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# Implementation of an Opioid Risk Assessment Tool

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By

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Seton Hall University

DNP Scholarly Project Committee

Dr. Mary Ellen Roberts-Director

Dr. Joyce Maglione

Margaret McSweeney

Submitted in partial fulfillment of the requirements for the degree of

Doctor of Nursing Practice

Seton Hall University

2017

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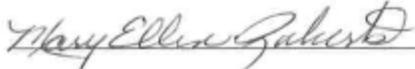
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## Dedication

I dedicate this quality improvement project to my patients. May this tool help to advance their care and provide the best possible outcomes.

## Acknowledgements

The completion of this doctorate of nursing achievement marks a valuable milestone in my life and career. I would like to express my gratitude for the support of my family, friends, colleagues and educators. Through their assistance my growing professional achievements have been attainable.

To Dr. Mary Ellen Roberts, DNP, APN-c, FAANP, FAAN, the Director of Nursing Practice at Seton Hall University and my advisor, for her guidance and direction throughout my graduate program and this quality improvement project.

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**TABLE OF CONTENTS**

	Page
ABSTRACT.....	5
I. BACKGROUND.....	6
II. REVIEW OF THE LITERATURE.....	13
III. METHODOLOGY.....	24
IV. PROJECT OUTCOMES.....	28
V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.....	35
VI. REFERENCES.....	37
VII. APPENDICES.....	42

### **Abstract**

The increased prevalence of opioid use in society has led to an increase in surgical patients with a history of such use. Patients who use or are addicted to opioids have different tolerances and responses to anesthesia than non-opioid users, and will require different care than non-users both pre- and post-operatively. The means to identify this population prior to a surgical procedure is needed as a way to organize, plan and manage patient care during the perioperative period. An Opioid Risk Assessment Tool (ORAT) was used as a way to streamline the process of identifying these patients. This paper addresses the development, implementation and execution of this quality improvement project, along with the screening results from a population of 512 pre-surgical patients. As a result, the ORAT was installed as part of the computer screening tools in the Pre-Surgical Testing (PST) department at a leading academic cancer hospital.

*Keywords: opioid risk assessment tool (ORAT), nurse practitioners, opioid use and addiction*

## **Background**

### **The Scope of the Problem**

Chronic pain is a serious medical condition affecting about 12% of the adult population in the United States (U.S.) (United States Department of Health and Human Services-National Institutes of Health, 2015). This influences the physical, psychosocial and social well being of an individual (Brant, Keller, McLeod, Yeh & Eaton, 2017). The regime of medication used to control chronic pain is related to the increase in opioid use and addiction (Bryson, 2014). From 2004 to 2011, the top three opioids with the largest increase in medical use and misuse included hydromorphone, buprenorphine and oxycodone (Atluri, Sudarshan & Manchikanti, 2014).

The use and overuse of opioids results in conditions such as physical dependence, increased tolerance, drug misuse and drug overdose (Opioid Overdose, n.d.). In 2010, the prevalence of addiction among U.S. adults was between seven and fourteen percent. (Fischer, Bader & Sweitzer, 2010). About 60% of drug overdose fatalities are related to opioid use (Rudd, Seth, David & Scholl, 2016). Opioid involved mortality in the United States continues to rise with over a half of million deaths estimated between the years of 2000-2015 (Opioid Overdose, n.d.).

Opioids create a chemical reaction within the brain and nervous system that makes people experience pain relief and/or feelings of pleasure (National Institute on Drug Abuse, 2015). These effects may be so desirable that an individual continues wanting to experience these feelings even after opioid use is no longer medically required. Maintenance dosing and the use of opioid replacements can create an equally significant problem as opioid addiction impacts providing patient care (Bryson, 2014). Factors such as increased written prescriptions,

pharmaceutical marketing, and social acceptability have contributed to the environmental availability of opioid consumption (Volkow, 2014).

Treating this condition and its consequences requires additional attention to patient care. An individual's daily life is disrupted by chronic pain conditions resulting in decreased productivity. Opioid use is not only a predicament that affects the lives of the individual user, but their family and friends. Strong genetic and personal predispositions can be a major trigger of addiction. Addictive disease is known to be permanent even when a person has a period of abstinence (Fischer, Bader & Sweitzer, 2010).

It costs the nation an average of \$630 billion a year to treat opioid related conditions (Dykstra, 2012). The *Institute of Medicine* has highlighted that healthcare costs have increased tremendously due to the lack of attention regarding this illness related to preventative care, management, and education (Dykstra, 2012). Figure 1 shows opioid related adverse events were shown to increase costs by more than \$1,000 per patient and increasing a hospital stay by at least one day (Ready, 2012).

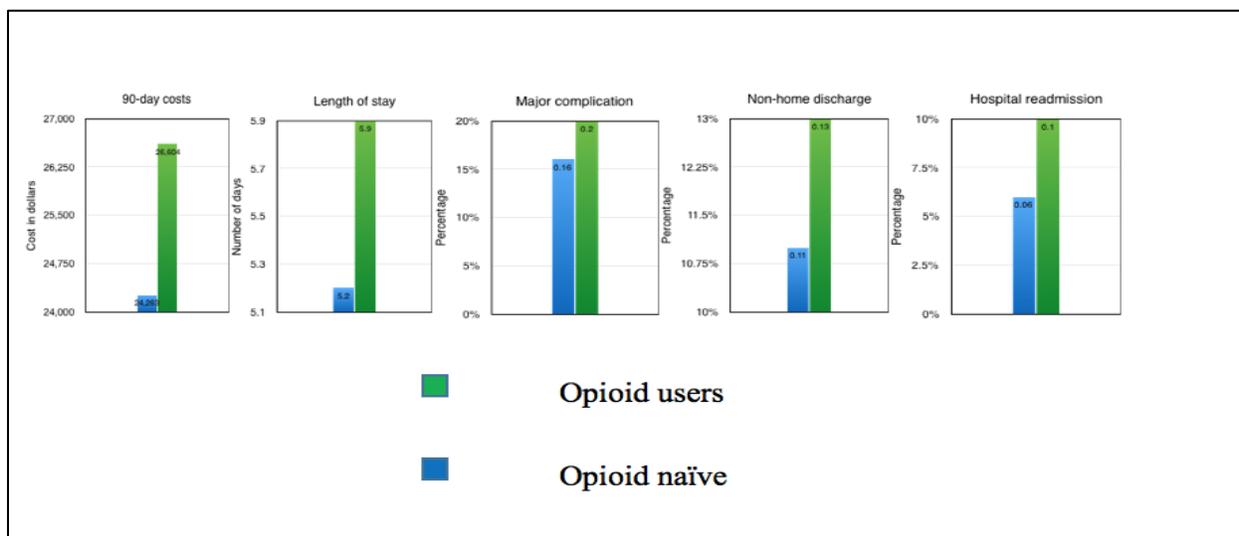


Figure 1. Examples of various hospital costs related to opioid users and non-users (Cron et al, 2017).

