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Evaluation of the Effectiveness of an Evidence-Based Webinar on the Behaviors of Primary Care Providers for the Treatment of Pain with Prescription Opioid Medications: A Translational Pilot Project

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EVALUATION OF THE EFFECTIVENESS OF AN EVIDENCE-BASED WEBINAR

Evaluation of the Effectiveness of an Evidence-Based Webinar on the Behaviors of Primary Care Providers for the Treatment of Pain with Prescription Opioid Medications

A Translational Pilot Project

Elizabeth Ann Mayerson

University of Connecticut, 2017

Abstract

Introduction/Purpose: Prescription opioid abuse is a significant problem in the United States. Primary care practices are where most patients with acute or chronic pain present. A large proportion of prescriptions for opioid medications are written by primary care providers (PCPs) (Fink-Miller, Long, & Gross, 2014; Kanouse & Compton, 2015). The purpose of the translational pilot project was to examine an opioid risk assessment tool for its usability and feasibility in primary care settings.

Methods/Procedure: A specific opioid risk assessment tool, the Current Opioid Misuse Measure (COMM) (Butler et al., 2007) was presented to the target sample of PCPs via a real time webinar. Knowledge of the COMM pre-webinar was assessed and the sample was given the opportunity to utilize the COMM. Four weeks after the webinar, the medical records of patients treated for pain with an opioid medication by one of the participating PCPs (N=13) was examined for the presence of a completed COMM. **Results/Discussion:** Attitudes of the sample PCPs toward evidence-based practice were explored. None of the participating PCPs had ever use the COMM. Only one of the participating PCPs had ever heard of the COMM. All of the participating PCPs requested and received access to the COMM, but only two PCPs used the COMM within four weeks after the webinar.

Significance/Conclusions: The sample PCPs may lack knowledge and awareness of evidence-based practice for the treatment of pain with prescription opioid medications, despite having positive attitudes toward providing evidence-based care. The sample PCPs identified time constraints and lack of

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familiarity with the COMM as barriers to the use of this tool. Recommendations: Utilization of the DNP prepared nurse practitioner as a champion and educator for evidence-based practice may improve PCP use of evidence-based practice which may positively affect patient outcomes and population health (Hayes & Gordon, 2015).

Evaluation of the Effectiveness of an Evidence-Based Webinar on the Behaviors of Primary Care
Providers for the Treatment of Pain with Prescription Opioid Medications
A Translational Pilot Project

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A Dissertation
Submitted in Partial Fulfillment of the
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Doctor of Nursing Practice
at the
University of Connecticut
2017

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Elizabeth Ann Mayerson

2017

APPROVAL PAGE

Doctor of Nursing Practice

Evaluation of the Effectiveness of an Evidence-Based Webinar on the Behaviors of Primary Care
Providers for the Treatment of Pain with Prescription Opioid Medications
A Translational Pilot Project

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Dedication

I dedicate this dissertation to my husband, Brent, who has been with me, every step of the way, over the past three years. You have been my constant source of support and I love and thank you.

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Chapter 1

Introduction

Prescription drug abuse is well documented in the literature and is defined “as the use of any drug in a manner other than how it is prescribed and indicated for use” (Jamison & Mao, 2015). The literature reviewed on this topic was obtained from multiple sources including CINAHL, PubMed, Centers for Disease Control and Prevention (CDC), Healthy People 2020, PsycINFO, and the National Guideline Clearinghouse. Prescription drug abuse has been described as a problem of epidemic proportions and the incidence and prevalence of prescription drug abuse continues to rise each year (CDC, 2017). Currently, the United States makes up approximately five percent of the world’s population yet consumes approximately 80% of the global opioid supply (Kaye et al., 2017; National Institute on Drug Abuse (NIDA), 2017). Prescription drug abuse includes the inappropriate use or misuse of opioid pain medications, anxiolytic benzodiazepine medications, and stimulant medications used in the treatment of attention deficit disorder. The focus of this dissertation and translational pilot project was on prescription opioid abuse.

Background

Prescription opioid abuse is a significant problem in the United States. Over 183,000 people died in the United States from a prescription opioid overdose between 1999 and 2015, and approximately 15,000 of those prescription opioid overdose deaths occurred in 2015 (CDC, 2017). More overdose deaths are now due to prescription opioids than all other drug overdoses combined, including cocaine and heroin (Drug Enforcement Agency (DEA), 2017; Kaye et al., 2017; NIDA, 2017). The cost of prescription opioid abuse is an ever-increasing burden to affected individuals, their families and communities and ultimately, society as a whole (Kanouse & Compton, 2015; Mettner, 2013).

The context of the current opioid epidemic has its origins in the pain crisis documented in the 1990s. At that time, it was reported that many patients were untreated or undertreated for pain due to concerns about the risks of addiction or dependence upon opioid medications (Kanouse & Compton, 2015; Kaye et al., 2017; Mettner, 2013). Due to these concerns, the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), currently known as the Joint Commission (TJC), developed a pain standard mandating appropriate and timely assessment and treatment of pain (Nworah, 2012). Pain as the fifth vital sign was part of this mandate, requiring documentation of appropriate pain management for TJC accreditation (Nworah, 2012). State medical boards subsequently recommended that physicians not be sanctioned for prescribing opioids to treat pain even in high dosages (Kanouse & Compton, 2015; Mettner, 2013). Pharmaceutical companies developed and marketed strong, long acting opioid medications. An editorial piece by Mettner in *Minnesota Medicine* (2013) described the pharmaceutical companies' promotion of these new, long acting opioid medications by stating "there is no evidence that addiction is a significant issue when persons are given opioids for pain control" (Mettner, 2013) (p. 21). The combination of the need for pain control with the sudden increased availability of potent opioid medications and the lessening of regulatory oversight of prescribers has contributed to the current crisis of prescription opioid abuse (Kanouse & Compton, 2015; Kaye et al., 2017; Seppala, 2013). According to the CDC (2017), the crisis continues to be fueled by opioid prescribing.

In recent years, the opioid epidemic has become widely recognized. Policy makers and leaders in health care and government, along with experts in pain management and substance abuse have developed and advanced initiatives, guidelines, and legislation aimed at combatting prescription opioid abuse, misuse, and dependence (Kaye et al., 2017; Manchikanti, Kaye, & Kaye, 2016). In 2016, the CDC (2017) developed a guideline for primary care providers with recommendations for the safe prescribing of opioid medications. These recommendations include prescribing opioid medications at the lowest

effective dose, avoidance of prescribing opioids and benzodiazepine medications together, and reviewing prescription drug monitoring program data (CDC, 2017).

