eliminating the potential for missing data.

Summary

Section 3 outlined in further detail the plans for how evidence was gathered, organized, analyzed, and synthesized utilizing a literature review matrix. Methods for maintaining participant and organization anonymity has been addressed. The outcome data was used to evaluate the learner outcomes and the educational program itself in terms of production and delivery. Section 4 will explore the detailed findings and implications post project implementation. Recommendations will be provided to address the gap in practice including nursing education and standardization of care for the acute opioid withdrawal inpatient. Finally, project strengths and limitations will be shared to support the replication of similar project efforts.

Section 4: Findings and Recommendations

Introduction

The local problem identified in this educational DNP project was the gap in practice involving standardization of care for patients experiencing opioid withdrawal. This evidence-based project involved providing tools and knowledge needed for nurses to optimize patient outcomes for the identified patient population and resulted in an opportunity for the site organization to adopt a new nursing plan of care, opioid withdrawal assessment tool, symptom triggered order set, and formal discharge planning process. The practice focused question was: Does educating nursing staff on a new standardized opioid withdrawal clinical practice guideline that is inclusive of assessment, nursing interventions, a symptom triggered order set, and follow up plan of care improve knowledge needed to optimize care provided for opioid withdrawal patients as compared to non-standardized treatment options during a training period of 6 weeks? Content experts were interviewed to review the project plan, education, method, and sources of evidence. Nurses were assigned opioid withdrawal education via the organization's electronic learning software program. Participation in the study was optional. Study participants anonymously completed an online demographic, pre assessment, and post assessment survey. Data were sorted and analyzed using Statistical Package for the Social Sciences (SPSS) statistical software. This section includes findings, limitations, and implications.

Findings and Implications

Two content experts, a hospitalist lead physician and a professional development specialist, completed a validity assessment (see Appendix D) evaluating the curriculum plan and content to determine if learning objectives were met or not met. Pre and post assessment questions were evaluated and scored by the content experts for relevance in relation to program outcomes. The assessment was distributed in paper and electronic formats and accompanied by the curriculum outline and the developed staff education materials (see Appendix C). Table 1 includes evaluations of curriculum objectives. Each curriculum objective was identified as being met by both experts. indicating a result frequency of 2, mean of 1, and mode of 1 when met = 1 and not met = 2.

Table 1

Content Expert Evaluation of Curriculum Objectives

	Content Expert 1	Content Expert 2
Participants will be able to discuss the importance of standardized care in optimizing patient outcomes,	Met	Met
Participants will be able to demonstrate competency in use of a standardized withdrawal assessment scale.	Met	Met
Participants will be able to provide instruction on discharge planning and follow up plan of care.	Met	Met
Participants will be able to apply the new opioid withdrawal order set to patient care in collaboration with the nursing plan of care	Met	Met

The information presented is applicable to inpatient nursing.	Met	Met
The program presentation is engaging for the learner.	Met	Met
The presentation style contributes to the learning experience.	Met	Met

Both content experts agreed that all pre-assessment and post-assessment questions were very relevant to the program outcomes as demonstrated in Table 2. The validation assessment was scored using the following scale: 1) not relevant, 2) somewhat relevant, 3) relevant, and 4) very relevant. The content validity index for each of these questions was a 1, demonstrating each pre assessment and post assessment item as valid in terms of curriculum and learning objectives. With full agreement for each of the scored items, every assessment question had a frequency of 2 with a mode and mean of 4, further demonstrating the validity of assessment to the curriculum and learning objectives.

Table 2

Content Expert Validity Assessment

	Content Expert 1	Content Expert 2
I have a strong knowledge of how to care for the patient experiencing opioid withdrawal.	4 – Very Relevant	4 – Very Relevant
I have the tools and resources needed to provide optimal care for the patient experiencing opioid withdrawal.	4 – Very Relevant	4 – Very Relevant
I have a high level of confidence in the ability to perform an opioid withdrawal assessment.	4 – Very Relevant	4 – Very Relevant

I have knowledge of available resources for discharge planning with a patient experiencing opioid use disorder.	4 – Very Relevant	4 – Very Relevant
The onset of opioid withdrawal typically occurs: a. Within 24 hours of the last use b. 24-72 hours after last use c. 72-96 hours after last use d. It depends on the type of opioid used	4 – Very Relevant	4 – Very Relevant
Withdrawal from which substance is more high risk for the patient? a. Alcohol b. Opioids c. Neither, they are of equal risk	4 – Very Relevant	4 – Very Relevant
Which of the following nursing interventions are appropriate for patients experiencing opioid withdrawal? (Select all that apply) a. Low stimulation environment b. Limit oral intake c. Monitor orthostatic blood pressures d. Continuous pulse oximetry e. Thorough skin assessment f. Sepsis screening	4 – Very Relevant	4 – Very Relevant
The patient experiencing opioid withdrawal due to IV heroin use is experiencing fever, body aches, nausea, and an elevated white blood cell count. Which complication might you expect is occurring? a. Opioid induced hyperalgesia b. Narcotic bowel syndrome c. Constipation	4 – Very Relevant	4 – Very Relevant

d. Cotton fever e. Infective endocarditis f. Bloodborne illness (HIV or hepatitis) g. None; these are expected withdrawal symptoms		
Which of the following findings are expected withdrawal symptoms? a. Fever, aches, elevated white blood cell count b. Sweating, joint aches, runny nose c. Anxiety, constipation, bradycardia d. Tachycardia, hypokalemia, hyponatremia	4 – Very Relevant	4 – Very Relevant
To control opioid withdrawal, preventative medications may include (select all that apply): a. Chlordiazepoxide b. Clonidine c. Buprenoprhine d. Lorazepam	4 – Very Relevant	4 – Very Relevant
Structured discharge planning (select all that apply): a. Does not improve the relapse rate b. Reduces readmissions c. Is not optional for patients d. Includes a consult with outside substance abuse service e. Is up to the provider for determination of further treatment needs	4 – Very Relevant	4 – Very Relevant

Eighty-seven inpatient nurses from medical-surgical, telemetry, and intensive care units were assigned the education titled Care of the Opioid Withdrawal Inpatient Staff

Education (see Appendix C). Seventy-six nurses completed the assigned education over 6 weeks; two left the organization during this time, and nine were left incomplete and overdue. Thirty-one nurses participated in some portion of the survey, completing at least one of the three assessments. Of those 31, 16 completed both the pre- and post-assessment surveys for comparative data.

Demographic information was collected separately from the pre- and post-assessment surveys and included information from all 31 partially participating nurses. This led to a generalized demographic response that is not solely representative of the 16 nurses who completed both surveys. This limitation should be considered in future studies when demographic information may be applied in comparison of the results. Figures 1-5 represent the demographic results of participants. Because this education was administered to a variety of inpatient units, identifying the home unit of each participant may have added value to the study. For example, several participants selected continuous pulse oximetry as a nursing intervention for opioid withdrawal. Although this is not standard treatment for the diagnosis, this type of intervention would be pertinent and common for patients admitted to intensive care. Survey participants were nearly evenly split (22-29%) with each decade of life starting with 20 years of age through 50 years of age, and then 51 years or greater. Ninety percent of participants were female and ninety percent were of Caucasian race. Interestingly, there were the same number of participants early in their career (0-5 years) as there were senior nurses with 20 years or grater experience (See Figure 3). More than 60% of the participants had earned a bachelor's degree or higher. In comparison, less than 40 percent of inpatient nurses at this

hospital hold a bachelor's degree or higher at this institution potentially indicating those with a higher degree are more likely to participate in a survey such as this.