### **Contributing Factors and Current Practice**

Surgical patients with a history of opioid addiction are a challenging population to manage pre, intra, and post-operatively. This is a vulnerable time for an individual. Patients may not be currently utilizing a prescribed medication, but can have a history of past use or be on a prescribed replacement agent. When patients are taking a prescribed medication to treat opioid addiction, standard anesthetic agents are not effective (Bryson, 2014). Contributing factors such as a history of current or previous alcohol or drug addiction place a patient at a risk for opioid addiction which presents special challenges for the perioperative team (Fischer, Bader & Sweitzer, 2010).

Undergoing a surgical procedure includes not only an anesthetic agent operatively. Pre-operatively, patients take agents to control pain that is related to personal history use, previous pain related to a medical diagnosis or a treatment side effect. In the post-operative period an opioid agent is typically the drug of choice for pain control. The patient population that is at risk for opioid addiction is not identified prior to surgery until they arrive on the day of their surgical procedure or not even at all. In conjunction with the *Institute of Medicine* (2011), failure to recognize this type of patient before the day of surgery hinders providing preventative care that would help to manage the patient throughout the surgical process.

There is lack of knowledge regarding this matter within the medical profession because the consideration of this form of illness is not taken into account when a patient is scheduled to undergo a surgical procedure. Cancer patients specifically have been shown to suffer because evidence-based interventions are not routinely placed into practice. It is imperative practitioners recognize what addiction disease is, the best way to assess for opioid use disorders, and the benefit of a successful treatment plan for patients. Not acknowledging patient addiction and

opioid use disorders can inhibit appropriate pain management including a treatment plan (Brant, 2017).

As media attention continues to highlight the severity of the opioid epidemic and agents used to control past addictions, a transformation in practice needs to occur to help this population. Providers must be aware of any patient that poses a specific threat so pre, intra and, post-operative care can be appropriately administered. When patients are at risk for opioid addiction, special attention is needed in regard to the administered medications (Bryson, 2014). The advanced identification of patients with chronic pain or a history of addiction prevents potential problems leading to surgical complications. Increased hospital stays are a result of surgical complications (Dykstra, 2012). Rising healthcare costs in addition to poor patient satisfaction and suffering are a result of poorly managed pain (Brant, Keller, McLeod, Yeh & Eaton, 2017).

## **Description of the Project**

### **Recipient of the Project Activity**

The recipients of this project activity included the patient, the Pre-Surgical Testing (PST) department, the anesthesia pain service, and the medical institution. The patient benefited by having early identification of a potential medical concern so an appropriate treatment plan could be established to ensure a smooth operative course. The PST department was the recipient of understanding, implementing and utilizing the Opioid Risk Assessment Tool (ORAT). It was an advantage to the anesthesia pain service to have additional patient information before the scheduled day of surgery. The institution benefits from this quality improvement project because by providing preventative care to patients with chronic pain use and/or addiction, prevents complications resulting in increased costs.

***Expected Result of the Successful Project***

The expected result of this quality improvement project was to identify patients with the potential risk for opioid addiction by selecting an appropriate method shown to help recognize this population. After determining the best method for screening, the goal was to successfully capture a select group of patients and to identify those at risk for opioid addiction. The expectation of the screening tool selected was to be successfully applied as a method of improving patient outcomes.

On a micro level, the goal of implementing a new screening tool into the pre-operative evaluation period was a way to highlight a specific population of patients prior to any surgical procedure. The success of this project was measured based on the ability of the tool to be developed, implemented and utilized. Recognizing the vulnerability of at risk patients, an appropriate treatment plan could be established to ensure a patient's surgical hospital course was seamless. On a macro level, the capability of having a screening method to identify patients with a very high risk for potential complications, prevents increased costs due to patients' problems. Targeting the concern of opioid use was a way to contribute nationally to the chronic pain consumption epidemic.

**Purpose of the Project*****Aim of the Project***

The aim of this project was to implement a screening tool into clinical nursing practice during a pre-surgical evaluation. This was considered the most appropriate time to conduct an evaluation because it provided a foundation and framework for managing patients as a way to reduce morbidity and enrich patient outcomes (Fischer, Bader & Sweitzer, 2010). This screening tool was implemented as a way to help identify a patient at risk for an opioid addiction to

maximize treatment. Recognizing patients that have the potential to develop a side effect as a result of the hospital administered treatment, decreases the need for additional management. Higher healthcare costs would be a result of a patient developing a problem related to the care received at the hospital. The purpose of having a comprehensive plan in place to provide preventative medical care to the surgical patient was imperative for this population.

### ***Steps to Successful Implementation of the Project***

The implementation of this successful quality improvement project required several steps. Functioning as an effective leader was necessary to implement this project. Initially a quality concern within nursing practice was identified. After researching, collaboration and teamwork a solution was developed. Once the idea for the project was formed, it was presented to the various stakeholders. Acceptance from each stakeholder was necessary for the achievement of this project. All appropriate parties were required to be informed of the purpose of the screening tool and educated on the information pertaining to its use. The tool was utilized to determine if it would capture the population intended. Once the tool demonstrated that it was a successful way to screen patients, it continued to be performed in practice. A timeline was created to ensure the project progressed appropriately. Table 1 is representation of the components of the budget for this project including the cost and time involved in the implementation and execution.

Table 1

*Project Budget*

Expense	Money	Time
Project Coordination	X	50 hours
Staff Education	X	20 hours
Evaluation of Project Success	X	20 hours
Total	X	90 hours

*Significance of the Project for Nursing*

The implementation of this quality improvement initiative led by a nurse practitioner (NP) had a significant impact on the nursing profession. It demonstrated that nurses are leaders, striving to develop the nursing profession for the benefit of the patient. NPs played a pivotal role in the development and execution of this project. Utilizing the screening tool as an early identification of at risk patients became an element of the NP's pre-surgical evaluation history and physical assessment. Nurses are at the forefront of providing preventative care, patient management and education. Utilizing this tool allowed the execution of these three essential components which are described by the *Institute of Medicine* as key elements of the nursing profession (Dykstra, 2012). The achievement of selecting an appropriate method to screen a specific patient population during a vulnerable hospital stay, obtaining staff collaboration and executing the implementation of this screening tool exhibited the power of the nursing profession.