The state of Connecticut has enacted legislation, An Act Concerning Substance Abuse and Opioid Overdose Prevention (2017), effective October 1, 2015, requiring health care providers with prescriptive authority to complete continuing medical education on the safe prescribing of opioid medications and pain management. This legislation also requires health care providers to check the State's electronic prescription monitoring program (PMP) prior to prescribing more than a seventy-two hour supply of an opioid medication to a patient and checking the PMP every ninety days for patients on long term opioid therapy. The following statistics demonstrate the impetus for the development and advancement of the guideline and legislation previously discussed.

The CDC (2017) reports national trends of prescription opioid abuse that are significant in magnitude. In 2014, there were approximately 2 million Americans abusing or dependent upon prescription opioid medications. Over 1000 persons are treated every day for prescription opioid abuse or misuse in emergency rooms across the United States (CDC, 2017). Prescription opiates are the only class of abused drugs whose incidence continues to increase in patients who present for substance abuse treatment admission. In 2014, over 240 million prescriptions were written for opioid medications (United States Department of Health and Human Services (USDHHS), 2016). Thirty five million people have used prescription opioids for nonmedical reasons at least once in their lifetime in the United States (Falkowski, 2013; Kaye et al., 2017).

Healthy People 2020 has an objective to reduce drug overdose deaths involving natural, semi-synthetic, and synthetic opioids, excluding heroin. The baseline rate from 2010 was 5.4/100,000. The most recent data reported, from 2014, demonstrated a rate of 5.9/100,000 U.S. population. A decrease in this rate is the objective goal (Healthy People 2020).

In Connecticut, statistics demonstrate the increasing incidence and prevalence of prescription opioid abuse, mirroring national trends. The rate of unintentional prescription opioid overdose deaths per 100,000 Connecticut population rose from 1.6 in 2012 to 4.9 in 2013, the most recent date of available data (Connecticut Department of Public Health (CDPH), 2017). The incidence of opiate overdose is highest in suburban and rural areas in Connecticut (CDPH, 2017). Although there is limited empirical data available to explain why opiate overdose deaths are more prevalent in rural and suburban areas in Connecticut, there are social factors that have been identified as possible contributors (Kaye et al., 2017; Keyes, Cerda, Brady, Havens, & Galea, 2014). Keyes et al. (2014) hypothesize that the poor economic conditions prevalent in many rural communities combined with high unemployment, loss of upwardly mobile young adults to communities with more educational and employment opportunities, and poor or limited access to health care services creates a community of individuals at increased risk for substance abuse and overdose death.

Significance

The consequences of prescription opioid misuse and abuse are significant. Opioid medications are widely available. Prescription opioids are frequently perceived by the public as safer than street drugs (Falkowski, 2013; Kanouse & Compton, 2015; Kaye et al., 2017; NIDA, 2017). Studies suggest that misuse of and addiction to opioid medications contributes to increased levels of criminal activity. Pharmacies are robbed for opioid medications (Falkowski, 2013). Individuals who are prescribed opioid medications may not store these drugs securely, leading to loss and theft of the drugs from their homes (Falkowski, 2013; Kanouse & Compton, 2015; Kaye et al., 2017). People will knowingly misuse opioid medications by sharing them with friends or other family members (Keyes et al., 2014; NIDA, 2017). Some individuals will exaggerate their pain in order to obtain opioid medications in higher amounts or dosages with the intent of selling these substances illicitly and some patients will also see multiple healthcare providers with the complaint of pain in order to get multiple opioid prescriptions (Falkowski,

2013; Kanouse & Compton, 2015; Kaye et al., 2017). All of these activities are illegal and contribute to the morbidity and mortality associated with prescription opioid abuse.

In terms of the morbidity related to prescription opioid misuse and abuse, on an average day in the United States there are approximately 3900 individuals who misuse prescription opioids for the first time, and approximately 580 individuals who use heroin for the first time (USDHHS, 2016). For every one overdose death in 2010, there were 733 past year nonmedical users, 108 people with opioid abuse and/or dependence, 26 emergency room visits for opioid abuse or misuse, and 10 opiate treatment admissions (CDC, 2017). These ratios show the pervasiveness of prescription opioid abuse. Mortality data demonstrate a sharp increase in overdose deaths due to any opioid from 2000-2015 with 3 deaths/100,000 in 2000 to approximately 11 deaths/100,000 in 2015 (CDC, 2017). Overdose deaths due to heroin demonstrate an increase from 1 death/100,000 in 2000 to slightly over 4 deaths/100,000 in 2015 (CDC, 2017). Increased use of heroin has been associated with prescription opioid abuse because heroin is likely to be used if a prescription opioid cannot be obtained and heroin is less expensive on the street than prescription opioids (Falkowski, 2013; Kanouse & Compton, 2015; Kaye et al., 2017; NIDA, 2017).

The morbidity and mortality associated with prescription opioid abuse costs the United States healthcare system approximately 72.5 billion dollars per year (CDC, 2017). Individuals who abuse opioids generate healthcare costs that are estimated to be 9.4 times higher than individuals who do not abuse opioids (CDC, 2017; Kaye et al., 2017). These costs are passed on to healthcare consumers in the form of increased costs for health insurance coverage and hospitalizations, and increased prices for prescription opioid medications (Falkowski, 2013).

Purpose of Practice Change

Containing healthcare costs is a significant issue for nursing practice and population health outcomes. Nursing professionals play an important role in improving patient outcomes. Improved patient outcomes generally translate into cost savings for healthcare systems (Institute for Healthcare Improvement (IHI), 2016). The available evidence demonstrates consensus regarding the use of opioid risk assessment tools, written treatment agreements or contracts, urine drug testing, and use of prescription drug monitoring programs as part of best practice when treating pain with prescription opioid medications (Gudin, 2012; Kanouse & Compton, 2015; Kaye et al., 2017; Nuckols et al., 2014). Primary care practices are where most patients with acute or chronic pain present and a large proportion of prescriptions for opioid medications are written by primary care providers (CDC, 2017; Fink-Miller, Long, & Gross, 2014; Kanouse & Compton, 2015; Kaye et al., 2017). Nurses at all levels of practice are instrumental in identifying patients at risk for prescription opioid abuse.