Figure 1

Participant Age

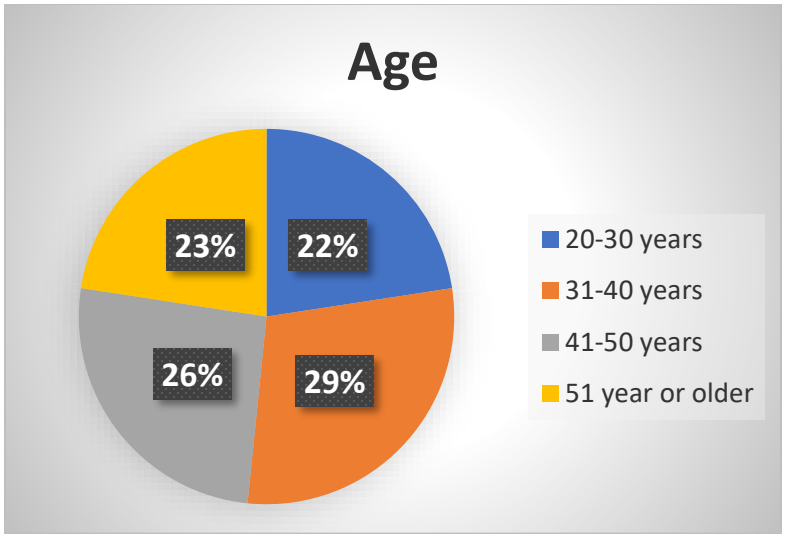


Figure 2

Participant Identified Gender

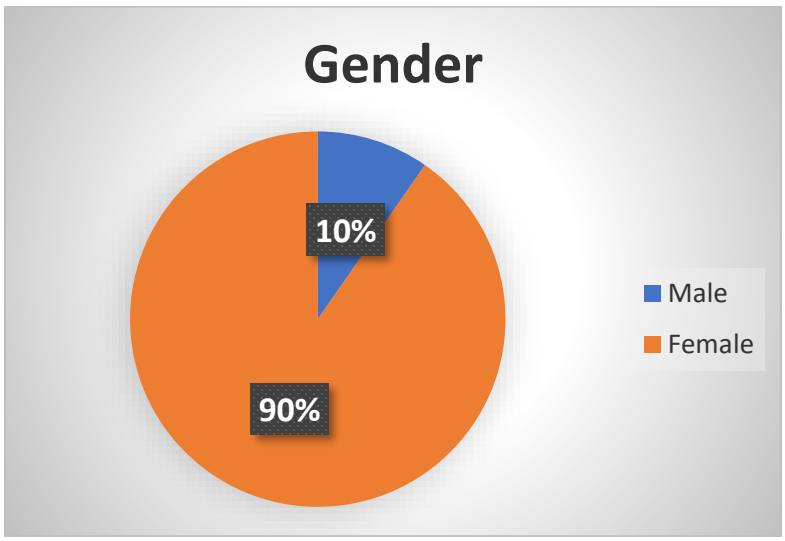


Figure 3

Participant Years of Nursing Experience

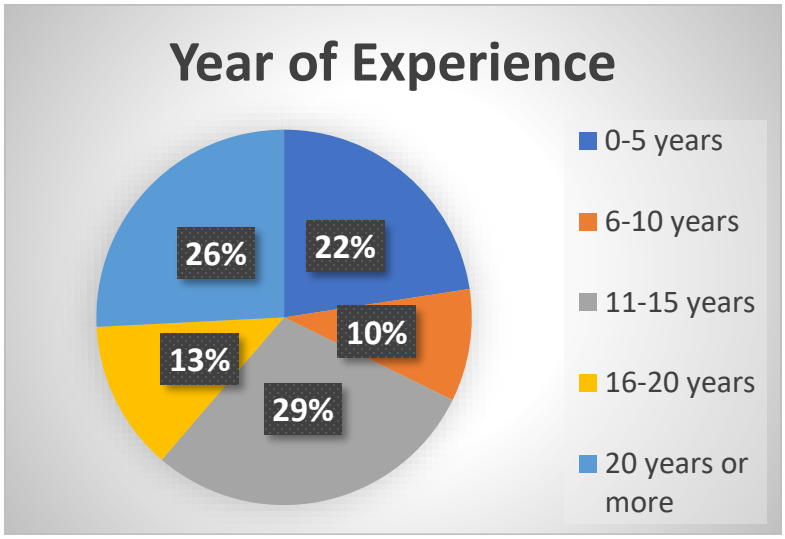


Figure 4

Participant Highest Level of Education

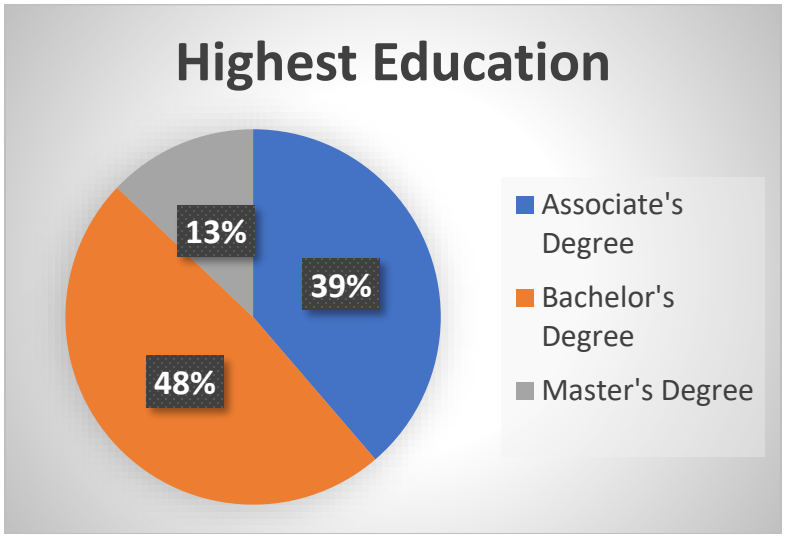
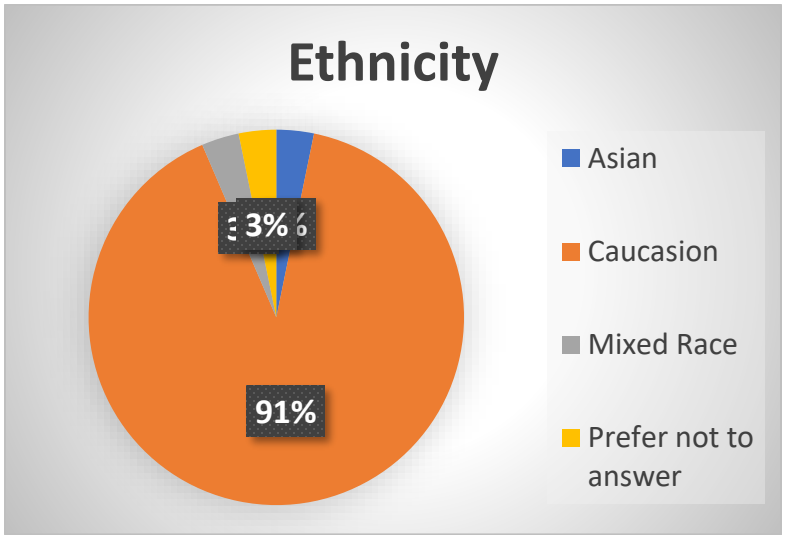


Figure 5

Participant Identified Ethnicity



The greatest focus of the study results was on the impact of the education in meeting the identified learning objectives. Nurses completing the education identified an improved level of knowledge in caring for the patient experiencing opioid withdrawal, improved availability of tools and resources needed to provide optimal care for this patient population, a higher level of confidence in performing opioid withdrawal assessment, and improved knowledge of discharge planning resources. Table 3 represents the nurses' responses to the pre- and post- survey assessment comparison. Participants were asked to rate each question on a scale of 1) strongly agree, 2) agree, 3) neutral, 4) disagree, and 5) strongly disagree. The reduced standard deviation with the post assessment results demonstrates a lesser variance in answers indicating a more consistent knowledge base and confidence level in caring for the patient experiencing opioid withdrawal following the education completion.

Table 3

Pre- and Post-Assessment Comparison

	Pre-Assessment	Standard Deviation	Post Assessment	Standard Deviation
I have a strong knowledge of how to care for the patient experiencing opioid withdrawal.	3.19	0.750	1.87	0.500
I have the tools and resources needed to provide optimal care for the experiencing opioid withdrawal.	3.31	0.873	1.75	0.577
I have a high level of confidence in the ability to perform an opioid withdrawal assessment.	3.44	0.814	1.81	0.655
I have knowledge of available resources for discharge planning with a patient experiencing opioid use disorder.	3.13	0.719	1.94	0.574

Additional information was requested from participants following the Kirkpatrick model for training evaluation to analyze the effectiveness and impact of the education as presented. Table 4 represents the mean results of each evaluation question utilizing the same assessment scale as the previous table of 1) strongly agree, 2) agree, 3) neutral, 4) disagree, 5) strongly disagree. All participants responded as strongly agree or agree to applicability to work and engagement while learning. One participant scored the presentation style as a neutral response whereas all others, again, scored agree or strongly agree responses.

Table 4

Post-Assessment Learning Evaluation

	Mean	Standard Deviation
The information in this education is applicable to my work.	1.44	0.512
This program helped me to stay engaged while learning.	1.36	0.479
The presentation style contributed to my learning experience.	1.81	0.544

The findings of this evidence-based project demonstrate an improved perception of knowledge, recognition of resources, and improved confidence through a formalized education program. The electronic delivery format allowed flexibility in completion of the assigned education. Learning engagement was sought through use of incorporating

both the art and science of nursing. This was accomplished by including the patient perspective, use of video, and integrating case study examples. In addition to collecting the subjective participant data for knowledge building, a post completion knowledge assessment was administered containing seven questions regarding the onset and symptoms of withdrawal, nursing interventions, potential complications, medication management, and discharge planning. The results to these knowledge assessment questions were more varied in response and accuracy in comparison to the subjective data. The learning assessment was scored in two ways. The first is a raw total number questions correct (each multiple response question correct earned a value of one). The second evaluation involved scoring one point for each correct answer within a single choice or multiple response question and deducting incorrect responses. The results are displayed in Table 5. A baseline exam was not used for comparison as this was used to validate understanding of the educational content. Future studies may choose to assess base knowledge pre- and post- education to demonstrate the knowledge difference for comparison.

Table 5

Learning Assessment Results

	Total Raw Score	Percent Total Raw Score	Total Score (Multiple Response = 1 point per response)	Percent Total Score
Participant 1	7/7	100%	12/12	100%
Participant 2	5/7	71%	10/12	83%
Participant 3	4/7	71%	10/12	75%
Participant 4	2/7	29%	7/12	75%
Participant 5	4/7	57%	9/12	75%

Participant 6	6/7	86%	10/12	83%
Participant 7	3/7	43%	8/12	67%
Participant 8	4/7	57%	9/12	75%
Participant 9	4/7	57%	8/12	67%
Participant 10	5/7	71%	012	75%
Participant 11	3/7	43%	5/12	75%
Participant 12	5/7	71%	9/12	75%
Participant 13	4/7	57%	8/12	67%
Participant 14	4/7	57%	11/12	92%
Participant 15	6/7	85%	11/12	93%
Participant 16	1/7	14%	5/12	42%

The results of this study imply that the perception of improved knowledge and resources can be obtained through an engaging electronic education delivery modality. These tools have the potential to influence patient care and outcomes for the identified population in a postive manner. The learning assessment results are less convinicing that a strong knowledge was obtained indicating the need for additional education and follow up to reinforce the information. Application in the patient care setting may also have an influential factor in retention of information.

The purpose of this project was to positively influence social change through education, to improve the work life of the nurses, and improve patient outcomes for those experiencing opioid withdrawal. This was achieved through application of evidence-based practice into bedside nursing, an improving the nurses' understanding of opioid withdrawal management, and promoting standardization of care for the identified patient population. Additional and ongoing data will be collected to further support this social change through monitoring of patient outcomes.

Recommendations

This evidence-based educational project led to additional opportunities to impact the outcomes of inpatients experiencing opioid withdrawal. In addition to creating and providing the education regarding standardization of care, it became apparent that the gap in practice included the actual nursing resources needed for implementation. As a result, the developed symptom triggered order set, nursing plan of care, and formalized discharge plan were adopted by the site organization with implementation in July 2021. The order set, created in collaboration with the lead hospitalist, includes medications for controlling withdrawal symptoms pro-actively and guidance on pharmacological adjustments required for times when withdrawal symptoms may heighten beyond control of the prophylactic medications. The nursing plan of care addresses the potentials of impaired cognition, fluid and electrolyte imbalances, nutritional deficits, risk for violence, educational needs, and transitional care to the ongoing treatment plan. Imbedded in this plan of care is an evidence-based opioid withdrawal assessment scale (COWS) for ongoing monitoring of symptoms and appropriate coordination of treatment. Discharge planning by social services is ordered on admission and results in an assessment by a consulting substance use treatment agency to determine the ongoing treatment plan. The details of each of these tools can be found within the education presented in Appendix C. Some organizations may refer to these resources as practice guidelines, protocols, or even standards of care. Regardless of the title, these valuable resources are needed to standardize care and optimize patient outcomes.

Ongoing nursing education is needed for low volume and/or high-risk patients to improve standardized care and outcomes. The post-assessment results demonstrate the perception of improved knowledge, resources, and confidence but also shows an ongoing need to improve upon the knowledge base and retention of information. Further assessment could identify the sustainability of this perception and identify the frequency needs of re-education and reassessment. With limited exposure to utilization of the implemented resources, it will be important to remind staff of the availability of these resources and to provide ongoing access to the education for reference when caring for a patient experiencing opioid withdrawal.