**Review of the Literature**

**Theoretical Framework**

A theory logic model is a graphic illustration representing all of the elements involved in the implementation of this project. The logic model involves a systematic process that has the various components necessary to solve a problem (Logic Model Workbook, n.d.). This quality improvement project was developed in order to initiate a positive difference. A graphic representation was useful in demonstrating the effective development of the framework for this project as shown in Figure 2.

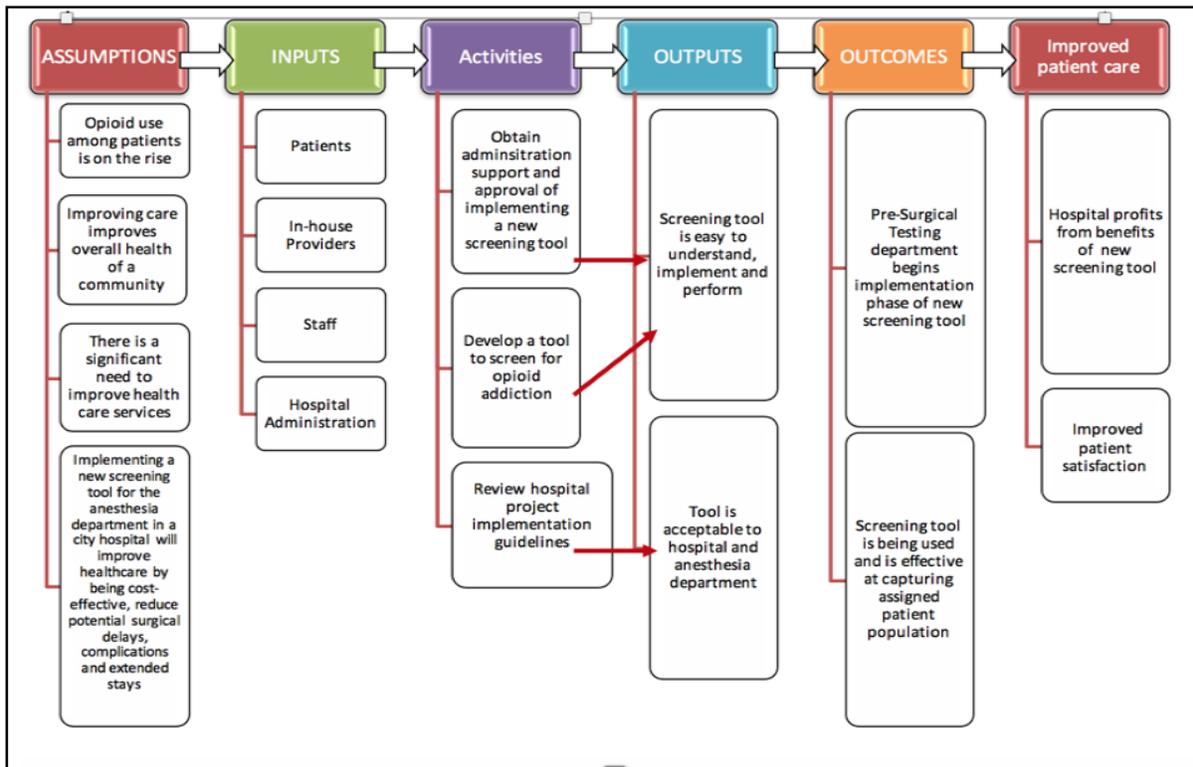


Figure 2. This is the Theory Logic Model approach for the implementation of an Opioid Risk Assessment Tool (Logic Model Workbook, n.d.).

This project was developed by identifying a clinical problem within nursing practice. The associated assumptions that coincide with the who, what, when and why for the project were

determined. A solution was established by recognizing a clinical problem through the mechanisms of the who, what, when and why (Logic Model Workbook, n.d.).

A project consists of key stakeholders who are the essential individuals included in any new idea, change or implementation. Organizing a plan to help develop an idea into practice included various activities that were required for this project to be implemented. Each component of the planning process included an expectation of the established activity. The final results from collaborating, organizing and planning demonstrated the outcome of the task at hand. The overall accomplishment of this project was to envision it in on a larger scale by recognizing the effect on patient outcomes related to hospital care.

### **Critique of Empirical Studies related to the Central Concept of the Project**

A literature review was essential to provide evidence based practice as a mechanism to support this quality improvement project. A literature review was conducted using the Seton Hall University library website, ProQuest and The Cumulative Index to Nursing and Allied Health Literature (CINAHL). The following supporting literature was used to guide this project. In the article by Alford, Compton and Samet (2006), the combination of addictive disease and opioid agonist therapy in relation to acute pain management was discussed. Patients with opioid addiction received a regimen of methadone and buprenorphine to manage acute pain. The evidence presented, supported that patients who received these medications can be managed proficiently. Common misconceptions such as opioid tolerance, opioid induced hyperalgesia, relapse and opioid addiction, properties of maintenance opioids, respiratory and central nervous system depression prevented the proper management of prescribing pain medication. It was recommended that patients who receive opioid agonist therapy do not have their therapy interrupted. Recommendations for patients receiving methadone and buprenorphine were

outlined in the article. The lack of pain management was shown to create unnecessary anxiety, withdrawal and drug seeking behavior.

Chemical dependence and uncontrolled chronic pain are two topics not thoroughly discussed in the medical community. Very few medical training programs offer sufficient information regarding the topic of pain and drug addiction. A review by Bailey, Hurley and Gold (2010) was conducted to explore a clinician's perspective of managing acute pain and addiction. Raising awareness regarding these two topics led to the success of a pain management clinic that managed very difficult patients. Many factors such as vulnerability, unfamiliar terminology and patient neurobiology created a barrier to a comprehensive understanding of effective drug control (Bailey, Hurley & Gold, 2010). In conclusion, it was found that patients with chronic pain and addictive disorders were managed effectively when the right information was available.

Barclay, Owens and Blackhall (2014) conducted a study to determine the risk factors leading to substance abuse in palliative cancer patients. A retrospective chart review was performed at the University of Virginia Palliative Care Clinic. Different variables for opioid risks were evaluated based on the ORAT. Almost half of the patients were determined to be at a medium to high risk for opioid dependency. Age, a past history of alcohol and drug abuse were the most common risks identified. Even though opioids are an effective method to manage pain in cancer patients, substance abuse does exist among this patient population. Using a screening tool such as the ORAT was considered a necessity in completing a patient history and physical. This tool was a way to manage patients by providing appropriate comfort measures while maintaining safety mechanisms against addiction.