However, gaps in knowledge and practice regarding risk assessment with opioid medications have been identified. Primary care providers have been found to have little training or preparation in substance abuse and pain management (Kanouse & Compton, 2015; Kaye et al., 2017; Hooten et al., 2013; Nuckols et al., 2014;). Since primary care providers write the majority of opiate prescriptions, this lack of knowledge is concerning (Kanouse & Compton, 2015; Kaye et al., 2017). Risk assessment tools are not consistently used and many primary care providers are unaware these tools exist (Kaye et al., 2017; Nuckols et al., 2014). It has been reported that nurses are challenged by negative attitudes toward patients with opioid addiction, which interfere with nurses' ability to accurately assess patients requiring opioid medications for pain control (Krokmyrdal & Andenæs, 2015; Morgan, 2014). The consistent use of risk assessment tools with all patients on opioid medications will aid in accurate assessment of patients and provide objective data for making decisions about the risks of prescribing opioid pain medications and improving patient outcomes (Hayes & Gordon, 2015; Kaye et al., 2017).

Improved patient outcomes in conjunction with cost savings to the healthcare system and improved patient satisfaction with care are extremely significant to nursing and are consistent with the IHI's "Triple Aim." The objectives of the Triple Aim are to (a) improve the health of the defined population, (b) enhance the patient care experience including quality, access, and reliability, and (c) reduce, or at least control, the per capita cost of health care (IHI, 2016). The IHI adopted the Triple Aim from quality improvement work done by Berwick, Nolan, and Whittington (2008). Nurses excel at health promotion, patient education, communication, and relationship building with patients and are therefore in a key position to identify patients at risk for prescription opioid abuse (Felicilda-Reynaldo, 2014).

This translational pilot project was an attempt to assess primary care provider knowledge of a specific risk assessment tool, educate primary care providers about this risk assessment tool via a real time webinar, and evaluate primary care providers' use of this risk assessment tool four weeks after the webinar. The webinar was a brief PowerPoint presentation developed by this researcher based upon recommendations from *Assessment and Management of Chronic Pain* (Hooten et al., 2013), an evidence-based guideline obtained from the National Guideline Clearinghouse. The risk assessment tool that was utilized for the translational pilot project was the Current Opioid Misuse Measure (COMM) (Butler et al., 2007). The COMM measures past month aberrant medication related behaviors with 17 questions, and a score greater than or equal to nine indicates potential increased risk of misuse or abuse of opioid medications (Butler et al., 2007). The COMM has been validated in pain management settings and was developed with pain clinic patients (Butler et al., 2007; Meltzer et al., 2011). There have been studies that have evaluated use of the COMM in primary care patients, finding the COMM a promising tool for identifying the risk of prescription opioid abuse in primary care (Ashrafioun, Bohnert, Jannausch, & Ilgen, 2015). Future research using the COMM in additional primary care settings has been recommended (Meltzer et al., 2011). The literature supports that many primary care providers are unaware of risk assessment tools that may be utilized when treating pain with opioid medications (Kaye

et al., 2017; Nuckols et al., 2014). It was hypothesized that many of the primary care providers in the target sample for the translational pilot project were unaware of the COMM.

Theoretical Framework

The framework that guided the development and implementation of the translational pilot project was the Theory of Planned Behavior (TPB) by Icek Ajzen (1985). According to the TPB, intention to perform a behavior leads to the performance of the behavior. Intention is determined by; (a) an individual's attitude toward the behavior, favorable or unfavorable; (b) the subjective norm, the perceived social pressure to perform or not perform the behavior and; (c) perceived control, the ease or difficulty of performing the behavior (Ajzen, I., 1985). According to Ajzen, (1985) there are internal and external factors that may either promote or hinder the performance of a behavior. Internal factors include an individual's level of skill, ability, confidence, emotions, and compulsions. External factors include time, opportunity, circumstances, and the actions of others. These internal and external factors are the basis for an individual's behavioral, normative, and control beliefs. All of these factors and beliefs interact in a dynamic process which leads to intention and then behavior (Ajzen, 1985). A diagram of the theory is located in Appendix A Figure 1; Appendix A Figure 2 is a formula of the interactions of the theory (Ajzen, I., 1985).

The translational pilot project examined a specific behavior by primary care providers, the use of the COMM. Four weeks prior to the webinar, a questionnaire was emailed to the target sample to assess (a) the attitudes of the primary care providers toward the use of evidence-based practice along with (b) demographic variables, (c) the research and information sources available to the target sample, (d) whether or not the COMM had been previously utilized by the primary care providers in the target sample; (e) if the COMM had not been previously utilized, why and (f) if the COMM had been previously utilized, how was the COMM utilized, how often had the COMM been utilized, and by whom. This

assessment was guided by the TPB construct of attitude toward behavior. For the purpose of this translational pilot project, the attitudes toward behavior, subjective norm, and perceived behavioral control were evaluated for the providers' intention to utilize the COMM before prescribing an opioid medication. Only these elements of the TPB were utilized due to the time and resource limitations of this translational pilot project. The TPB construct of subjective norm was the basis of obtaining key stakeholder support for the project, and the TPB construct of perceived behavioral control was the basis of providing the target sample with an electronic version of the COMM that is available in the target sample's electronic health record system and was made available to the target sample at the webinar. These constructs form behavioral intention which may predict actual behavior. Support for the use of the TPB as a guiding framework utilized in the manner of this translational pilot project has been found in the literature (Barnes, Theeke, & Mallow, 2015; Buriak, Potter, & Bleckley, 2015; Eiamsitrakoon, Apisarnthanarak, Nuallaong, Khawcharoenporn, & Mundy, 2013; French et al., 2011; Gustafson & Borglin, 2013; Knowles et al., 2015; Reyes, Zuniga, Billings, & Blandon, 2013; Young, Lierman, Powell-Cope, Kasprzyk, & Benoliel, 1991). The preceding studies referenced are discussed in the literature review located in Chapter 2 of this dissertation. Figure 3 (Appendix A) depicts the TPB as it was utilized for the pilot project.

Translational Pilot Project Questions

The proposed translational pilot project attempted to address the following questions;

1. What are the attitudes of primary care providers regarding use of evidence-based practice in primary care?
2. Has the COMM been utilized by the sample primary care providers prior to the webinar, yes or no?
3. How has the COMM been previously utilized by the sample primary care providers?

4. Why have the sample primary care providers not utilized the COMM?
5. Will the sample primary care providers request access to the electronic version of the COMM, available within the electronic medical record system used by the sample, after the webinar?
6. Will documentation that the COMM has been utilized by a primary care provider who participated in this translational pilot project be present four weeks after the webinar?