Contribution of the Doctoral Content Experts

The content experts were used throughout the course of this doctoral project. Collaboration with the lead hospitalist physician ensured accurate interpretation of the evidence and led to the development and approval of the symptom-triggered order set. This provider also assisted in dissemination and ongoing support for other providers in use of the order set. The second content expert, a nurse who specializes in professional development, was instrumental in review of the materials throughout conception and in ensuring learning aides such as video links would be operable in the learning software system. Both content experts evaluated the curriculum and provided validation of the pre/post assessment questions and education evaluation using the Content Experts Validity Evaluation (Appendix D). The extension of this project will include ongoing data collection and analysis of patient outcomes with this new standardized approach to

care. Collaboration with these same content experts will occur for ongoing data analysis and evaluation.

Strengths and Limitations of the Project

Strengths of this doctoral project included the hospital administrative support received throughout planning and implementation, the flexibility in adapting to the organizational needs, and the collaboration with various stakeholders. The need for opioid withdrawal education was initially identified by provider, nurses, and administration when focused work was being done on alcohol withdrawal management. This identified need led to strong and consistent support from stakeholders throughout the project. Flexibility in adapting to organizational needs was influenced by pandemic related restrictions. This resulted in altering the time allotted for the education and assessment and reconsideration for identifying the most appropriate delivery method. During initial planning, face to face education was considered but as the COVID19 pandemic continued to challenge this, it became evident that an online platform would be more beneficial to the staff and provide a stronger participation response. The initial 10-week time allotment to complete the education was adjusted to 6 weeks to support timely initiation of resources and project completion. Stakeholder and content expert engagement and support was evident throughout. Rather than develop a team during a time of high staffing demands to deploy this project, key stakeholders and content experts were used to provide feedback and assessment throughout the process. The shared governance structure of teams allowed for access to staff from a variety of areas for input on processes and learning needs.

Some limitations of the study are shared as future opportunities within the data collection and analysis phases. Although the participant sample size is small, it does consist of 21 percent participation rate in the study when compared to the volume of nurses who completed the assigned education during the allotted time frame. A larger sample with associated demographics would allow for further analysis of the findings including how age, experience, educational level, or other demographic information may influence the results. The manner in which the demographic and assessments were administered did not allow for direct correlation between the demographics and responses. Although, the staff perception of knowledge and resources improved, the knowledge assessment scores were primarily below 80 percent correct demonstrating that actual knowledge attainment may be limited. These questions were reviewed by two content experts; additional review may have provided further confidence in the presentation of the questions and answers after reviewing the results.

Summary

The gap in practice, identified as a lack of education and standardization of care for the patient experiencing acute opioid withdrawal, was addressed using an evidence-based practice approach. Thorough planning, key stakeholder involvement, resource allocation, and education development was deployed to all inpatient nurses. With a 21 percent assessment participation rate, nurses responded positively in feeling more knowledgeable and confident with improved access to tools and resources for providing care to the opioid withdrawal inpatient. Objective assessment results demonstrate a need for reinforcement and on-going education. The formatting and electronic delivery was

also found to be effective and subjectively conducive to learning. This project is ongoing and allows for opportunity of continued data collection to evaluate the patient outcomes as a result of assessment, care plan, order set, and discharge planning implementation.

Section 5: Dissemination Plan

The process of implementing evidence-based practice and evaluation of outcomes measured during this educational DNP project will be shared in the organization through a variety of means. The first opportunity occurred during Healthcare Quality Week in October 2021 when the project background, process, and results were shared via poster display for public viewing. Posters submitted to this fair were showcased on the hospital website for remote viewing and included awards categories such as best individual process improvement, best team process improvement, best innovation, and best evidence-based practice project. This project, An Educational Program for Standardization of Care for the Acute Opioid Withdrawal Inpatient, was awarded Best Individual Process Improvement by the organization's Clinical Quality Department. Each award recipient was invited to deliver an oral project presentation to the hospital Board of Directors. Additional detailed results will be shared at the Professional Practice Council and Clinical Quality Council Shared Governance meetings and governing Nurse Executive Board, and will be used as an example project with the future Evidence-Based Practice Fellowship cohorts.

Additional audiences of interest may include nurses who work in educator roles, professional development, and those who work with substance use disorder. Locally, there is a nurse-sponsored conference in March which highlights poster presentations and local speakers. This not-for-profit nursing organization brings together nurses of all levels from associate degree students to doctoral prepared nurses and involves multiple schools of nursing and healthcare organizations. This doctoral project will be submitted to this

Nurse Expo in Rockford, IL as a poster presentation with the potential for a speaking engagement. In addition, publication will be the next step in order to serve a larger audience.

Analysis of Self

Nurses seek out doctoral degrees for a variety of reasons such as self-improvement, employment opportunities, promotions, role-modeling for others, status, and motivation. My intent throughout this program was to improve my own knowledge and abilities to better the work lives of frontline nurses and improve patient outcomes. Taking the opportunity to complete the program at a slower pace consisting of one course at a time for most academic terms has allowed for work-life balance as well as the proper amount of time to apply knowledge as it is learned. In my roles as practitioner, scholar, and project manager, this has been a very engaging journey. The project choice was based on need, but also passion and compassion for the identified patient population. Past experiences have provided opportunities for implementation of evidence-based practice in a less formalized approach. Learning the value of extensive planning and key stakeholder involvement, how to use software programs for data analysis, proper analysis terminology and processes, and dissemination of outcomes have all been areas of professional growth.

Throughout completion of this project, one major awareness was the need for flexibility. Even with the most dedicated and intricate planning phase, project implementation may still require adjustments for success and sustainability. Altering the initial time allotment for the education was discussed with and supported by the content

experts and DNP committee members. Initially, the education plan was to include face-to-face instruction, but an online delivery became more applicable given the many staffing and pandemic related challenges. In addition to flexibility, ongoing evaluation of the entire process of planning through evaluation is essential. One major challenge identified in the data analysis was the partial or lack of completion of surveys. The method used to anonymously identify each portion of the participant assessments resulted in the inability to match the specific demographic information with the pre- and post-assessment survey responses. This thorough evaluation of the entire process provides insight into recommendations for future studies.

Summary

The doctoral project serves as a means to apply theoretical knowledge gained throughout the DNP program using a real time practice approach. This educational doctoral project influenced social change by providing needed evidence-based education and resources to nursing so that they may optimize care provided to patients experiencing opioid withdrawal. The new symptom-triggered order set, nursing plan of care, evidence-based withdrawal assessment, and formalized discharge plan is an extension of this project and will provide opportunities for additional quality monitoring and evaluation of patient care in a positive manner.

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Appendix A: Literature Review Matrix

Author/ Date **Theme(s)/ Theoretical Framework**	**Research Question(s) / Hypotheses**	**Methodology**	**Analysis & Results**	**Conclusions**	**Implications For practice**
Barbosa-Leider, C., McPHerson, S., Mamey, M.R., Burns, G.L., Layton, M.E., Roll, J., and Ling, W. (2015) Theme(s): Assessment	Examine the inter-item correlations of the COWS assessment	Randomized study design of 11 outpatient treatment facilities using traditional psychometric theory	Significant correlation was found between most items and 5 other items. Example: anxiety correlation with all others; pupil size with all other except for resting pulse rate. The scale was equally applicable to men and women but some difference in symptoms do exist.	Inter-item correlation does exist for most items. Women are less likely to experience gooseflesh skin and yawning; men are less likely to experience an elevated resting heart rate.	Further studies needed for implication recommendations
Canamo, L.J., and Troncho, N.B. (2019) Theme(s): Assessment Staff/nurse education	The Clinical Opioid Withdrawal Scale (COWS) is an evidence-based tool to assess the severity of withdrawal for outpatient and inpatient use.	Phase 1 – in person nurse training on use of the COWS tool and withdrawal intervention using case study testing. Phase 2 – implementation of practice change using COWS assessment for patients with	43 patient sample. 28 patients experienced withdrawal symptoms; 2 patients experienced a score above 5 (active withdrawal). 96% appropriate intervention and documentation	Supported use of COWS tool Interdisciplinary communication is a key component Ongoing evaluation is needed to ensure long-term compliance	The Joint Commission standard LD.04.03.13 requires appropriate management Retrospective data showed improvement from 25% appropriate intervention to 96% through education

		positive urine drug screen			
Compton, P. and Blacher, S. (2020) Theme(s): Staff/nurse education	Preparing nursing program to improve curriculum regarding the opioid crisis	Review of current nursing education	Competencies, role recognition in policy development; policy intervention to address opioid crisis	Nurse role is critical in addiction treatment	Focus is on nursing programs; however, this will only impact new nurses. The same content can be applied to established nurses to enhance understandin g of the opioid crisis and intervention.
Corrigan, D., Mix, R.L., Palmer, G.A., and Olson, S.A. (2018) Theme(s): Assessment Framework: based on progressive levels of education from Chinaiara et al., 2013. Level used: simulated patient International Nursing	Evaluate confidence, competence and consistency in use of the COWS assessment with three evaluation methods – 1) scenario only, 2) scenarios and simulation only, 3) scenario simulation and debriefing	Randomized control design. Participants through the VA Medical Center from a variety of settings; inclusive of advance practice nurses. Confidence questionnaire and COWS assessment administered pre/post education for each of the three groups and at a 30 day follow up.	All participants experienced increase confidence and accuracy in assessment. Improvement with the COWS tool was highest with the scenario, simulation, and debriefing group.	Use of debriefing with simulation improves leaner outcomes, confidence, and ability to apply the knowledge.	Simulation in mental health topics provides a connection to theory and allows for safe, hands on practice.