Brill, Ginosar and Davidson (2006) discussed how the growing number of patients on chronic opioid pain management has prompted anesthesia departments to understand and

determine the best practice for comfort and pain relief. Chronic pain medication was not only being prescribed to terminally ill patients, but those who may undergo a surgical intervention. It was found that a twenty-four-hour combination therapy consisting of non-steroidal anti-inflammatory drugs (NSAIDS), acetaminophen, and regional blocks was used in patients with chronic opioid use (Brill, Dinosaur & Davidson, 2006). This article highlighted the necessity of identifying these patients early in the process through a pre-operative evaluation. It was during this time a plan could be devised and patient education provided. Individualized pain management and close monitoring created a recipe for successful management of these patients.

Bryson (2014) discussed the increase in opioid use and addiction over the past two decades. Due to this high usage rate, patients used maintenance dosing medication as well as opioid replacements. When patients were on a medication to control opioid addiction, standard analgesia was not effective. It was established that the best method to determine perioperative pain management was through the use of case reports. In a case report by Grewal and Firnhaber-Burgos (2009) it was discussed that a sixty-year old male undergoing a nephrectomy for a renal mass was not properly evaluated due to his chronic pain history. The man developed severe opioid withdrawal demonstrating the need for a pain management plan. One of the main components of this approach was to include a pre-operative assessment as a way to eliminate any operative and post-operative pain issues. The main focus was usually on post-operative pain control with failure to recognize the impact of opiate withdrawal. There is a need to replace narcotic doses in patients who take chronic pain medication (Grewal & Firnhaber-Burgos, 2009). Patients who are on buprenorphine need to be evaluated in the preoperative period to assess the ability to continue or maintain the medication for surgery. Bryson (2014) stressed the need for anesthesiologists to be aware of patients who take any form of medication that controls

addiction, so operative pain medication can be appropriately administered.

Research done by Butler, Zacharoff, Charity, Lawler and Jamison (2014) discussed the Pain Assessment Interview Network, Clinical Advisory System, which was an electronic pain assessment program used to understand the benefit of using an opioid risk assessment. Patient charts were randomly selected to determine if an opioid risk assessment was present before and after implementing an assessment evaluation tool. Once the program was implemented, there was a large increase in the number of risk assessments performed. Using a method such as the Pain Assessment Interview Network was beneficial in monitoring the use of clinicians screening for patients at risk for opioid addiction. In conclusion, if an electronic opioid risk assessment program was used, it was likely that an opioid screening would be completed and included in the patient's medical record. Using this opioid risk assessment improved the quality of patients' outcomes.

The Centers for Disease Control and Prevention published guidelines for the prescribing practice of opioids for chronic pain (2016). The severity of opioid use for chronic pain was discussed in these guidelines. Clinical evidence was reviewed providing supportive rationale for the purpose, use and effects of opioid medication. The evidence also demonstrated that patients with a drug or alcohol history had a much higher rate of being at risk for opioid abuse. The establishment of clinical guidelines provided a foundation for practitioners to follow when working with this patient population.

Dykstra (2012) explains that chronic pain remains a major medical problem. Patients' decreased productivity and additional required medical care cost the nation a large amount of money. The *Institute of Medicine* highlighted how healthcare costs have increased tremendously due to the lack of attention regarding preventative care, management and education. A hospital in

Pennsylvania recognized the need to improve the management of patients' chronic preoperative pain. A project was developed utilizing the framework based upon The Johns Hopkins Evidence-Based Practice Model and Guidelines. A literature review identified that it was the responsibility of the preoperative department to evaluate, develop and communicate a plan for patients on chronic pain management prior to a procedure. Intra-operative and post-operative pain control actually begins preoperatively. Staff members were educated regarding the screening and maintenance of this patient population. Identifying patients using chronic pain medication help prevent potential problems leading to surgical complications which otherwise would result in an increased hospital stay.

An article by Ead (2015) allowed the reader to move from being a healthcare professional into the role of a patient. It brought awareness to the fears, questions and problems they encounter prior to a surgical intervention. It highlighted the value of the nursing role in the pre-anesthesia stage. It was during this critical time that patients typically expressed their emotions and shed light on any misunderstandings pertaining to pain control. In the perioperative setting the nurse must act as the patient advocate making sure all needs are addressed. This was a crucial time to educate the patient. It provided an opportunity to prepare the patient for not only the intra-operative procedure, but all of the challenges the patient would face post-operatively. It was found by acknowledging a persons' emotional experience; it promoted patient satisfaction as it improved communication, anxiety and increased dignity (Ead, 2015).

A study by Funk, Hilliard and Ramachandran (2014) discussed that opioids are a top medication choice for analgesic relief among surgeons because of its low cost in ambulatory and inpatient settings. Although opioids provide significant relief, they create many side effects. It

was necessary to prescribe these drugs to patients to prevent harm and adverse reactions. A study was conducted to determine the best method to prevent opioid side effects. The Joint Commission highlighted several factors that pose potential problems and suggested methods to modify these risks (Funk, Hilliard, & Ramachandran (2014). Patients who are elderly, have sleep apnea and those on chronic pain therapy need special attention and planning. To target surgical chronic pain candidates, it was recommended that these patients were identified preoperatively. Buprenorphine was the suggested medication to be used for pain control in this population. This medication requires a special evaluation by the anesthesiologist to properly prescribe the needed course of action. Various combination therapies were suggested as a way to decrease poor results and increase patients' satisfaction.

Lee et al. (2014) performed a study to determine if patients taking preoperative opioids resulted in poor surgical outcomes. Out of five-hundred and eighty-three patients assessed, 56% took some form of opioid medication (Lee et al., 2014). When using a Modified Somatic Perception Questionnaire and Zung Depression Scale score on patients prior to their spine surgery, the prediction of poor patient reported outcomes was discovered. The study concluded that it was beneficial to screen for psychological factors and opioids using a multidisciplinary approach in the pre-operative period.

The article written by Mitra and Sinatra (2004) was a review of the proper pain management necessary in the perioperative setting. Variables that affect pain tolerance which are co-morbid conditions, past addictions and acute pain can dictate a patients' response to medication. It was shown that the elements of a substance abuse disorder include physical dependence and opioid tolerance (Mitra & Sinatra, 2004). Identifying a patient with a disorder was the first step in managing this population. Once patients are identified, their medications can

be appropriately titrated.

The Centers for Disease Control and Prevention reported that post-operative pain was the most common form of pain (O'Donnell, 2015). The management of post-operative pain continues to be poorly managed. Many barriers prevent the management of proper pain control such as using effective assessment tools, poor documentation and patient and clinician knowledge. A project was conducted using the Iowa Model of Evidence-Based Practice to Promote Quality Care. This framework guided the examination of current practice and then found supportive evidence to initiate a positive change for patient outcomes. A program was developed in San Antonio where post-operative patients were provided information regarding pain management preoperatively. Patients were advised on the medications, side effects, recognizing uncontrolled pain and nonpharmacologic methods. Patients were provided a questionnaire to determine the effectiveness of this new initiative. Results demonstrated teaching patients preoperatively about pain management control after their surgery was extremely beneficial as opposed to the patients who were not provided this information. The patients who participated in the study proved to have better post-operative pain control with pharmacological and nonpharmacological methods (O'Donnell, 2015).