Definition of Key Terms/Variables

Primary care providers were defined as nurse practitioners, physicians, and physician assistants working in family or internal medicine with patients aged 18 years or older. Prescription opioids were defined as any opioid formulation available by prescription including morphine, meperidine, oxycodone, hydrocodone, hydromorphone, buprenorphine, codeine, and fentanyl, excluding buprenorphine naloxone. Attitudes of primary care providers toward evidence-based practice guidelines were operationally defined through scores on the Attitudes to Evidence-Based Practice Questionnaire (McKenna, Ashton, & Keeney, 2004), located in Appendix B. The webinar was defined as a virtual meeting room (VMR) real time PowerPoint presentation to primary care providers developed by this researcher on prescription opioid abuse and the COMM. The impact of the webinar was operationally defined as the number of primary care providers who requested access to the electronic version of the COMM prepared by this researcher. Sustained use of the COMM was operationally defined by the presence of a completed COMM in the record of a patient prescribed an opioid medication by a participating primary care provider four weeks after the webinar.

Summary

In conclusion, prescription opioid abuse is a significant problem in the United States with incidence and prevalence rates that continue to rise each year (CDC, 2017). However, prescription opioids are also useful and effective medications for pain and as such, are important in patient care

(Mann & Chai, 2014). The dilemma is being able to prescribe the right medication to the right patient at the right time and in the right amount. Tools to assess the risk of prescription opioid abuse have been found useful in determining which patients are appropriate for opioid prescriptions and which patients may not be (Nuckols et al., 2014). Nurses, as health care providers who excel in patient communication and education, along with primary care providers, could improve patient outcomes by using risk assessment tools when caring for patients who require opioid medications (Hayes & Gordon, 2015). This translational pilot project was implemented and guided by the Theory of Planned Behavior (Ajzen, 1985). Evidence has been provided demonstrating that the COMM is a promising tool for assessing the risk of prescription opioid abuse in primary care, with further research recommended to validate the COMM in additional primary care settings.

Chapter 2

Literature Review

The literature reviewed for the translational pilot project began with a search of the following electronic databases; (a) CINAHL, (b) PubMed, (c) PsycINFO, (d) Cochrane, (e) National Guideline Clearinghouse, and (f) Health & Psychosocial Instruments. The following search terms were utilized; (a) prescription opioid abuse, (b) Current Opioid Misuse Measure (COMM) (Butler et al., 2007), (c) primary care, (d) primary care providers, (e) nurses, (f) physicians, (g) the Theory of Planned Behavior (Ajzen, I., 1985) and (h) provider adherence to guidelines and evidence-based practice.

Once the relevant research literature was reviewed, the literature was grouped into the following concept areas; (a) empirical evidence on the significance of prescription opioid abuse, (b) empirical evidence on risk assessment tools for identifying prescription opioid abuse and support for the use of risk assessment tools, specifically the COMM (Butler et al., 2007), (c) empirical evidence on identified gaps in knowledge and practice in primary care related to prescription opioid abuse and, (d) theoretical evidence supporting the use of the Theory of Planned Behavior (Barnes et al., 2015; Ajzen, I., 1985) as a framework for the translational pilot project. The following is a synthesis of the empirical evidence on the significance of prescription opioid abuse.

Empirical Evidence on the Significance of Prescription Opioid Abuse

As discussed in the preceding chapter, during the 1990s, the number of opioid prescriptions increased significantly due in part to recognition of under-treatment of pain combined with lessening of regulatory oversight for healthcare providers prescribing opioid medications (Kanouse & Compton, 2015; Kaye et al., 2017; Mettner, 2013). At the same time, also contributing to the increase in opioid prescriptions, was the pain standard developed by The Joint Commission, which mandated appropriate, timely, and effective pain management, making pain the fifth vital sign and patient centered pain

management an accreditation requirement for healthcare facilities (Nworah, 2012). Subsequent to the increased use of prescription opioids, researchers began to investigate the scope of prescription opioid use and the safety of liberally prescribing opioid medications (Reid et al., 2002). The use of opioid medications for patients with cancer, particularly advanced terminal disease and in palliative care has been, and continues to be supported in the literature (Rasu, Sohraby, Cunningham, & Knell, 2013; Reid et al., 2002). More controversial is the use of opioids in chronic, non-cancer pain (Ashrafioun et al., 2015; Barth et al., 2014; Edlund, Steffick, Hudson, Harris, & Sullivan, 2007; Fleming, Palousek, Klessig, Mundt, & Brown, 2007; Martel, Dolman, Edwards, Jamison, & Wasan, 2014; Reid et al., 2002). Researchers began to question the idea that addiction would not be a significant problem when opioids are prescribed for non-cancer, chronic pain (Ashrafioun et al., 2015; Barth et al., 2014; Bohnert, Valenstein, & Bair, 2011; Edlund et al., 2007; Fleming et al., 2007; Rasu et al., 2013; Reid et al., 2002). In the early 2000s, researchers began to identify factors associated with opioid addiction, hypothesizing that opioid medications are not safe, or free from risk of addiction, to all patients with pain (Edlund et al., 2007; Fleming et al., 2007; Reid et al., 2002). Of particular interest was the use of opioid medications for problems such as chronic back pain, fibromyalgia, and migraine headache among others in primary care (Ashrafioun et al., 2015; Barth et al., 2014; Bohnert et al., 2011; Edlund et al., 2007; Fleming et al., 2007; Marino et al., 2013; Martel et al., 2014; Rasu et al., 2013; Reid et al., 2002). Epidemiologic data was becoming available demonstrating increased hospitalizations and overdose deaths due to prescription opioid medications (Bohnert et al., 2011).

By the mid to late 2000s, guidelines were developed by experts in anesthesia, psychiatry, and pain medicine on the safe use of opioid medications with recommendations for the treatment of non-cancer, chronic pain (Rasu et al., 2013). However, research has been conducted demonstrating these guidelines are not followed consistently and many primary care providers are unaware these guidelines exist (Rasu et al., 2013; Reid et al., 2002; Wright et al., 2014). Wright et al. (2014) demonstrated that

increased access to health insurance and increased per capita availability of health care providers, dentists, and pharmacists are all associated with increased numbers of opioid prescriptions. The combination of TJC mandate to adequately assess and treat pain (Nworah, 2012) along with decreased regulatory oversight of prescribers and a potential knowledge gap of guidelines and risk assessment for the safe use of opioid medications supports a potential iatrogenic piece to the problem of prescription opioid abuse (Kanouse & Compton, 2015; Rasu et al., 2013; Reid et al., 2002; Wright et al., 2014).