Association for Clinical Simulation and Learning debriefing strategies					
Donroe, J.H., Holt, S.R., and Tetrault, J.M. (2016) Theme(s): Medical Management Discharge Planning	This is an informational article on caring for inpatient opioid use disorder			Addiction is a chronic disease requiring a well-planned discharge and follow-up care process	Medical management of withdrawal; discharge planning
Fournier Bell, C.A., and McCurry, M. (2020) Theme(s): Staff/nurse education Framework: Whittemore and Knafl	Evaluate methods and effectiveness of programs to education medical-surgical nurses about opioid use disorder	Integrative review; self-assessment tools to measure pre and post knowledge, attitude, withdrawal scales, and researcher developed tools	No standardized process for inpatient education of OUD; lack of validated tools to measure success of various methodology (workshops, online modules, case studies, simulation)	Nurses recognize the need for further opioid use disorder education; competency is addressed through application of knowledge implying simulation may be beneficial	Improved nursing knowledge is associated with improved patient outcomes
Jain, N., Chavan, A.S., Subhash, D. (2018) Theme(s): Medical management	Compare dose effectiveness of buprenorphine and clonidine in management of opioid withdrawal.	100 patients with opioid dependence recruited to participate in one of four randomly assigned groups – low dose clonidine, high dose clonidine, low	20 patients left the program Reduced craving in all four groups There were differences in the control of withdrawal with high dose	All four groups had comparable scores for management of withdrawal using the COWS and SOWS	Use of clonidine and buprenorphine in low or high doses yield similar results. High dose buprenorphine yields the highest control with

Standardization of care		dose buprenorphine, high dose buprenorphine	buprenorphine being the most effective and low dose clonidine being the least effective but these were not statistically significant		the least adjunct medications.
Koch, J., Ward, S., Thomas, C.J. (2018) Theme(s): Standardization of care	Initiation of a symptom triggered opioid withdrawal protocol to decrease length of stay & increase number of patients seeking outpatient treatment	Phase 1 – implementation of symptom triggered protocol Phase 2 – retrospective cohort analysis to compare baseline characteristics & clinical outcomes between three different medication approaches	111 patients, similar demographics, most common drug choice was heroin & most were polysubstance Reduced detox days with clonidine Greater success @ 3 mo sobriety with buprenorphine/naloxone outpatient maintenance	Symptom triggered protocol reduced duration of detox; overall length of stay was not reduced (these patients were not only admitted for detox but were medical patients who needed detox)	Implementation of symptom triggered protocol to reduce detox duration
Kosten, T.R., Baster, L.E. (2019) Theme(s): Medical Management	Management of opioid withdrawal is needed before ongoing treatment can be effective	Study evaluation on the etiology, burden, and management of opioid withdrawal symptoms	Uncontrolled withdrawal results in relapse; alpha adrenergic agonists are an effective non-opioid option in withdrawal management.	Effective management of withdrawal symptoms is necessary for successful chronic treatment; non-opioid treatment allows for a timely transition to other treatment such as naltrexone	Early diagnosis and treatment; patient education; long term treatment needs

Mdege, N.D. and Lang, J. (2011) Theme(s): Assessment	Systematic review of screening tools for identifying drug use	Studies including substance use screening tools were included from multiple database sources; further searches were done for articles validating each tool's use and then a third search was done to identify any further studies or modifications done with any of these assessments.	13 instruments reviewed with each having 2-28 items requiring less than 10 minutes to complete	Assessment tools primarily exist for use in outpatient settings or for patients who are seeking treatment	Consider degree of substance use as non-problematic social use or substance use disorder requiring intervention
Moore, D.J. (2020) Theme(s): Staff/nurse education	This is an informational article for key education points for bedside staff.			Patient centered care – consideration to bias and stigma Identifying substance use/use of screening tools Withdrawal management and anticipating onset of symptoms	Discharge planning consideration to gap in practice

				Other assessments and potential complications Pain management Discharge planning	
Nuamah, J.K., Sasangohar, F., Erranguntla, M., and Mehta, R.J. (2019) Theme(s): Assessment	Identify gaps in monitoring withdrawal (surveys, scales, technology)	Review of literature	18 opioid withdrawal scales in the last 80 years with a variety of subjectivity; most recent tool developed is the COWS (widely used; 2 minutes to complete). Also commonly used is CINA and SOWS	Technological advances could use sensor technology to determine severity of withdrawal	
Nunes, E.V., Gordon, M., Friedmann, P.D., Fishman, M.J., Lee, J.D., Chen, D.T., Hu, M.C., Boney, T.Y., Wilson,D., and O'Brien, C.P. (2018) Theme(s): Discharge planning	Study of relapse rates using extended-release naltrexone in short term inpatient units compared to long-term residential compared to outpatient	Randomized trial of naltrexone effectiveness	The highest rate of relapse occurred on short term inpatient units and occurred sooner than others who relapsed after receiving treatment in other settings	Medication assisted treatment is needed at discharge to maintain sobriety; the terminology of medication induction center may be more appropriate than a detoxification center	Ongoing treatment (follow-up) plan is needed at discharge and may include ongoing medication assisted treatment

Rosenthal, L.D., Barnes, C., AAgaard, L., Cook, P., and Weber, M. (2018) Theme(s): Assessment Discharge planning Staff/nurse education	Quality improvement project to implement SBIRT (identification of substance abuse, intervention, and referral).	Online education module, in person option Training included text, video, quiz, resources Simulation/role play	48 nurses completed online training with simulation evaluation; 28 attended in person Improved confidence in use of scales and recognition of withdrawal symptoms; improved patient advocacy	Training nurses on appropriate screening and assessment is needed and not always included in standard training practices.	Resource packet on the unit for information on substance use; role of advocacy. Use of motivational interviewing and SBIRT improves the holistic approach.
Rudolf, G., Walsh, J., Plawman, A., Gianutsos, P., Alto, W., Manci, L., and Rudolf, V. (2018) Theme(s): Medical management Standardization of care	Evaluation of a non-opioid, non-benzodiazepine protocol for opioid withdrawal treatment	Retrospective study of (4-day hospital) protocol effectiveness after adoption	84 subjects 94% completed medically supervised withdrawal with five leaving AMA 89% were transitioned to naltrexone prior to hospital discharge COWS scores demonstrate improved withdrawal management with lower average scores each day using adjunct medications	Tizanidine, gabapentin, and hydroxyzine were used in combination with other PRN medication to effectively manage opioid withdrawal	This approach allows for transition to naltrexone prior to hospital discharge
Sahota, P.K., Shastry, S., Mukamel,	Systematic review of screening instruments	Multiple data base search with added search using	6 assessment tools identified	All 6 tools were determined to have a lack of	

D.B., Murphy, L., Yang, N., Lotfipour, S., and Chakravarthy, B. (2018) Theme(s): Assessment	used in the emergency department to detect opioid use	resources from identified articles. Articles were evaluated for reliability and validity	Each tool assesses for drug use but the time frames vary from within the last 7 days to the client's lifetime	validity and reliability for use in emergency department screening	
Specka, M., Bucholz, A., Juhlmann, T., Rist, F., Scherbaum, N. (2010) Theme(s): Discharge planning	Determine impact of patient characteristics on opioid treatment success rates	1017 patients from 12 detoxification units of similar programs using a documentation form completed by providers in each facility Note: this study took place in treatment facilities	Treatment duration ranged 1-90 days with mean of 16.8 days Treatment completion rate – 37%	Successful completion was linked to follow-up treatment plans prior to admission, past residential success, and higher age	Successful withdrawal is a "gateway" to ongoing treatment
Tompkins, D.A., Bigelow, G.E., Harrison, J.A., Johnson, R.E., Fudala, P.J., and Strain, E.C. (2009) Theme(s): Assessment	COWS validation in comparison to CINA	Double-blind randomized study with simultaneous COWS, CINA, and visual analog scale assessments	COWS scale demonstrates internal consistency, consistent time course with the validated CINA scale	COWS assessment tool was found to be valid for use in opioid withdrawal	COWS is a validated assessment tool in inpatient and outpatient settings
Trowbridge, P.,	Evaluation of a new	Retrospective study of	Of 337 patients; 78% were	Inpatient consultation to	Providing a discharge

Weinstein, Z., Kerensky, T., Roy, P., Regan, D., Samet, J.H., Walley, A.Y. (2017) Theme(s): Discharge Planning	program linking addiction medicine consults for hospitalized patients Hypothesis – improved patient engagement	patient with substance use disorder focused on medications and outpatient follow up	treated for opioid withdrawal. Medication management included methadone (70) and buprenorphine (40). Outpatient follow up at 30, 90, and 180 days were comparable with either medication.	addiction services for hospitalized patients improved linkage with outpatient addiction treatment	plan and connecting patients with outpatient treatment can improve sobriety and reduce emergency room visits and hospital readmissions
Turner, C.C, Fogger, S.A., and Frazier, S.L. (2018) Theme(s): Assessment Discharge Planning	Informational article introducing effective strategies for managing inpatient OUD			Screening for OUD, assessment for potential complications and managing opioid withdrawal, discharge planning	Personal aspect of care – approach to care and assessment, developing rapport
Wesson, D.R. and Ling, W. (2003) Theme(s): Assessment	Review the history and options with opioid withdrawal assessment			The COWS tool can be used in a variety of settings to determine withdrawal intensity	COWS is a validated assessment tool and used to determine when medication management for withdrawal is necessary

Appendix B: Pre-Assessment and Post-Assessment Survey

Pre-Assessment

Demographics

1. What is your current age?
    a. 20-30 years old
    b. 31-40 years old
    c. 41-50 years old
    d. 51-60 years old
    e. 61 years old or older
    f. Prefer not to answer
2. What gender do you identify with?
    a. Male
    b. Female
    c. Other
    d. Prefer not to answer
3. What ethnicity do you identify with (Select all that apply)?
    a. Asian
    b. Black/African
    c. Caucasian
    d. Hispanic/Latino
    e. Native American
    f. Pacific Islander
    g. Mixed Race
    h. Prefer not to answer
4. How many years of experience do you have as a nurse?
    a. 0-5 years
    b. 6-10 years
    c. 11-15 years
    d. 16-20 years
    e. 21 years of more
5. What is your highest level of completed education in nursing?
    a. Associate Degree
    b. Bachelor Degree
    c. Master Degree
    d. Doctorate/PHd

Pre- and Post- Assessment Survey

(A pre and post education quiz will be included to objectively evaluate the level of understanding in completing an opioid withdrawal assessment, nursing interventions, a symptom triggered order set, and follow up plan of care).

Degree of knowledge and resources (Subjective)

For the following questions, rate to what extent you agree with the statement using the following scale:

a. Strongly Agree
b. Agree
c. Neutral
d. Disagree
e. Strongly Disagree

1. I have a strong knowledge of how to care for the patient experiencing opioid withdrawal.
2. I have the tools and resources needed to provide optimal care for the patient experiencing opioid withdrawal.
3. I have a high level of confidence in the ability to perform an opioid withdrawal assessment.
4. I have knowledge of available resources for discharge planning with a patient experiencing opioid use disorder.

Post-Education Training Evaluation

For the following questions, rate to what extent you agree with the statement using the following scale:

a. Strongly Agree
b. Agree
c. Neutral
d. Disagree
e. Strongly Disagree

1. The information in this education is applicable to my work.
2. This program helped me to stay engaged while learning.
3. The presentation style contributed to my learning experience.

Appendix C: Care of Acute Opioid Withdrawal Inpatient Staff Education

While all inpatient nurses are required to complete this education, involvement in the DNP study is optional.

Please see the informed consent information here.

If you choose to participate in the study, **please be sure to complete the pre-assessment survey before beginning (see next slide) and the post-assessment survey upon completion of this education.**

All assessment responses are anonymous.

Consent Form for Anonymous Questionnaires

To be given to the staff member prior to collecting questionnaire responses—note that obtaining a "consent signature" is not appropriate for this type of questionnaire and providing respondents with anonymity is required.

You are invited to take part in an evaluation for the staff education doctoral project that I am conducting.

Questionnaire Procedures:
If you agree to take part, I will be asking you to provide your responses anonymously, to help reduce bias and any sort of pressure to respond a certain way. Staff members' questionnaire responses will be analyzed as part of my doctoral project, along with any archival data, reports, and documents that the organization's leadership deems fit to share.

Voluntary Nature of the Project:
This project is voluntary. If you decide to join the project now, you can still change your mind later.