The article by Soto and Yaldou (2015) discussed that the Joint Commission has considered pain the fifth vital sign. It was then found that when pain was treated using the numeric pain scale there were several adverse reactions. Although using the numeric rating has been a nursing standard, data has shown that there was an increased rate of mortality and morbidity when the patient was not holistically assessed. The Michigan Opioid Safety Score was a tool created to evaluate multiple pain related factors so management could be appropriate.

It included factors such as respiratory rate, if patients are too sedated, if they snore or had sleep apnea, the site of the surgery, age, smoking history, and multimodal sedative use. The tool was deemed useful in not only inpatient settings, but for those patients receiving chronic opioid medication in the outpatient environment.

Cron et al. (2017) explored the clinical and financial costs related to preoperative opioid use in patients undergoing abdominal surgery. Preoperative opioid use was obtained from the home medication list on the preoperative evaluation. It was found that opioid use before abdominopelvic surgery directly had a relationship to postoperative healthcare costs and morbidity. Hospital length of stay, complications, hospital readmission, non-home discharge, and 90-day costs were all increased related to opioid use.

Opioid use and addiction create a barrier to properly manage patients. Correct dosing needs to be carefully administered to prevent any additional problems such as reactivation of the addiction. There has been a fear that relapse can ensue and a new addiction can be started. Stromer, Michaeli and Sandner-Kiesling (2013) reviewed this vulnerable patient population with regard to their pain management preoperatively and provides information on how to manage these patients. The lack of knowledge and fear of providers preoperatively has been identified as the first barrier for adequate management (Stromer, Michaeli & Sandner-Kiesling, 2013). Dependency needs to be evaluated by either the patient or family member. This was a vital element to determining the severity of the patients' disease. After evaluating the patient's current state, premedication was properly managed to prevent any gaps in anesthesia care. Buprenorphine was shown to create a problem when combined with additional narcotics. This medication was one of the main reasons opioid dependent patients needed to be classified and managed in the perioperative setting.

The National Guideline Clearing House published an article on the necessity of acute pain assessments protocols for prescribing opioids. Major recommendations were discussed highlighting the importance of a proper pain assessment. The article by Thorson et al. (2014) went on to discuss the risks involved with opioid use. These medications are described in great detail including the mechanism of action and the side effects. This information was meant to be used as a reference guide for practitioners to improve the patient experience through pain management and safety.

Clinicians need a screening tool to determine if patients could develop adverse behaviors after being prescribed chronic pain medication. An Opioid Risk Tool (ORT) was developed by Webster and Webster (2005). This is a 7 item tool that questions patients about substance abuse, age, sexual abuse and psychological problems. Scores can range from 1 to 29. Statistical methods such as the chi-square test and Fisher's exact test, were used to determine risk factors and aberrant behaviors among male and female patients which created the numerical value for the predicted behavior risks on the ORT. Patients who scored eight and above were considered in the "high risk" category displayed aberrant behavior when prescribed opioids. One hundred and eighty-eight patients were included in the testing sample size. A total score was computed for each patient to validate the ORT which served as the validation dataset. The final scores including the actual observed aberrant behaviors were used to calculate the c-statistic. Webster and Webster (2005) found the ORT had a c-statistic of 0.82 for male patients and 0.85 for female patients demonstrating a strong ability to predict who will experience aberrant behaviors when prescribed opioids. The validity of the ORT was strengthened because the developer used the c-statistic to ensure sensitivity and specificity. For patients that had a score in the

high risk category, 40 out of 44 (90.9%) demonstrated an aberrant behavior (Webster & Webster, 2005). “The data suggest that the prevalence of aberrant behaviors related to abuse or addiction among patients treated for chronic pain with opioids is much higher than previously reported” (Webster & Webster, 2005, p. 438). The ORT was found to be an effective way to screen patients who would develop problematic behaviors if prescribed opioids. The results from the study showed the ORT was an instrument that was predictive in the intended setting and population where it was administered, helping to ensure a broader applicability.

The literature review provided evidence which served as a guide to address and support the quality improvement project initiative. Common ideas and concepts regarding opioid use and abuse were depicted throughout the research. The premise within the literature discussed how problematic opioids can be during the operative period with the main concept pointing to the need for a necessary solution before any surgical procedure. Case reports were shown to be a valuable method in helping to understand the severity of problems opioid addiction can create. In addition to patient case studies, medication replacement agents such as buprenorphine were shown to equally create problems for patients operatively. The common theme throughout all of the literature raised awareness regarding the importance of a pre-operative evaluation assessment. It was shown that with preventative measures, patients were better managed and financial costs were decreased.

Two studies utilized an ORT within practice and it was shown to successfully identify the intended population. A method used to track the benefits of using an electronic tool were studied. Positive results were achieved not only by using the ORT, but also by having an electronic method available to practitioners. The results and outcomes obtained

in the literature allowed the concepts of needing a pre-operative evaluation, a useful screening tool and the electronic medical record to merge into the idea for creating an Opioid Risk Assessment Tool (ORAT).

### **Methodology**

#### **Anticipated Approval Process for the Project**

This quality improvement project was presented to the Doctorate of Nursing Practice Director at Seton Hall University, who approved this topic for a DNP Scholarly Project.

#### **In the Practice Setting**

A quality improvement initiative to identify a specific oncology surgical population of patients at an outpatient academic cancer hospital was presented to the Clinical NP Coordinator in the PST department, as well as to an NP and physician in the anesthesia pain service.

#### **Practice Site Person Willing to Serve on Scholarly Project Committee and How This Person is Qualified to Support the Completion of the Project**

The practice site person willing to serve as a mentor on the Scholarly Project Committee was the Clinical NP Coordinator of the PST department. As the leader of the NP group and the head liaison with the anesthesia department, including the anesthesia pain service, this individual was qualified to support the completion of this project. With over twenty years in the nursing profession, the Clinical NP Coordinator has a wealth of leadership experience and was able to approve the implementation of the ORAT screening into the patient assessment process.

**At Seton Hall University**

This project was supervised by the Director of the Doctorate of Nursing Practice program. Guidance, support and direction was provided throughout the duration of the DNP program at Seton Hall University.