Geographically, Connecticut is a small state and often there is at least one pharmacy in every community, making opioid medications readily available with a prescription (CDPH, 2017). Since the passage of The Affordable Care Act (2008) the number of people in Connecticut with health insurance has increased. This may relate to the increased incidence of prescription opioid abuse in Connecticut (Healthy People 2020) and the role health care providers play in the problem of prescription opioid abuse (Wright et al., 2014). The next section of this dissertation will review the empirical evidence supporting the use of risk assessment tools when treating pain with prescription opioid medications.

Empirical Evidence on Risk Assessment Tools for Identifying Prescription Opioid Abuse

Much of the empirical evidence regarding prescription opioid risk assessment is an examination of patient characteristics and behaviors that are associated with prescription opioid abuse (Ashrafioun et al., 2015; Barth et al., 2014; Edlund et al., 2007; Fleming et al., 2007; Marino et al., 2013; Martel et al., 2014; Pasquale et al., 2014; Reid et al., 2002). Through the identification of patient characteristics and behaviors associated with prescription opioid abuse, researchers and experts in the fields of pain and pain management began to develop screening tools to be used when opioid medications are prescribed (Butler et al., 2007; Friedman, Li, & Mehrotra, 2003). The goal in using these risk assessment tools is to identify patients who may be at risk of prescription opioid abuse or are already addicted to opioid medications (Butler et al., 2007; Friedman et al., 2003). The usefulness of these risk assessment tools is supported in multiple research studies (Ashrafioun et al., 2015; Butler et al., 2007; Butler, Budman,

Fanciullo, & Jamison, 2010; Butler, Zacharoff, Charity, Lawler, & Jamison, 2014; Finkelman, Kulich, Zoukhri, Smits, & Butler, 2013; Friedman et al., 2003; Jamison et al., 2014; Meltzer et al., 2011; Passik, Narayana, & Yang, 2014).

Empirical Evidence Supporting the Use of the Current Opioid Misuse Measure

This translational pilot project examined a specific risk assessment tool for its usability and feasibility in primary care settings. The risk assessment tool that was utilized was the Current Opioid Misuse Measure developed by Butler et al. (2007). The COMM was created through expert consensus by physicians in the fields of pain management, psychiatry, and anesthesia (Butler et al., 2007). The COMM was initially administered to patients being treated in specialty pain management centers and was found to have a sensitivity of .77, a specificity of .66, and an area under the curve (AUC) of .81, which was significant at $p < 0.001$ (Butler et al., 2007). The COMM is composed of 17 questions and may be self-administered or administered by the medical assistant, nurse, or primary care provider in the context of a patient office visit (Butler et al., 2007). In the initial validation study, a score of nine or higher on the COMM was considered positive for predicting the aberrant use of prescription opioid medications. This score was recommended based upon results of concept mapping and correlations with two validated scales, the Marlowe-Crowne Social Desirability Scale and the Aberrant Drug Behavior Index (Butler et al., 2007).

The COMM was cross-validated with a sample of non-cancer, chronic pain patients from tertiary pain management centers. In this comparative study, the COMM's reliability and predictive validity AUC was significant at .79 with no significant difference from the initial validation study (Butler et al., 2010). Meltzer et al. (2011) performed a study to determine if the COMM could identify primary care patients at risk for prescription drug use disorder and distinguish these patients from all others. This study took place in the principal researcher's primary care practice. The Meltzer et al. (2011) study found the

probability of a patient having a prescription drug use disorder with a COMM score of 13 or higher was 30%. The probability that a patient does not have a prescription drug use disorder with a COMM score less than 13 was 96% (Meltzer et al., 2011). These authors concluded that the COMM could be used to identify patients with a prescription drug use disorder in a sample of primary care patients being treated for chronic, non-cancer pain with opioid medications (Meltzer et al., 2011).

Since the Meltzer et al. (2011) study, the COMM has been used with consistent reliability and validity by staff in a substance use disorder residential treatment center for ongoing assessment of clients throughout the treatment program and prediction of treatment program completion (Ashrafioun et al., 2015). Other researchers have successfully adapted the COMM into an electronic medical record risk assessment tool to be administered during a patient office visit (Butler et al., 2014; Finkelman et al., 2013). The COMM has also been successfully utilized as a scale in a research study attempting to develop a self-administered compliance checklist for chronic pain patients on opioid medications (Jamison et al., 2014). A study supported by a pharmaceutical company used the COMM to determine if there were any differences in aberrant drug behaviors in patients treated with buccal fentanyl versus a short-acting opioid (Passik et al., 2014). These authors found no statistically significant difference between the two groups' COMM scores and also found that a COMM score of nine or higher was associated with prescription opioid abuse, concluding that pre-treatment risk assessment with the COMM may be useful (Passik et al., 2014). Based on these authors' evidence, the translational pilot project utilized the 17 item COMM with a score of nine or higher indicating a positive test (Ashrafioun et al., 2015; Butler et al., 2014; Finkelman et al., 2013; Passik et al., 2014).

Empirical Evidence on Gaps in Practice Related to Prescription Opioid Abuse

The use of the COMM in the translational pilot project was part of a webinar on the COMM and prescription opioid abuse presented to a sample of nurse practitioners, physicians, and physician

assistants who provide primary care and have prescriptive authority to prescribe opioid medications. The sample was surveyed about their current use of the COMM and their attitudes toward evidence-based practice guidelines. Research evidence has been presented demonstrating that primary care providers are not aware of or consistently following evidence-based practice guidelines for the treatment of pain with prescription opioid medications (Rasu et al., 2013; Reid et al., 2002; Wright et al., 2014). Empirical evidence will now be presented demonstrating the gap between evidence-based practice guidelines and their implementation into clinical practice.

In order to examine the inconsistencies between evidence-based practice and clinical practice, barriers to evidence-based practice implementation and documentation must be identified. A study done in the United Kingdom by McKenna, Ashton, and Keeney (2004) sampled a group of nurses (n=259) and a group of physicians (n=203). These authors found the barriers to evidence-based practice identified by the nurses were (a) lack of computer facilities, (b) poor patient compliance, and (c) difficulty influencing changes within primary care. The barriers identified by the physicians were (a) limited relevance of research to practice, (b) difficulty in keeping up with current changes in primary care, and (c) difficulty searching for evidence-based information (McKenna, Ashton, & Keeney, 2004). These authors concluded that identification of barriers to evidence-based practice along with resource allocation would improve documentation and implementation of evidence-based practice (McKenna et al., 2004).