Risks and Benefits of Being in the Project:
Being in this project would not pose any risks beyond those of typical daily professional activities. This project's aim is to provide data and insights to support the organization's success.

Privacy:
I might know that you completed a questionnaire but I will not know who provided which responses. Any reports, presentations, or publications related to this study will share general patterns from the data, without sharing the identities of individual respondents or partner organization(s). The questionnaire data will be kept for a period of at least 5 years, as required by my university.

Contacts and Questions:
If you want to talk privately about your rights in relation to this project, you can call my university's Advocate via the phone number 612-312-1210. Walden University's ethics approval number for this study is 05-14-21-0112483.

Before you start the questionnaire, please share any questions or concerns you might have.

If you have read and agree to the "Consent for Anonymous Questionnaires", please complete the following:

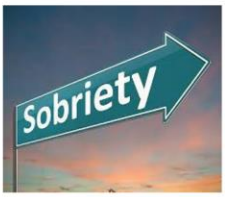
#1: Demographics Information (Click here)

#2: Pre-Assessment Survey (Click here)

- ** You will be asked to create a unique identification code. This is so that the pre-assessment survey results submitted can be compared to the post assessment results submitted by the same participant. Please create and write down your own code, at least 6 character in length. You will need to enter it in the post assessment at the end of the education. Do not use common words or consecutive digits (ie– not ABC123 or nurses) to reduce the chance of duplication.**

Addiction

Drugs control my life
So don't try to convince me that
I can be sober
Because at the end of the day
I can't do this
And I'm not going to lie to myself by saying
I will prosper and succeed
So I will remind myself
That I am a selfish terrible person
And nothing you tell me will make me believe
I deserve a good life
Because no matter what
I will always be addicted
And I wonder if
Things will get better
Because when I look in the mirror, I will always think
Can I recover?



By Emily Kerrigan

** Now read bottom to top **

Opioid Use Disorder

- Opioids . . .
  - Reduce pain by blocking nerve cell receptors
  - Depress the central nervous system – drowsiness, confusion, euphoria, nausea/vomiting, constipation, respiratory depression
  - Includes heroin, oxycodone, fentanyl, methadone, hydrocodone, morphine

- Opioid Use Disorder
  - Compulsive use of opioids regardless of the negative impact on health, relationships, and finances
  - Diagnosis based on taking doses greater or longer than prescribed, inability to wean or control use, spending extended time seeking opioids or recovering from them, craving and using opioids regardless of outcomes, lack of interest in activities, increased tolerance, and/or experience of withdrawal symptoms upon cessation

Significance

- More than 19 million American adults are diagnosed with substance use disorder

- Opioid use disorder leads to loss of work time, relationship stress, high health care utilization & cost, impaired functioning, & inability to care for self or dependents

- More than *40,000 opioid related deaths* occur annually in the US

- In Illinois, the 2018 rate of opioid deaths was 20.7 per 100,000 person exceeding the national average

Addressing the national issue . . . .

- Focused training for providers, law enforcement, pharmacies, and patients
- Decrease risk exposure and prevention of complications
  - Early education (grade school thru high school)
  - Naloxone programs
  - Prescription drug monitoring
  - Needle exchanges
- Outpatient medication assisted treatment (MAT) programs

Yet, substance use is on the rise and relapse rates are as high as 77% . . . .

Risk Factors for Substance Use Disorder

- History of smoking
- Past or current alcohol use or risky alcohol intake (ie: binge drinking)
- Past or current recreational substance use
- First use of any substance before 15 years of age
- Family history of alcohol or substance use disorders
- Trauma (ie: sexual abuse, post-traumatic stress)
- Legal problems or history of incarceration

- Paice, J. A. (2018). Navigating Cancer Pain Management in the Midst of the Opioid Epidemic. *Oncology (Williston Park, N.Y.)*, *32*(8), 386.

Opioid Withdrawal

- Onset determined by type, amount, and frequency of drug used

Drug	Onset	Peak
Short Acting Opioids (ie: heroin, immediate release drugs, fentanyl)	6-12 hours after last use	24-48 hours after last use
Long Acting Opioids (ie: methadone, extended release drugs)	24-72 hours after last use	72-96 hours after last use

- Initial Symptoms
  - Chills, depression, muscle aches, fatigue, severe cravings
- Peak Symptoms
  - Insomnia, constipation, nausea/vomiting, discomfort
- Resolution
  - Cravings continue, but symptoms are less severe
  - Symptoms can last up to two weeks
- Post-acute opioid withdrawal symptoms
  - Mild symptoms, most often psychological, which can last for months

What about the hospitalized patient?

- The next several slides will introduce new evidence-based tools to assist you in caring for patients experiencing opioid withdrawal patients.
  - Improved substance abuse screening assessment
  - Nursing plan of care inclusive of new opioid withdrawal assessment
  - Provider symptom -triggered order set
  - Discharge planning
- Keep in mind, most opioid withdrawal can be treated on an outpatient basis.
- The purpose of introducing these resources is not to introduce an inpatient detoxification program, but rather to provide the knowledge and tools needed for patients experiencing opioid withdrawal secondary to their admission reason.

Substance Abuse Screening Assessment

Substance Use History

Have you used any of the following (beyond prescribed use):	☐ None ☐ Former Use ☐ Current Use ☐ Unknown ☐ Alcohol ☐ Opioids ☐ Cannabis ☐ Depressants ☐ Hallucinogens ☐ Inhalants ☐ Stimulants
Substance Used	
Substance Frequency	
Substance Last Use	
Comment	

The Substance Abuse Screening on the Inpatient Admission Assessment is being updated to capture key information including substance used, frequency, and last use. All of these are key in determining potential risk and onset of withdrawal.
See next slide for types of drugs in each category.

Examples of Substances

- **Opioids:** fentanyl, heroin, hydrocodone, hydromorphone, meperidine, methadone, morphine, oxycodone, oxymorphone
- **Cannabis:** natural or synthetic, edibles or smoke/vape
- **Depressants:** barbituates, benzodiazpines, GHB (Gamma -hydroxybutyrate), sleep aids
- **Hallucinogens:** DMT (Dimitri), DXM (Dextromethrophan), Ketamine, LSD (Acid), MDMA (Ecstasy), PCP (Phencyclidine), Peyote (mescaline), Psilocybin (mushrooms)
- **Inhalants:** aerosols (paint, deodorant spray, cleaners), gases (butane, propane, ether, chloroform, nitrous oxide), nitrites (room deodorizer, liquid aroma), solvents (paint thinner, lighter fluid)
- **Stimulants:** cocaine, Dextroamphetamine (Dexedrine, Adderall), methamphetamine, methylphenidate (Ritalin, Concerta)

Caring for the patient experiencing opioid withdrawal

- Watch me! (click here)
  - Opioid use disorder is not a character flaw
  - It is a disease related to genetics, family dynamics, socioeconomics, and/or mental health diagnosis
  - Patients will delay medical care or be dishonest about substance use for fear of biased, judgmental treatment
  - Use open ended questions/statements during communication
    - "Tell me what withdrawal is like for you"

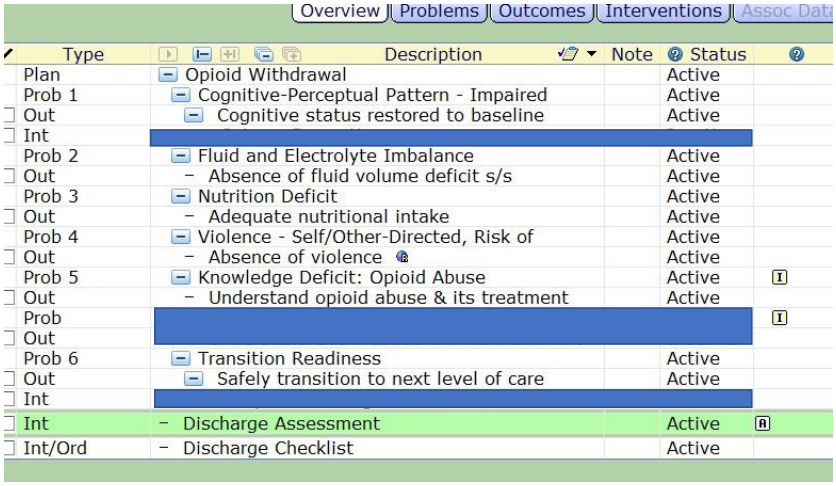
Nursing Plan of Care

- Clinical Opiate Withdrawal Scale (COWS) Assessment Q6H
- Vital Signs with EWS Q6H
- Low stimulation environment
  - Dim lights
  - Close room door as appropriate
- Risk for dehydration
  - IV fluids may be ordered if IV access
  - Monitor intake/output, push oral fluids
  - Monitor orthostatic blood pressures
- Thorough skin assessments, especially for IV drug users
- Positive sepsis screens could indicate cotton fever or infective endocarditis (see next slide)

Potential Complications

- Opioid induced hyperalgesia (OIH)
  - Extreme pain/sensitivity (even to light touch) due to desensitized pain receptors
  - Treat with non-opioid pain medications, warm or cold packs
  - May have some relief with buprenorphine
- Narcotic bowel syndrome (NBS)
  - Abdominal cramping due to slowed mobility
- Constipation
- Cotton fever
  - Bacterial infection associated with IV heroin use
  - Fever, body aches, nausea, elevated WBC
  - May resolve on it's own or be treated with antibiotics
- Infective endocarditis (IE)
  - Associated with IV drug use; may be acute or chronic
  - ** Progressive and life threatening
  - Report any abnormal heart sounds – murmurs, gallops, rubs
  - Fever, chills, shortness of breath, cough, chest/joint pain, petechiae, lesions
- Bloodborne illness – HIV, hepatitis

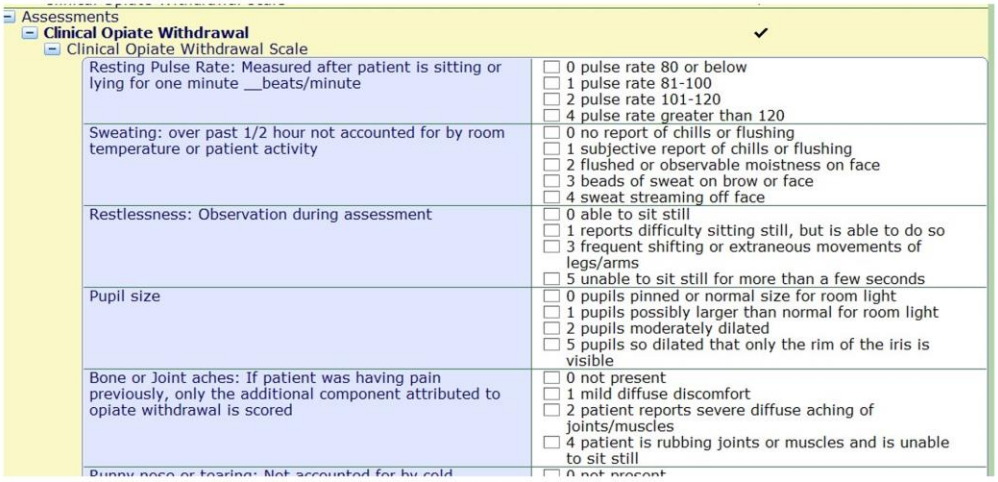
Plan of Care



Clinical Opiate Withdrawal Scale (COWS)

- 11 assessment items, 2 minutes to administer
  - Resting pulse rate
  - Sweating
  - Restlessness
  - Pupil size
  - Bone or joint aches
  - Runny nose or tearing
  - Gastrointestinal upset
  - Tremor
  - Yawning
  - Anxiety or irritability
  - Gooseflesh skin
- Each item is scored based on symptoms present at time of assessment not assumed to be caused by another diagnosis or the environment.