**Risks and Benefits**

Implementing this project presented the risk that it would not be accepted by practitioners, preventing a change in practice. Due to the nature of the questions asked and being a self report tool presents the risk that patients would not be honest with their answers.

The benefits of successful implementation would be a consistent application of the tool across the broader population of surgical patients. Consequently, this could lead to more efficient and effective identification of patients at risk for potential opioid related problems during the perioperative period.

**Proposed Methodology for the Project**

The screening tool was referred to as the ORAT and was implemented in an outpatient PST department at a leading academic cancer hospital. The ORT was renamed to ORAT for the purpose of the project site location and was derived from Webster and Webster to assess patients' risk for opioid addiction (2005). Their study showed that the tool exhibited a high degree of sensitivity and specificity for identifying individuals at risk for opioid related behaviors (Webster & Webster, 2005). "The ORT displayed excellent discrimination for both male ( $c=0.82$ ) and the female ( $c=0.85$ ) prognostic models" (Webster & Webster, 2005, p. 432).

The pre-surgical evaluation assessment was selected as the setting to use the tool because it was the best time to capture patient information in advance. The tool was a self-report

assessment that was able to be scored in less than one minute. It individually screened female and male patients. A numeric value was given to various aberrant behaviors that would be exhibited by the patient. These behaviors included a personal and family history of alcohol and substance abuse, illegal and prescription drug use, an age between 16-45, a history of preadolescent sexual abuse and any psychological disease including Attention-deficit disorder, Obsessive compulsive disorder, Bipolar, Schizophrenia and Depression. A score was devised based on the calculation of the numeric values. A score of zero to three indicated low risk, four to seven moderate risk and greater than eight indicated high risk. Patients with a score of eight or greater were at a very high risk of futuristic abusive drug-related behaviors (Webster & Webster, 2005).

Table 2

*Opioid Risk Assessment Tool* (Webster & Webster, 2005).

	Female	Male
<b>Family history of substance abuse</b>		
Alcohol	1	3
Illegal drugs	2	3
Rx drugs	4	4
<b>Personal history of substance abuse</b>		
Alcohol	3	3
Illegal drugs	4	4
Rx drugs	5	5
Age between 16-45 years	1	1
History of preadolescent sexual abuse	3	0

**Psychological disease**

ADD, OCD, bipolar, schizophrenia	2	2
Depression	1	1

**Scoring totals**

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Data were collected by administering the tool on paper for approximately 500 patients seen during the PST period. The data were used to assess compliance with applying the screening tool and the improvement in identifying patients at high risk of opioid related complications.

After using and working with the screening tool, the NPs completed a survey in order to gather feedback pertaining to use of the tool. Survey results provided valuable information regarding the use of the tool and its sustainability. Figure 3 displays the format of the survey.

Please answer the following questions based on the Opioid Risk Assessment Tool.

1. Are you aware of the increasing number of patients on chronic pain medication?
2. Do you feel you were properly educated regarding the new screening tool?
3. Do you feel comfortable using the screening tool?
4. Is the screening tool easy to use?
5. Do you feel patients felt comfortable being screened?
6. Do you feel the screening tool helps you to identify or obtain information you otherwise would not have obtained?
7. Do you think this screening tool can add important data for the pre-surgical testing process?

*Figure 3.* These were the questions asked of the Nurse Practitioners after using the Opioid Risk Assessment Tool.

## **Project Outcomes**

### **Phase I – Needs Assessment Process**

A needs assessment was an integral element to determine if the proposed project was worthy of being developed, created and executed. For this project the PST department was evaluated to determine areas that could benefit from an improvement process. The PST

department is a division of the anesthesia service. The demand for a practice change stemmed from various shortcomings within the flow of day to day work. An opportunity to enhance patient care was considered a need. Initially, patients with a history of opioid addiction were found to be taking a prescribed medication to manage opioid dependence on the day of their surgery. In addition, patients with a previous history and tendency for opioid addiction were not being identified. This patient population required further assessment before being administered any form of an anesthetic agent. The patient demographic of those at risk of having an opioid addiction prior to undergoing surgery increased. The frequency of this unidentified population of patients demonstrated the need to capture them early in the surgical process. The anesthesia department reported feedback stating a system to identify the particular population at risk would be helpful.

After determining what method could capture patients at risk for opioid addiction before surgery, it was necessary to establish how the project would be portrayed. The implementation of a new project, product or initiative required effective promotional marketing strategies. The known market was the result of the product plus the consumer. The initial step was evaluated by identifying the who, what, where, when and why of the project. Through these components, this plan was put into place to bring awareness to the latest practice change proposal as a way to captivate the necessary stakeholder's consideration.

### **Phase II – Obtaining Support from Stakeholders Process**

The implementation of this project required support from each party involved which needed to be properly marketed to ensure the backing of the desired initiative. These members were known as the stakeholders. It was crucial that each stakeholder was informed about every step of the process to ensure their endorsement. Effective marketing was vital to achieving the

projects goal and viability.

Stakeholders involved in this project included the PST NP Coordinator, NP staff, anesthesia department and eventually the Information Technology (IT) department. The NP Coordinator had to allow the staff under her supervision, to utilize the screening tool. The latter was not costly; no additional expense was required for this endeavor. This project required time, interdisciplinary team communication and collaboration. The PST department NP staff had to be willing to perform the screening tool on pre-surgical patients. This determined the strategic effectiveness while understanding the necessity of the practice enhancement. It was necessary patients were cooperative in answering the screening tool questions. The anesthesia department had to be willing to become familiar the new screening tool.

The IT department was responsible for programming the screening tool into the electronic medical record. The IT department worked closely with various divisions such as the billing and regulatory department. Information Technology in the pre-operative evaluation enriches the clinical management of patient care utilizing electronic integration for the standardization of patient information (Fischer, Bader & Sweitzer, 2010). Refer to appendix F for planning and development of the computer model.

A PowerPoint™ presentation was developed to provide information regarding the impact of opioid addiction. It portrayed the impact of opioid addiction in relation to patients undergoing surgical procedures. The presentation highlighted the plan for implementing a screening tool as well as the benefit of it use. Meetings with the appropriate stakeholders were necessary in order to present the power point. The presenter had to endorse the information contained in the power point as a positive, simple, affordable and useful resource for the hospital.

The screening process for this evaluation tool was performed by the PST department NP.

It was the frontline staff such as the NPs for which internal marketing was emphasized as a way to influence their participation to help to encourage organizational commitment and the quality of service provided (Tsai & Wus, 2011). The NPs did not require additional work, hours, or pay to be educated on this new practice implementation. Demonstrating to the practitioners how quickly and easily this tool can be performed was helpful in attaining their cooperation.