In 2008, the National Health Service (NHS) in the United Kingdom did increase resources to primary care, increasing physicians' pay based upon performance criteria such as consistent documentation of and adherence to evidence-based practice (Wilcock et al., 2009). Increased pay for physicians whose patients had improved outcomes has been effective in improving adherence to and documentation of evidence-based practice in the United Kingdom (Wilcock et al., 2009), and Scandinavia and Norway (Aakhus, Oxman, & Flottorp, 2014). In the United States, a study done in the

Veteran's Administration Healthcare System with clinical practice guidelines for spinal cord injury found physicians and nurses generally had positive attitudes toward clinical practice guidelines with nurses demonstrating more positive attitudes toward and increased willingness to support clinical practice guidelines in this sample (Luther, Nelson, & Powell-Cope, 2004). The data regarding adherence to clinical practice guidelines has a larger presence in Europe compared to the United States. One study was reviewed demonstrating a potential underutilization of recommendations for the treatment of non-cancer, chronic pain. These authors recommended increased education for primary care providers on chronic pain guidelines (Rasu et al., 2013). The paucity of research data from the United States as well as the recognition that most chronic pain in the United States is treated by primary care providers provided support for the translational pilot project (Fink-Miller et al., 2014; Rasu et al., 2013). Other gaps in knowledge of and implementation of evidence-based care in the context of prescription opioid abuse are associated with the attitudes nurses and other health care providers have toward patients who abuse or misuse prescription opioid medications (Fink-Miller et al., 2014; Garland et al., 2014; Krokmyrdal & Andenæs, 2015; Morgan, 2014; Parhami et al., 2012). Researchers have found that nurses may lack the skills and knowledge needed to care for patients with chronic pain, substance use disorder, or both (Morgan, 2014) and may also have negative attitudes toward patients with prescription opioid abuse, preventing nurses from using evidence-based care to manage these patients and adequately treat their pain (Krokmyrdal & Andenæs, 2015).

Additional research has been conducted attempting to determine the effectiveness of recommendations from clinical practice guidelines in clinical practice. The use of a risk assessment tool, such as the COMM, is generally considered part of best practice for the treatment of pain with opioid medications (Ashrafioun et al., 2015; Butler et al., 2007; Butler et al., 2010; Butler et al., 2014; Finkelman et al., 2013; Friedman et al., 2003; Jamison et al., 2014; Meltzer et al., 2011; Passik et al., 2014). A study reported by Butler et al. (2014) looked at documentation of the COMM in pain center patients on paper

versus an electronic format. Documentation in the electronic format was improved over the paper format which was statistically significant. This result was achieved by examining for the presence of a completed COMM in the patient's paper chart and electronic chart, comparing these two frequencies. However, the best documentation rate these authors found for the electronic version of the COMM was 69%. (Butler et al., 2014).

Medication contracts are also considered part of best practice when treating patients for chronic pain with opioid medications. Medication contracts are documents mutually agreed upon by the patient and prescriber, describing expected patient behaviors concerning opioid medications, which become part of a patient's medical record (Hariharan, Lamb, & Neuner, 2007). In a study by Hariharan, Lamb, and Neuner (2007) a group of primary care patients taking opioid medications for non-cancer, chronic pain (n=330) had all signed a medication contract. The sample was then asked to provide a urine sample for a toxicology screen. Only 42% of the sample consented to the urine toxicology screen and 38% of the urine toxicology screens obtained were positive for an illicit substance (Hariharan et al., 2007). These authors concluded that a medication contract alone was not sufficient in preventing prescription opioid misuse or abuse (Hariharan et al., 2007). Given the research evidence demonstrating inconsistent documentation of risk assessment (Butler et al., 2014) and the potential inadequacy of medication contracts (Hariharan et al., 2007), a theoretical framework for the translational pilot project was necessary in the development of a plan for the implementation of the COMM in a primary care setting.

Theoretical Evidence Supporting the Use of the Theory of Planned Behavior

The theoretical framework chosen for the translational pilot project was the Theory of Planned Behavior by Icek Ajzen (Barnes et al., 2015; Ajzen, I., 1985). An explanation of the theory is outlined in Chapter 1 of this dissertation. The TPB has been utilized since its development as a framework for

behavioral interventions in patient care for problems such as weight loss (Schifter & Ajzen, 1985), breast self-exam (Young, Lierman, Powell-Cope, Kasprzyk, & Benoliel, 1991), exercise intentions (French et al., 2011), and alcohol addiction (Zemore & Ajzen, 2014) among others. Additional research utilizing the TPB has been conducted evaluating healthcare providers, nurses, and physicians' behavior in the context of patient care and patient education (Barnes et al., 2015; DeMik et al., 2013; Eiamsitrakoon, Apisarnthanarak, Nuallaong, Khawcharoenporn, & Mundy, 2013; Gustafson & Borglin, 2013; Jonker, Goossens, Steenhuis, & Oud, 2008; Lavoie et al., 2015; Pielak et al., 2010; Presseau, Francis, Campbell, & Sniehotta, 2011; Reyes, Zuniga, Billings, & Blandon, 2013; Roberto, Shafer, & Marmo, 2014; Roberto, Krieger, Katz, Goei, & Jain, 2011). Seven of the preceding studies referenced demonstrated support for the TPB as a useful framework for changing healthcare provider behavior (Eiamsitrakoon et al., 2013; French et al., 2011; Gustafson & Borglin, 2013; Jonker et al., 2008; Roberto et al., 2014; Roberto et al., 2011; Zemore & Ajzen, 2014). Another study by Blackstock, Mba-Jonas, and Sacajiu (2010) found the TPB predicted why urban African American women did not follow their primary care provider's advice regarding contraception. In these authors' qualitative study, negative attitudes toward the primary care giver along with significant social engagement affecting subjective norms toward the primary care giver led the women in this sample to disregard the primary care giver's advice (Blackstock, Mba-Jonas, & Sacajiu, 2010).