Clinical Opiate Withdrawal Scale (COWS)



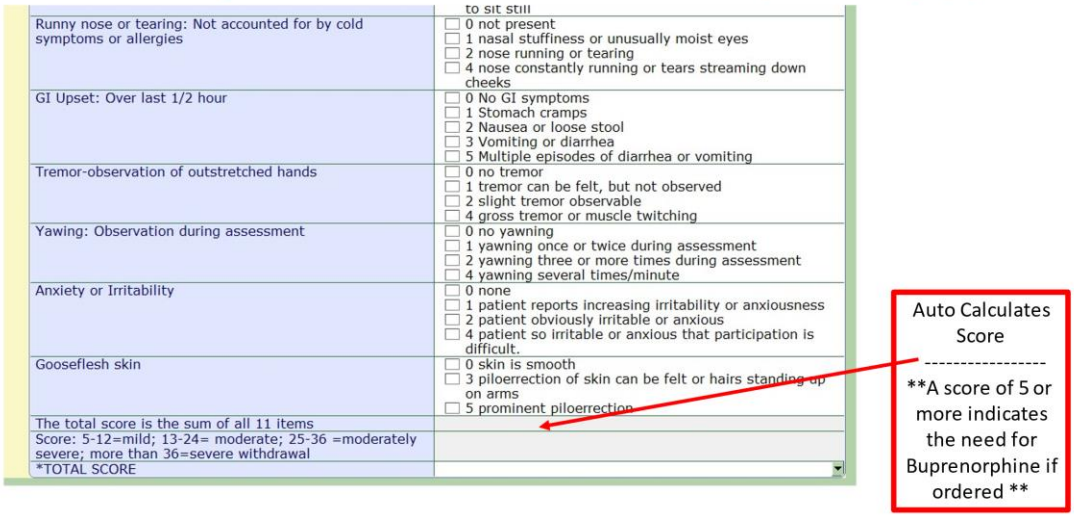
Assessments

Clinical Opiate Withdrawal ✔

Clinical Opiate Withdrawal Scale

Resting Pulse Rate: Measured after patient is sitting or lying for one minute __beats/minute	☐ 0 pulse rate 80 or below ☐ 1 pulse rate 81-100 ☐ 2 pulse rate 101-120 ☐ 4 pulse rate greater than 120
Sweating: over past 1/2 hour not accounted for by room temperature or patient activity	☐ 0 no report of chills or flushing ☐ 1 subjective report of chills or flushing ☐ 2 flushed or observable moistness on face ☐ 3 beads of sweat on brow or face ☐ 4 sweat streaming off face
Restlessness: Observation during assessment	☐ 0 able to sit still ☐ 1 reports difficulty sitting still, but is able to do so ☐ 3 frequent shifting or extraneous movements of legs/arms ☐ 5 unable to sit still for more than a few seconds
Pupil size	☐ 0 pupils pinned or normal size for room light ☐ 1 pupils possibly larger than normal for room light ☐ 2 pupils moderately dilated ☐ 5 pupils so dilated that only the rim of the iris is visible
Bone or Joint aches: If patient was having pain previously, only the additional component attributed to opiate withdrawal is scored	☐ 0 not present ☐ 1 mild diffuse discomfort ☐ 2 patient reports severe diffuse aching of joints/muscles ☐ 4 patient is rubbing joints or muscles and is unable to sit still
Runny nose or tearing: Not accounted for by cold	☐ 0 not present

Clinical Opiate Withdrawal Scale (COWS) (cont)



	to sit still
Runny nose or tearing: Not accounted for by cold symptoms or allergies	☐ 0 not present ☐ 1 nasal stuffiness or unusually moist eyes ☐ 2 nose running or tearing ☐ 4 nose constantly running or tears streaming down cheeks
GI Upset: Over last 1/2 hour	☐ 0 No GI symptoms ☐ 1 Stomach cramps ☐ 2 Nausea or loose stool ☐ 3 Vomiting or diarrhea ☐ 5 Multiple episodes of diarrhea or vomiting
Tremor-observation of outstretched hands	☐ 0 no tremor ☐ 1 tremor can be felt, but not observed ☐ 2 slight tremor observable ☐ 4 gross tremor or muscle twitching
Yawing: Observation during assessment	☐ 0 no yawning ☐ 1 yawning once or twice during assessment ☐ 2 yawning three or more times during assessment ☐ 4 yawning several times/minute
Anxiety or Irritability	☐ 0 none ☐ 1 patient reports increasing irritability or anxiousness ☐ 2 patient obviously irritable or anxious ☐ 4 patient so irritable or anxious that participation is difficult.
Gooseflesh skin	☐ 0 skin is smooth ☐ 3 piloerrection of skin can be felt or hairs standing up on arms ☐ 5 prominent piloerrection
The total score is the sum of all 11 items	
Score: 5-12=mild; 13-24= moderate; 25-36 =moderately severe; more than 36=severe withdrawal	
*TOTAL SCORE	

Auto Calculates Score

**A score of 5 or more indicates the need for Buprenorphine if ordered **

Clinical Opiate Withdrawal Scale (COWS)

- COWS Scoring
  - 5-12 = mild symptoms
  - 13-24 = moderate symptoms
  - 25-36 = moderately severe
  - >36 = severe withdrawal

** If selected by the provider, buprenorphine will be initiated if/when the patient shows mild withdrawal symptoms (COWS = 5 or greater). **

** If not ordered, contact the provider. **

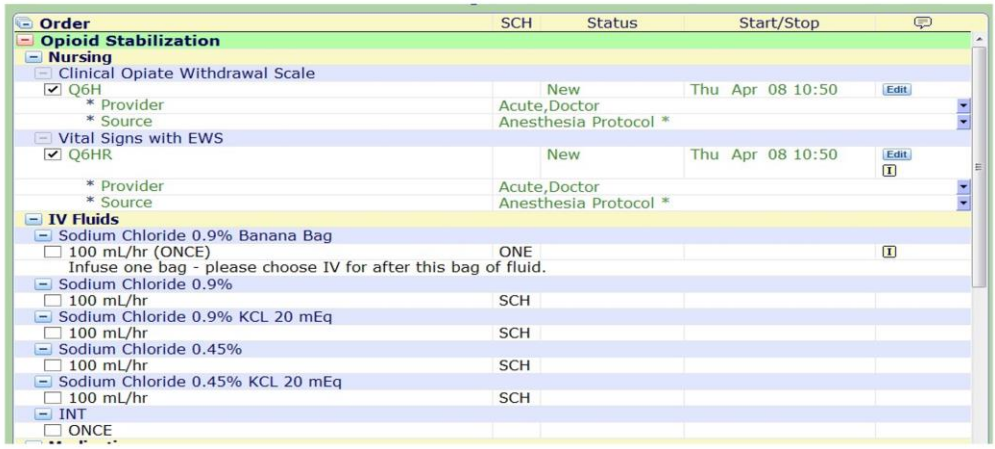
**Patients with scores less than 5 may be well managed with other medications such as clonidine (see next slides). **

Symptom-triggered Order Set

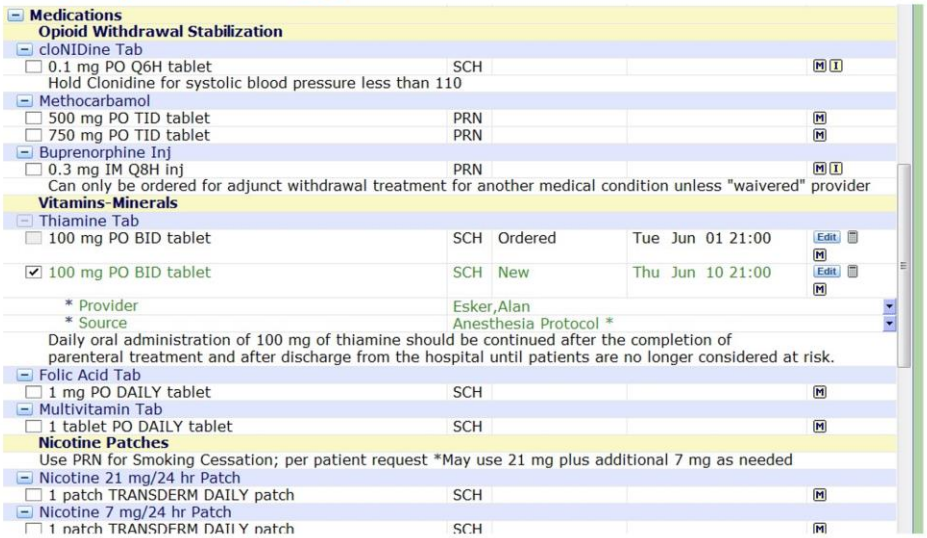
- If the patient is at risk for or experiencing alcohol and opioid withdrawal, the **ALCOHOL ORDER SET ONLY** should be used.
  - Alcohol withdrawal is more dangerous/risky for the patient
  - Do NOT give buprenorphine with lorazepam

- IV fluids may be ordered pending IV access and patient need
- Medication options
  - Clonidine 0.1 mg Q6H ** Hold for systolic BP <110.
  - Methocarbamol 500 or 750 mg TID
  - Buprenorphine 0.3 mg IM Q8H ** initiate if/when COWS is 5 or more