Practitioners can be resistant regarding additional work; consequently, it was imperative to stress the simplicity of this initiative. The project did not begin until all of the NP staff was trained and felt comfortable in performing the screening tool with patients. The need to identify this particular patient population was emphasized. The benefits it held for patient care as well as the institution was thoroughly portrayed to the NPs. Feedback from the NPs was encouraged if there were any questions or concerns.

Bringing awareness to this project through meetings, presentations and education assisted in encouraging the entire interdisciplinary team to be involved in aiding with its promotion. Targeting the correct stakeholders and having their participation helped make this project a success.

### **Phase III – Initial Implementation Step**

The project was initiated in an outpatient PST department in a leading academic cancer center that is committed to improving patient outcomes while promoting staff advancement and involvement. Having strong support with a wealth of dedication to patients made the marketing process of this project a smooth one. The stakeholders were open to a new idea that would improve the entire hospital experience. Commitment and dedication was important in the persuasion of this project. The key mediator between organizational commitment and service quality is internal marketing (Tsai & Wus, 2011).

#### **Phase IV – Ongoing Implementation Process**

To ensure the continued success of the project, it was necessary to monitor that the NPs in the PST Department completed the ORAT. The NPs had the opportunity to frequently ask questions and have any concerns addressed. The use of the tool was monitored daily while an evaluation of this method to screen patients was appraised. This screening process began with patients at one PST department location. Once it was determined that the tool was operating effectively, it was implemented in all six PST site locations. New staff was educated on this initiative during their orientation training. NP students onsite for clinical rotations were provided the information on the implementation of the tool.

#### **Phase V – Project Evaluation Process**

##### **Project Outcome Measurements and Plan for Data Collection.**

The objectives of this project were to develop a method that would identify patients at risk for opioid addiction. The selected method chosen was called the ORAT. The appropriate staff members were educated to ensure what needed to be done for a patient evaluation.

The investigation method used for this quality improvement project to gather, measure and analyze information was quantitative. The scores derived from the screening tool were helpful in converting numbers into meaningful material. The number of patients that were and were not screened was monitored. Out of 512 PST patients seen in the PST department, 488 were screened. In total, about 5% of patients screened were identified as having a score of eight or greater. A score of eight or greater on the assessment tool indicated the patient was at a high risk for aberrant behaviors related to opioids. About 10% of the patients screened had a score of four through seven that was considered medium risk. This tool was utilized for 95% of the patients who were evaluated by the PST department. A specific population of patients was able to be

identified. Having a numeric value available allowed the practitioner to quantify a patients' potential problem.

Table 3

*Number of Patients Identified from Opioid Risk Assessment Tool*

<b>Score scale</b>	<b># of Female</b>	<b># of Male</b>
0-3	233	182
4-7	14	37
8>	8	14
	<b>255</b>	<b>233</b>

After completing the education, implementation and execution of this initiative, a survey was given to the NPs to obtain their opinion regarding the ORAT. Nineteen NPs participated in using the screening tool. The intended outcome was that the NPs used this tool appropriately, patients were properly screened and the tool identified a population of people that would benefit from becoming identified.

The NP survey was structured using dichotomous questions. The rationale behind using dichotomous questions was to simplify the survey experience while obtaining useful and meaning conclusions. All 19 NPs that used the ORAT participated in the survey regarding their opinions of the tool. The results of the survey included the following:

- 100% of practitioners are aware there are an increasing number of patients taking chronic pain medication.

- 95% of NPs felt they were properly educated regarding the new implementation of the ORAT.
- 95% answered they were comfortable using the screening tool. 100% answered the screening tool was easy to use.
- 89% felt patients were comfortable being screened.
- 100% stated the screening tool was a useful way to identify information that otherwise would not have been obtainable. 95% felt this screening tool assessed important data for the PST process.

**Data analysis methods planned.**

The ORAT was successfully implemented and demonstrated to be a valuable tool. On a macro level, it was proven meaningful with a number of patients evaluated. From the practitioners' standpoint, this tool was easy to use and highly recommended for other settings. At risk patients were able to be identified prior to their surgical procedure. The completed risk tool assessments as well as the NP survey demonstrated positive results in the identification and use of this new method. The number of daily patient appointments was monitored to ensure patients were being screened. After successful implementation of this tool at one practice site, it further went on to be used across all six of the PST sites demonstrating its functionality. To ensure the ongoing success of this initiative it was included in the electronic medical record.

The project was a comprehensive initiative targeted to improve the patient experience and decrease surgical complications. The ORAT was a sustainable quality improvement project, as it will continue to be used in the PST department. Optimizing the use of the pre-surgical evaluation has shown to enhance operating room efficiency, decrease surgical costs, eliminate delays and

cancellations to enhance the quality of care provided to patients (Fischer, Bader & Sweitzer, 2010). Using evidence-based practice demonstrated the importance for patient care.

### **Summary, Conclusion and Recommendations**

This quality improvement project was limited because it was only used on oncology patients. Since this project was performed at a smaller oncology institution, the results could differ in a larger setting. For unknown reasons, screenings were not completed on 5% of patients. Since this screening tool was not mandatory, this could prevent it from being completed. In the future, making it a mandatory component would aid in 100% completion. Also, the NP survey did not include a question asking if all of the patients were screened. In the future, this would be useful information to obtain.

A recommendation for the project would be to develop an order alert system for the anesthesia department on any patient with a score of eight or greater. Another recommendation would be to provide an educational tool to explain the benefits of this process to patients.

Using the pre-surgical evaluation period allowed ample time to screen patients for potential problems. With the heightened increase of opioid use that leads to addiction, patients subject to surgical procedures can be at risk depending on the treatment they received. Utilizing the screening tool was a method that was successfully implemented as part of the pre-surgical screening assessment. Refer to appendix H for an example of the electronic tool. The ability to screen and identify a patient at risk for a potential problem prior to hospital admission is a vital link to quality improvement measures. The positive feedback regarding the screening tool, ensures the sustainability of this tool in nursing practice.