However, not all of the theoretical evidence regarding the TPB has been entirely supportive. Research has demonstrated the TPB factors that affect intention are different for medical assistants, nurses, pharmacists, and physicians suggesting these differences should be anticipated in planning for behavioral interventions (Barnes et al., 2015; DeMik et al., 2013; Lavoie et al., 2015; Pielak et al., 2010; Presseau et al., 2011; Reyes et al., 2013). For instance, nurses evaluated in the following studies reported more influence on their behavioral intentions from patients and patients' families than reported by physicians (Pielak et al., 2010; Presseau et al., 2011; Reyes et al., 2013). Barnes, Theeke,

and Mallow (2015) studied the impact of an educational intervention on adherence to clinical practice guidelines for obesity in primary care based upon the TPB. These authors found their intervention effective in improving documentation of body mass index (BMI) for the medical assistants in their sample but not the primary care providers in their sample. These authors suggest that the intervention needs to be separate from a face-to-face encounter with the primary care provider for best results (Barnes et al., 2015). DeMik et al. (2013) found pharmacists perceived fewer barriers to the implementation of a pharmacy intervention than physicians in their study using the TPB. The general agreement of these authors' on the usefulness of the TPB supported the use of this theory to guide the translational pilot project.

Various studies were also reviewed that used the TPB to guide the research but did not test the entire theory. For example, Barnes, Theeke, and Mallow (2015) used attitude toward behavior, subjective norm, and perceived behavioral control to plan and design their intervention aimed at increasing documentation of body mass index (BMI), diagnosis of obesity, and plan of care for obesity by the healthcare providers in their sample. Their findings supported the use of the TPB to predict behavioral intention (Barnes, Theeke, & Mallow, 2015). Knowles et al. (2015) used the TPB element of attitudes toward behavior to predict behavioral intention in their study which evaluated the effects of a targeted protocol on evidence-based bowel management practices in intensive care. These authors concluded that addressing attitudes toward behavior is helpful in developing implementation strategies that will positively affect healthcare provider behavior change (Knowles et al., 2015). Gustafsson and Borglin (2013) tested an educational intervention for nurses on cancer pain and pain management based upon three elements of the TPB, attitudes toward behavior, subjective norm, and perceived behavioral control. The prediction of behavioral intention of the nurses in their study was supported by use of the TPB (Gustafsson & Borglin, 2013). Buriak, Potter, and Bleckley (2015) evaluated the behavioral intentions of healthcare providers to provide cancer survivorship care using the TPB element

of attitudes toward behavior and found support for use of the TPB in their study. Eiamsitrakoon, Apisarnthanarak, Nuallaong, Khawcharoenporn, and Mundy (2013) performed a study to examine healthcare workers' patient encounters for hand hygiene behavior and consequent hand hygiene self-report based upon TPB constructs in their sample of hospital workers in Thailand. These authors performed a hand hygiene demonstration project followed by an interview and survey of the study participants based upon the TBP constructs of attitude toward behavior, subjective norm, and perceived behavioral control. These authors found that there were (a) gaps between hand hygiene perceptions and observed behavior, (b) healthcare workers over-estimated their compliance with hand hygiene recommendations, and (c) significant correlations exist between observed hand hygiene compliance and the TPB, suggesting behavioral assessments based upon the three constructs of the TPB predicted recommended hand hygiene behavior in their sample (Eiamsitrakoon et al., 2013).

Additionally, Reyes, Zuniga, Billings, and Blandon (2013) evaluated the impact of a workshop and training course that incorporated human rights into reproductive healthcare provider education programs in their sample of second year nursing students and new physicians in Nicaragua and El Salvador using methodologies based upon the TPB constructs of attitude toward behavior, subjective norm, and perceived behavioral control. These authors found use of the methodologies based upon the preceding TPB constructs successful in changing healthcare provider attitudes and behaviors in their sample (Reyes, et al., 2013). French and colleagues (2011) developed an intervention to promote daily exercise with a walking program based upon the TPB constructs of attitude toward behavior, subjective norm, and perceived behavioral control in their sample of primary care patients. These authors found their intervention was acceptable to the patients as well as the patients' primary care providers in their sample (French et al., 2011). Young, Lierman, Powell-Cope, Kasprzyk, and Benoliel (1991) used the TPB constructs of attitude toward behavior, subjective norm, and perceived behavioral control as a framework in the development and testing of a breast self-exam teaching intervention. These authors

found use of the three constructs of the TPB successful in promoting breast self-exam in their sample (Young et al., 1991). All of these authors used the TPB as a guiding framework for their studies without testing the entire theory, providing support for the use of the TBP in this fashion for the translational pilot project (Barnes, Theeke, & Mallow, 2015; Buriak, Potter, & Bleckley, 2015; Eiamsitrakoon, Apisarnthanarak, Nuallaong, Khawcharoenporn, & Mundy, 2013; French et al., 2011; Gustafson & Borglin, 2013; Knowles et al., 2015; Reyes, Zuniga, Billings, & Blandon, 2013; Young, Lierman, Powell-Cope, Kasprzyk, & Benoliel, 1991).

Summary

In summary, empirical evidence has been analyzed on (a) the significance of prescription opioid abuse, (b) the use of risk assessment tools when prescribing opioid medications, specifically the COMM, and (c) gaps in knowledge and evidence-based practice by primary care providers, nurses, and physicians regarding clinical practice guidelines for the treatment of pain with prescription opioid medications has been presented to support the significance of the translational pilot project. Theoretical evidence has been presented to support the use of the TPB as a framework for the translational pilot project.

Chapter 3

Methodology

The purpose of this translational pilot project was to assess primary care provider knowledge of a specific risk assessment tool, educate primary care providers about this risk assessment tool via a real time webinar, and evaluate primary care providers' use of this risk assessment tool four weeks after the webinar. Attitudes toward evidence-based practice and demographic variables were also explored. The methods used for the pilot project are described in detail below.

Translational Pilot Project Design

The design for the translational pilot project was a descriptive, time series design. This design allowed for the collection of data from the sample primary care providers before and after the intervention and four weeks post intervention. Comparison of the data from each participant at each collection point would allow for the assessment of primary care provider behavior and whether or not there was a change in the primary care providers' behavior. This pilot project also described the attitudes of the sample primary care providers toward evidence-based practice as well as the sample's demographic variables.

Setting

The setting for the translational pilot project was a group of primary care practices that are part of a large healthcare system in Connecticut. In fiscal year 2016, there were over 450 specialty, urgent, and primary care providers in 50 different locations throughout Connecticut employed by the group. Twenty-nine of these offices were primary care practices. The number of providers in each office varied from two providers per office to six or more providers per office. Both preventive care and episodic care were provided at each primary care office.

Sample

The provider staff at each primary care office was the target convenience sample. The providers were board certified nurse practitioners, physicians, and physician assistants. All of these providers had prescriptive authority to prescribe Schedule II Controlled Substances which includes prescription opioid medications. There were approximately 122 primary care providers in the target sample.