Symptom-triggered Order Set

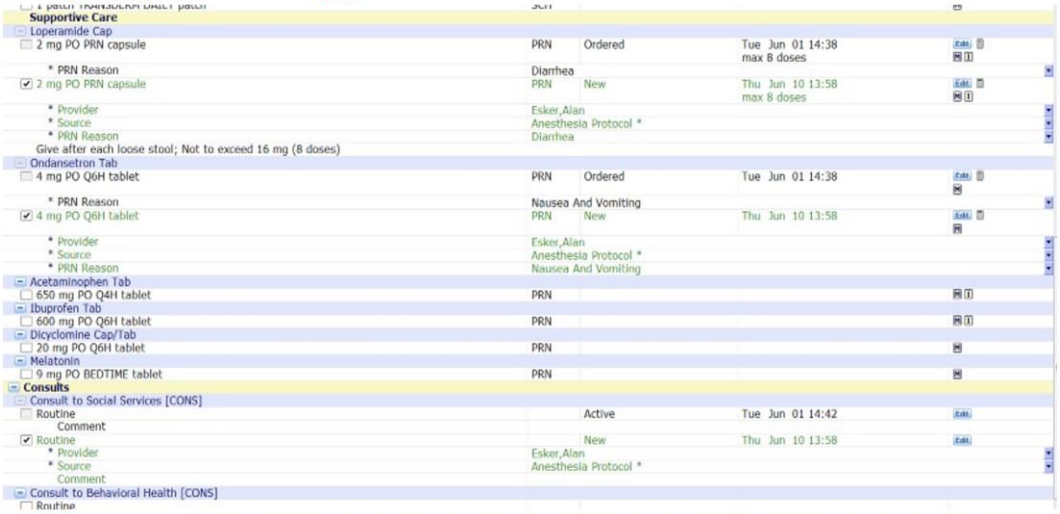


Symptom-triggered Order Set



Medications
Opioid Withdrawal Stabilization
cloNIDine Tab
0.1 mg PO Q6H tablet — SCH
Hold Clonidine for systolic blood pressure less than 110
Methocarbamol
500 mg PO TID tablet — PRN
750 mg PO TID tablet — PRN
Buprenorphine Inj
0.3 mg IM Q8H inj — PRN
Can only be ordered for adjunct withdrawal treatment for another medical condition unless "waivered" provider
Vitamins-Minerals
Thiamine Tab
100 mg PO BID tablet — SCH — Ordered — Tue Jun 01 21:00 — Edit
100 mg PO BID tablet — SCH — New — Thu Jun 10 21:00 — Edit
* Provider: Esker,Alan
* Source: Anesthesia Protocol *
Daily oral administration of 100 mg of thiamine should be continued after the completion of parenteral treatment and after discharge from the hospital until patients are no longer considered at risk.
Folic Acid Tab
1 mg PO DAILY tablet — SCH
Multivitamin Tab
1 tablet PO DAILY tablet — SCH
Nicotine Patches
Use PRN for Smoking Cessation; per patient request *May use 21 mg plus additional 7 mg as needed
Nicotine 21 mg/24 hr Patch
1 patch TRANSDERM DAILY patch — SCH
Nicotine 7 mg/24 hr Patch
1 patch TRANSDERM DAILY patch — SCH

Symptom-triggered Order Set



Supportive Care
Loperamide Cap
2 mg PO PRN capsule — PRN — Ordered — Tue Jun 01 14:38 — max 8 doses
* PRN Reason: Diarrhea
2 mg PO PRN capsule — PRN — New — Thu Jun 10 13:58 — max 8 doses
* Provider: Esker,Alan
* Source: Anesthesia Protocol *
* PRN Reason: Diarrhea
Give after each loose stool; Not to exceed 16 mg (8 doses)
Ondansetron Tab
4 mg PO Q6H tablet — PRN — Ordered — Tue Jun 01 14:38
* PRN Reason: Nausea And Vomiting
4 mg PO Q6H tablet — PRN — New — Thu Jun 10 13:58
* Provider: Esker,Alan
* Source: Anesthesia Protocol *
* PRN Reason: Nausea And Vomiting
Acetaminophen Tab
650 mg PO Q4H tablet — PRN
Ibuprofen Tab
600 mg PO Q6H tablet — PRN
Dicyclomine Cap/Tab
20 mg PO Q6H tablet — PRN
Melatonin
9 mg PO BEDTIME tablet — PRN
Consults
Consult to Social Services [CONS]
Routine — Active — Tue Jun 01 14:42
Comment
Routine — New — Thu Jun 10 13:58
* Provider: Esker,Alan
* Source: Anesthesia Protocol *
Comment
Consult to Behavioral Health [CONS]
Routine

Clonidine

- Alpha-2 adrenergic agonist
- Effective as off-label use because withdrawal occurs when the brain's non adrenergic system experiences over activity
- Helps to control tachycardia, hypertension, hyperthermia, diaphoresis, lacrimation, rhinorrhea, piloerections, mydriasis, & yawning
- Recommended dosing 0.1-0.3 mg every 6-8 hours
- Order set: 0.1 mg Q6H
- ** Hold for SBP less than 110
- Hypotension commonly limits the ability to order the higher doses of this drug for withdrawal treatment

Methocarbamol (Robaxin)

- CNS depressant
- Used to treat musculoskeletal pain
- Monitor vital signs, especially respiratory rate when patient is started on buprenorphine or other CNS depressants
- Avoid use with older adults
- Increased fall risk due to side effects (dizziness, lightheadedness)
- Order set includes options for 500 mg PO TID or 750 mg PO TID
- Typical maintenance dosing is up to 4 grams/day so this may be increased by order if needed

Buprenorphine (Buprenex)

- Narcotic analgesic – binds to CNS opiate receptors
- Relieves cravings without creating euphoria
- Started only when symptoms of active withdrawal are present
- Monitor for respiratory depression
- Use cautiously in older adults

Will be ordered as a PRN. If/when COWS reaches 5 or more, it can be changed to scheduled (by nursing as ordered) and will continue that way until discontinued or altered by the provider.

Supplements & Supportive Medications

- Pre-selected on the order set:
  - Thiamine
  - Loperamide for diarrhea
  - Ondansetron for nausea

- Other options
  - Folic acid
  - Multivitamin
  - Nicotine patch
  - Dicyclomine for abdominal cramping
  - Melatonin for sleep
  - Tylenol or Motrin for pain

Discharge Planning

- Prechecked – social services consult
- Optional – behavioral health consult

Discharge Planning

- What's next?
  - Outpatient treatment?
  - Long term inpatient treatment?
- Relapse can be prevented in willing participants with clear discharge instructions and a follow-up plan of care
  - Not all patients will accept treatment ;they may not be physically or mentally ready. Social services can provide resources for these patients if/when they are ready
- Patients are at highest risk for overdose during relapse
  - **** This is very important to include in discharge teaching for the patient not ready to commit to sobriety or treatment ****
- Social Services consult is pre-selected on the order set
  - Social Services will contact an outside agency to perform a phone screening assessment to determine appropriate outpatient or inpatient needs
  - Social Services will obtain consent from the patient for assessment and registration

**Discharge planning is VERY important to prevent relapse, overdose, and readmission and to improve patient outcomes. **

Goals of Standardized Care

- Improved quality of care
- Improved patient experience and outcomes
- Support for the health care team
- Reduced length of time needed for withdrawal management
- Increased participation in outpatient treatment for long -term sobriety
- Reduced readmissions

Putting it all together Patient #1 . . .

Hero Inuser, a 38 year old male patient, presents to the emergency room with reports of chest pain. His ECG is negative for an acute event, but his WBC and cardiac enzymes are slightly elevated. Hero is admitted to 4 East under observation for further work up.

During the admission assessment, Hero reluctantly admits to using opioids (heroin) on a daily basis via injection. He last used 6 hours ago. He is worried about being judged for his addiction, but is more concerned about the painful withdrawal expected to start soon.

Florence Nightingale, RN, remembers her recent opioid withdrawal education. She documents the substance use history on admission and initiates the opioid withdrawal plan of care while reassuring the patient she will do all she can to help manage his symptoms.

Hero Inuser Assessment . . .

- Vital Signs (Q6H)
  - Blood pressure 132/68
  - Heart rate 110
  - Respiratory Rate 20
  - Temperature 98.9
- Alert/oriented
- Hero appears flushed with "clammy" skin
- He reports feeling restless
- Pupil size and response is within normal limits
- Hero report mild aches "all over"
- Hero denies congestion or tearing
- What is your score so far? _____

Resting Pulse Rate: (record beats per minute) *Measured after patient is sitting or lying for one minute* 0 pulse rate 80 or below 1 pulse rate 81-100 2 pulse rate 101-120 4 pulse rate greater than 120
Sweating: *over past ½ hour not accounted for by room temperature or patient activity.* 0 no report of chills or flushing 1 subjective report of chills or flushing 2 flushed or observable moistness on face 3 beads of sweat on brow or face 4 sweat streaming off face
Restlessness *Observation during assessment* 0 able to sit still 1 reports difficulty sitting still, but is able to do so 3 frequent shifting or extraneous movements of legs/arms 5 Unable to sit still for more than a few seconds
Pupil size 0 pupils pinned or normal size for room light 1 pupils possibly larger than normal for room light 2 pupils moderately dilated 5 pupils so dilated that only the rim of the iris is visible
Bone or Joint aches *If patient was having pain previously, only the additional component attributed to opiates withdrawal is scored* 0 not present 1 mild diffuse discomfort 2 patient reports severe diffuse aching of joints/ muscles 4 patient is rubbing joints or muscles and is unable to sit still because of discomfort
Runny nose or tearing *Not accounted for by cold symptoms or allergies* 0 not present 1 nasal stuffiness or unusually moist eyes 2 nose running or tearing 4 nose constantly running or tears streaming down cheeks

Hero Inuser Assessment . . . (cont)

- Heart rate = 110 bpm = 2 points
- Sweating = flushed, moist = 1 point
- Restlessness = reported but not observed = 1 point
- Pupil size = within normal limits = 0 points
- Aches = diffuse = 1 point
- Runny nose or tearing = denies/not observed = 0 points

- Let's continue . . . .
  - No GI symptoms = 0 points
  - No visible or felt tremors = 0 points
  - No yawning = 0 points
  - Patient feels anxious = 1 point
  - No goosebumps = 0 points

- Total = 6 points = Mild symptoms

GI Upset: *over last ½ hour* 0 no GI symptoms 1 stomach cramps 2 nausea or loose stool 3 vomiting or diarrhea 5 Multiple episodes of diarrhea or vomiting
Tremor *observation of outstretched hands* 0 No tremor 1 tremor can be felt, but not observed 2 slight tremor observable 4 gross tremor or muscle twitching
Yawning *Observation during assessment* 0 no yawning 1 yawning once or twice during assessment 2 yawning three or more times during assessment 4 yawning several times/minute
Anxiety or Irritability 0 none 1 patient reports increasing irritability or anxiousness 2 patient obviously irritable anxious 4 patient so irritable or anxious that participation in the assessment is difficult
Gooseflesh skin 0 skin is smooth 3 piloerrection of skin can be felt or hairs standing up on arms 5 prominent piloerrection

Hero Inuser Interventions . . . .