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Appendix A

Computer Development Model

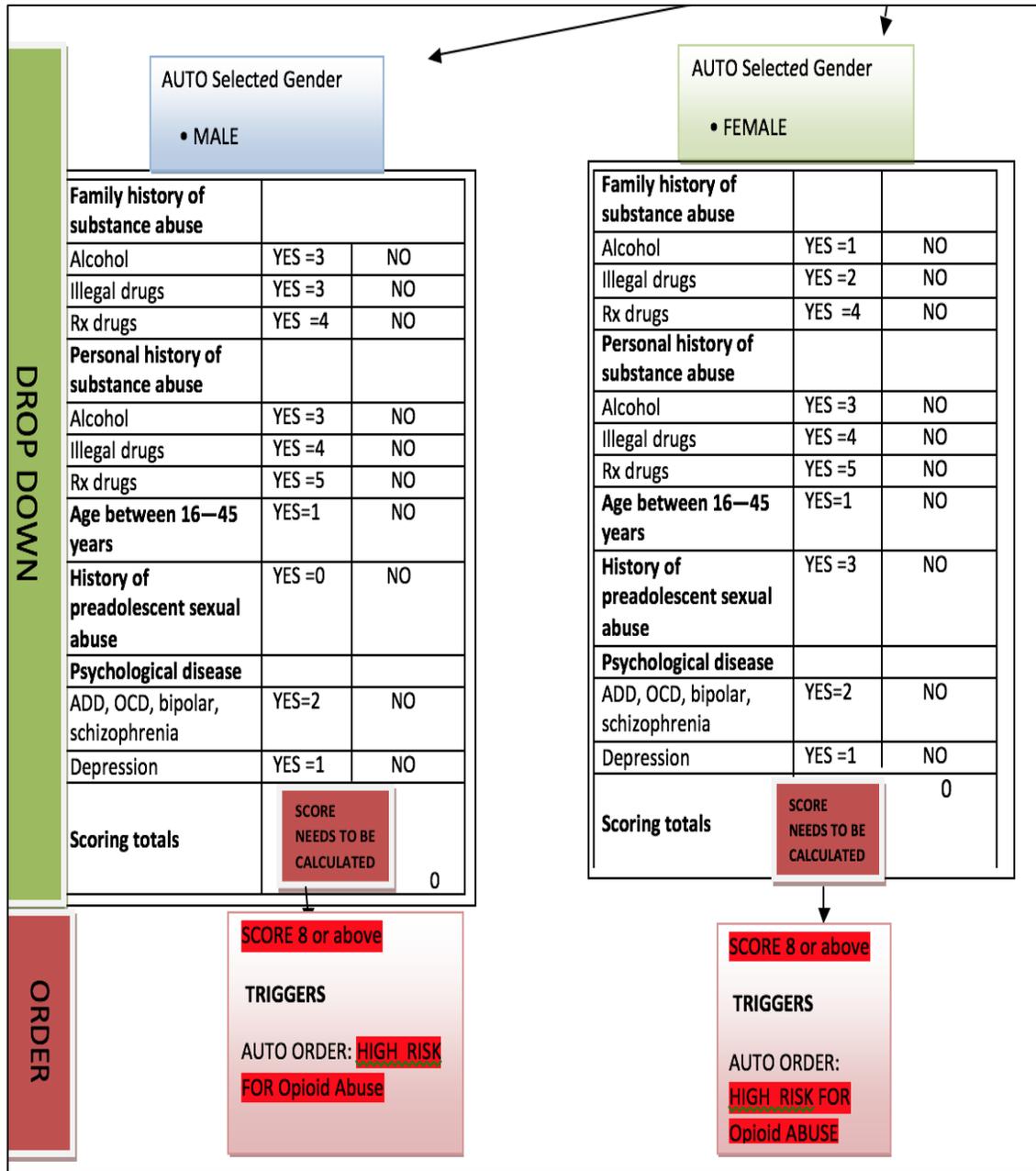
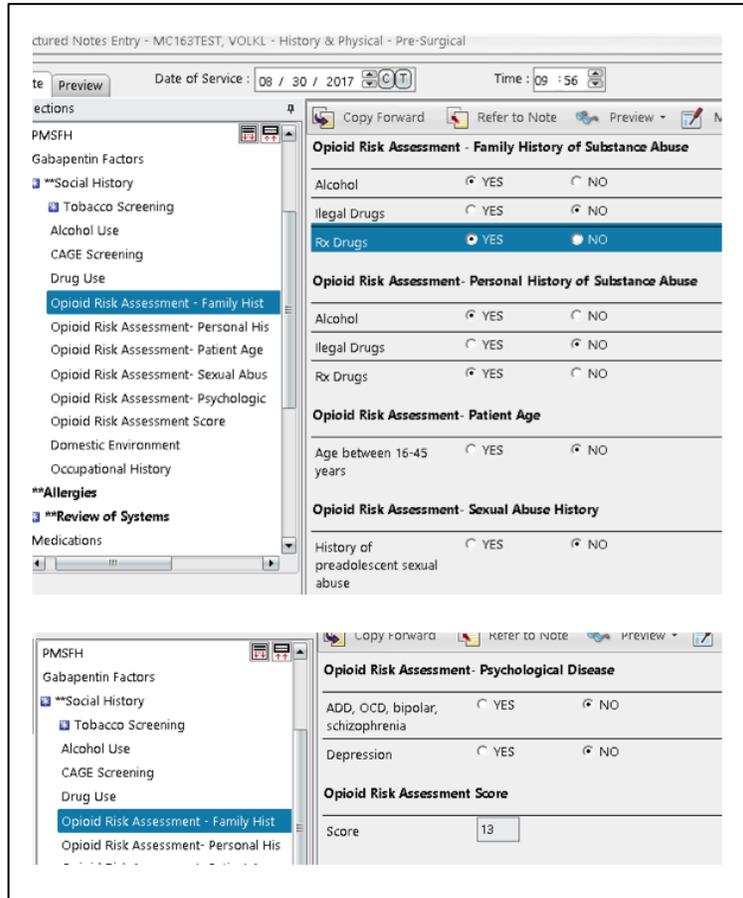


Figure 4. This was the Opioid Risk Assessment Tool model that was developed for the Information Technology department as a method to understand the necessary components needed for the electronic medical record (Webster & Webster, 2005).

## Appendix B

### Computer Model



<b>Social History:</b>	
<b><u>Opioid Risk Assessment - Family History of Substance Abuse:</u></b>	
• Alcohol	YES
• Illegal Drugs	NO
• Rx Drugs	YES
<b><u>Opioid Risk Assessment- Personal History of Substance Abuse:</u></b>	
• Alcohol	YES
• Illegal Drugs	NO
• Rx Drugs	YES
<b><u>Opioid Risk Assessment- Patient Age:</u></b>	
• Age between 16-45 years	NO
<b><u>Opioid Risk Assessment- Sexual Abuse History:</u></b>	
• History of preadolescent sexual abuse	NO
<b><u>Opioid Risk Assessment- Psychological Disease:</u></b>	
• ADD, OCD, bipolar, schizophrenia	NO
• Depression	NO
<b><u>Opioid Risk Assessment Score:</u></b>	
• Score	13

*Figure 5.* Example of the Opioid Risk Assessment Tool in the electronic medical record (Webster & Webster, 2005).