- Florence, RN notifies Dr. Hospitalist to initiate the opioid withdrawal order set
- The lights in the room are turned down and the door is closed to keep out external noise
- Per orders, clonidine and buprenorphine are started on a scheduled basis
- Florence knows that these CNS depressants require monitoring of orthostatic blood pressures and for respiratory depression
- Supportive medications are offered over the next two days to control symptoms of nausea, abdominal cramping, and insomnia.
- Social services contacts the appropriate agency for evaluation of outpatient or inpatient substance abuse treatment needs at discharge

Putting it all together Patient #2 . . .

Fenta Nylpatch, a 46 year old female patient is admitted postoperatively following a scheduled hysterectomy.

At 2am, Fenta calls her nurse to the room due to increased anxiety. Although she did not disclose her substance use history with the preop or surgical team, she is becoming increasingly concerned about potential withdrawal.

She discloses that she has been consuming the contents of fentanyl patches for several months "whenever I can get them".

Fenta Nylpatch Assessment . . .

- Vital Signs (Q6H)
  - Blood pressure 112/70
  - Heart rate 90
  - Respiratory Rate 18
  - Temperature 97.8
- Alert/oriented
- Fenta denies chills or diaphoresis, skin tone within normal limits
- She is resting in bed, but reports feeling anxious
- Pupil size and response is within normal limits
- Fenta denies pain at this time
- Fenta denies congestion or tearing
- What is your score so far? _____

Resting Pulse Rate: (record beats per minute) *Measured after patient is sitting or lying for one minute* 0 pulse rate 80 or below 1 pulse rate 81-100 2 pulse rate 101-120 4 pulse rate greater than 120
Sweating: *over past ½ hour not accounted for by room temperature or patient activity.* 0 no report of chills or flushing 1 subjective report of chills or flushing 2 flushed or observable moistness on face 3 beads of sweat on brow or face 4 sweat streaming off face
Restlessness *Observation during assessment* 0 able to sit still 1 reports difficulty sitting still, but is able to do so 3 frequent shifting or extraneous movements of legs/arms 5 Unable to sit still for more than a few seconds
Pupil size 0 pupils pinned or normal size for room light 1 pupils possibly larger than normal for room light 2 pupils moderately dilated 5 pupils so dilated that only the rim of the iris is visible
Bone or Joint aches *If patient was having pain previously, only the additional component attributed to opiates withdrawal is scored* 0 not present 1 mild diffuse discomfort 2 patient reports severe diffuse aching of joints/ muscles 4 patient is rubbing joints or muscles and is unable to sit still because of discomfort
Runny nose or tearing *Not accounted for by cold symptoms or allergies* 0 not present 1 nasal stuffiness or unusually moist eyes 2 nose running or tearing 4 nose constantly running or tears streaming down cheeks

Fenta Nylpatch Assessment . . . (cont)

- Heart rate = 90 bpm = 1 point
- Sweating/chills = none = 0 points
- Restlessness = none (anxiety – see below) = 0 points
- Pupil size = within normal limits = 0 points
- Aches = denies = 0 points
- Runny nose or tearing = denies/not observed = 0 points

- Let's continue . . . .
  - No GI symptoms = 0 points
  - No visible or felt tremors = 0 points
  - No yawning = 0 points
  - Reported **anxiety** = 1 point
  - No goosebumps = 0 points

- Total = 2 points

GI Upset: *over last ½ hour*
0 no GI symptoms
1 stomach cramps
2 nausea or loose stool
3 vomiting or diarrhea
5 Multiple episodes of diarrhea or vomiting
Tremor *observation of outstretched hands*
0 No tremor
1 tremor can be felt, but not observed
2 slight tremor observable
4 gross tremor or muscle twitching
Yawning *Observation during assessment*
0 no yawning
1 yawning once or twice during assessment
2 yawning three or more times during assessment
4 yawning several times/minute
Anxiety or Irritability
0 none
1 patient reports increasing irritability or anxiousness
2 patient obviously irritable anxious
4 patient so irritable or anxious that participation in the assessment is difficult
Gooseflesh skin
0 skin is smooth
3 piloerrection of skin can be felt or hairs standing up on arms
5 prominent piloerrection

Fenta Nylpatch Interventions . . . .

- Similar to Hero's situation, the nurse notifies Dr. Hospitalist to initiate the opioid withdrawal order set. The provider selects all three stabilization medications (clonidine, methocarbamol, buprenorphine).
- The environment is assessed to limit stimulation
- Per orders, clonidine and methocarbamol are initiated
- Buprenorphine is not yet indicated (COWS assessment <5)
- Lorazepam or other benzodiazepines are not indicated; these would cause a major risk for respiratory depression should the buprenorphine need to be started
- The ordered scheduled and PRN medications are used to keep Fenta's symptoms to a minimum

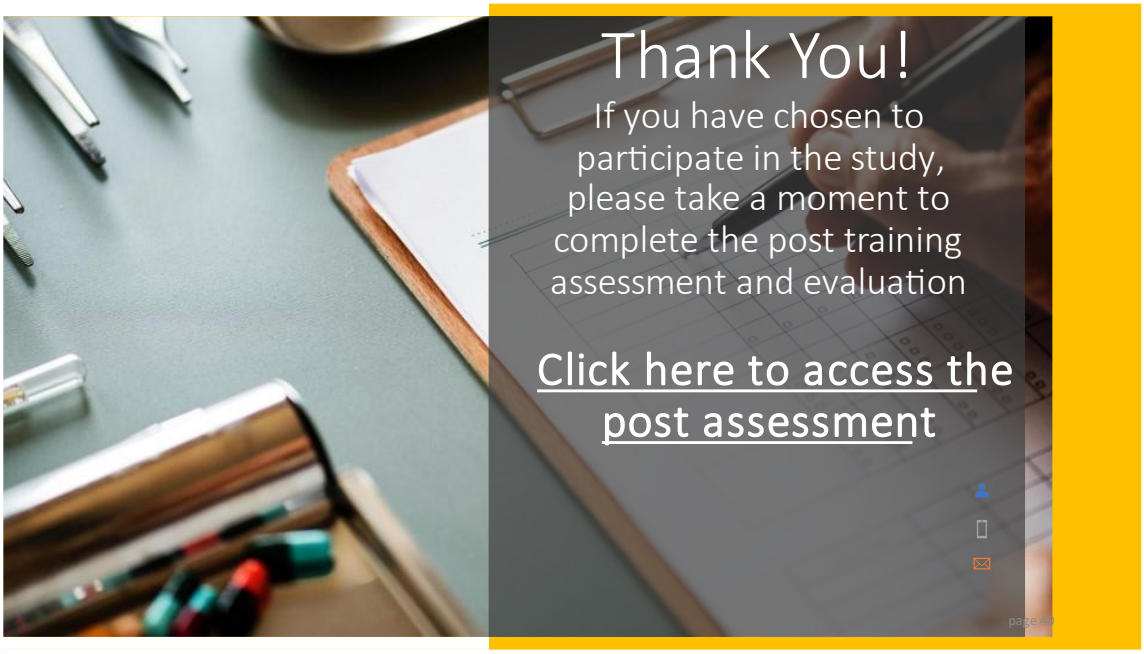
- Social services contacts the appropriate agency for evaluation of outpatient or inpatient substance abuse treatment needs at discharge

Go LIVE– Wednesday, July 28th

- Improved substance abuse screening assessment
- Nursing plan of care inclusive of new opioid withdrawal assessment
- Provider symptom-triggered order set
- Discharge planning

Questions??
Interested in being a "subject matter expert" (super user) on this topic?

Please contact:



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Appendix D: Content Expert Validity Evaluation

Care of the Acute Opioid Withdrawal Inpatient – Pre/Post Assessment Validity Evaluation by Content Experts

Thank you for taking the time to act as a content expert for this doctoral evidence-based practice educational project. This survey will serve as the validity evaluation of the curriculum and assessment questions.

> PICOT: Does educating the nursing staff on a new standardized opioid withdrawal clinical practice guideline, inclusive of assessment, nursing interventions, a symptom triggered order set, and follow up plan of care, improve the knowledge needed to optimize the care provided for an opioid withdrawal patient as compared to non-standardized treatment options during a training period of 6 weeks?

Curriculum Plan Evaluation

Please select whether you feel each of the following curriculum objectives were met or not met utilizing the curriculum as presented.

Met	Unmet	
		Participants will be able to discuss the importance of standardized care in optimizing patient outcomes
		Participants will be able to demonstrate competency in use of a standardized withdrawal assessment scale
		Participants will be able to provide instruction on discharge planning and follow up plan of care
		Participants will be able to apply the new opioid withdrawal order set to patient care in collaboration with the nursing plan of care
		The information presented is applicable to inpatient nursing
		The program presentation is engaging for the learner
		The presentation style contributes to the learning experience

Pretest/Posttest Relevance

Please rate each of the following questions in terms of how important it is to the program outcomes.

1 = not relevant
2 = somewhat relevant
3 = relevant
4 = very relevant

For the subjective statements, participants will be asked to rate to what extent they agree with the statement using the following a scale of strongly agree, agree, neutral, disagree, or strongly disagree.

Relevance (see scale)	
	I have a strong knowledge of how to care for the patient experiencing opioid withdrawal.
	I have the tools and resources needed to provide optimal care for the patient experiencing opioid withdrawal.
	I have a high level of confidence in the ability to perform an opioid withdrawal assessment.
	I have knowledge of available resources for discharge planning with a patient experiencing opioid use disorder.
	2. The onset of opioid withdrawal typically occurs: a. Within 24 hours of the last use b. 24-72 hours after last use c. 72-96 hours after last use d. It depends on the type of opioid used
	3. Withdrawal from which substance is more high risk for the patient? a. Alcohol b. Opioids c. Neither, they are of equal risk
	4. Which of the following nursing interventions are appropriate for patients experiencing opioid withdrawal? (Select all that apply) a. Low stimulation environment b. Limit oral intake c. Monitor orthostatic blood pressures d. Continuous pulse oximetry e. Thorough skin assessment f. Sepsis screening
	5. The patient experiencing opioid withdrawal due to IV heroin use is experiencing fever, body aches, nausea, and an elevated white blood cell count. Which complication might you expect is occurring? a. Opioid induced hyperalgesia b. Narcotic bowel syndrome c. Constipation d. Cotton fever e. Infective endocarditis

	f. Bloodborne illness (HIV or hepatitis) g. None; these are expected withdrawal symptoms
	6. Which of the following findings are expected withdrawal symptoms? a. Fever, aches, elevated white blood cell count b. Sweating, joint aches, runny nose c. Anxiety, constipation, bradycardia d. Tachycardia, hypokalemia, hyponatremia
	7. To control opioid withdrawal, <u>preventative</u> medications may include (select all that apply): a. Chlordiazepoxide b. Clonidine c. Buprenoprhine d. Lorazepam
	8. Structured discharge planning (select all that apply): a. Does not improve the relapse rate b. Reduces readmissions c. Is not optional for patients d. Includes a consult with outside substance abuse service e. Is up to the provider for determination of further treatment needs