The sample primary care providers were asked to complete a questionnaire as part of the translational pilot project. Response rates to self-administered questionnaires vary widely, generally ranging from 10% to 65% (Polit & Beck, 2012). It was anticipated that the questionnaire response rate would be at the low end of this range, given the time consuming, demanding nature of working as a primary care provider.

Inclusion and Exclusion

All primary care nurse practitioners, physicians, and physician assistants were invited to participate in the pilot project. Nurses, medical assistants, clerical and administrative staff were excluded from participation in the pilot project. The COMM was recommended for utilization on patients aged 18 years and over, excluding young adolescent and pediatric patients.

Instrument

The questionnaire administered to the sample prior to the webinar was the Attitudes to Evidence-Based Practice Questionnaire by McKenna, Ashton, and Keeney (2004). The questionnaire “addresses barriers to the use of evidence-based practice, demographic variables and the research and information resources available within primary care” (McKenna, Ashton, & Keeney, 2004, p. 180). The use of this questionnaire was guided by the TPB elements of (a) attitudes toward behavior, favorable or unfavorable toward the use of evidence-based practice, (b) subjective norm, perceived social pressure

to utilize evidence-based practice, and (c) perceived behavioral control, the ease or difficulty of utilizing evidence-based practice in primary care (Ajzen, I., 1985). Permission to use the questionnaire was obtained by this researcher via email to the corresponding author (Appendix C). The questionnaire is composed of twenty-six Likert-type questions on evidence-based practice attitudes and knowledge and seventeen biographical questions which are short answer or check-off boxes. One question was added to the biographical/demographic questions by this researcher to determine if anyone in the sample had utilized the Current Opioid Misuse Measure prior to the webinar sessions. The scoring for the Likert-type questions was; (a) 1=strongly disagree, (b) 2=disagree, (c) 3=unsure, (d) 4=agree, and (e) 5=strongly agree. The wording of four questions in the demographic section of the questionnaire was changed for applicability to the target sample as follows:

Demographic question 3. What position do you currently hold? (a) district nurse, (b) general practitioner, (c) health visitor, (d) nurse practitioner, (e) practice nurse, and (f) other. This question was changed to reflect the types of providers that would be involved in the translational pilot project as follows; what position do you currently hold? (a) nurse practitioner, (b) physician assistant, (c) physician, and (d) medical director

Demographic question 4. Are you a training practice? (a) yes, (b) no, and (c) not applicable. This question was changed for clarity to, do you precept students? (a) yes, (b) no, and (c) not applicable

Demographic question 5. Are you a fundholding practice? (a) yes, (b) no, and (c) not applicable. This question was changed for clarity to, what type of practice best describes your primary practice? (a) primary care or (b) urgent care

Demographic question 6. Educational qualifications, choose all that apply; (a) degree, (b) diploma, (c) ENB courses, (d) FRCGP, (e) PhD, (f) Masters, (g) M.D., (h) MICGP, (g) MRCGP, (h)

RCN courses, and (i) other. This question was changed for applicability to the target sample as follows; educational qualifications, choose all that apply (a) Bachelor's degree, (b) Master's degree, (c) MPH, (d) PhD, (e) DNP, (f) MD, and (g) DO

This question was added by this researcher; demographic question 18. Have you ever utilized the Current Opioid Misuse Measure (COMM) when prescribing an opioid medication to a patient? (a) if yes; how and by whom? (b) if no, why not?

The reliability coefficient of the questionnaire is 0.74 (McKenna et al., 2004). Face validity and content validity of the questionnaire was established through a pilot study with a random sample of nurses (n=40) and physicians (n=40) and an expert panel of five nurses and five physicians in Northern Ireland (McKenna et al., 2004). The data that may be collected from this questionnaire are ordinal level for the Likert-type questions and a combination of nominal and interval data from the biographical questions. Frequencies and percentages were used to describe the findings.

Prior to the implementation of the pilot project, use of the questionnaire was pilot tested with a small group of primary care nurse practitioners (n=5), who were not members of the target sample, to assess for ambiguity and estimate the time necessary to complete the questionnaire. They were asked to identify any items that were unclear or difficult to answer and to indicate the length of time needed to complete the questionnaire. The average time for the pilot sample to complete the questionnaire was eleven minutes. None of the questions were identified as unclear or confusing by the pilot sample. Limitations to the use of a questionnaire in the manner of the pilot project may include low response rates and a risk of bias (Polit & Beck, 2012). Despite these limitations, use of the questionnaire was a logical choice given the time and resources available for the translational pilot project.

Institutional Approval

Approval for the translational pilot project was obtained through a written proposal submitted to the healthcare system's IRB, and the University of Connecticut IRB. Permission for clinical access to perform the pilot project was obtained from the healthcare system that owns the primary care practices where the target sample was obtained.

Data Collection Procedure

Once the research proposal was approved by this researcher's dissertation committee, the University of Connecticut School of Nursing IRB reviewer, the healthcare system's IRB, and the University of Connecticut IRB, this translational pilot project was implemented and data was collected over a six week period.

An email invitation (Appendix G) was sent to all the primary care providers in the target sample approximately one month prior to the webinar sessions. The email system utilized by the group has a list serve of all the primary care providers so the email invitation went to all the primary care providers simultaneously. The email invitation included a brief description of this researcher's academic program and a description of the webinar, including the topic and date and times of the webinar sessions. Also attached to the email invitation was an information sheet (Appendix H) about the Attitudes to Evidence-Based Practice Questionnaire (McKenna, Ashton, & Keeney, 2004), the risks and benefits of participation in the pilot project, confidentiality, and contact information if participants had any questions or concerns about the pilot project. The questionnaire was attached as a Word document that could be viewed, edited, and returned electronically. The invitation instructed the potential participant to complete and return the questionnaire prior to the webinar sessions. As the questionnaires were returned, the identity of the participant was established through their email address since all individual email addresses in this system include the individual's full name. When a questionnaire was returned,

the provider returning the questionnaire was assigned a code number beginning with the number one and continuing in chronological order. The master list of each participant, the participants' code number, and the responses from the questionnaires were entered into the Statistical Package for the Social Sciences (SPSS) Version 24 for tracking and analysis as each questionnaire was received. The email invitation and information sheet also discussed the voluntary nature of the project, privacy protection, confidentiality, participant consent, the four week follow up medical record review, and data management. The email invitation also offered participants a token of appreciation for their time and effort, a five dollar gift card to a local donut shop. The email invitation was sent out on three separate dates, two within one month of the webinar sessions, one the week before the webinar sessions. This was a change from the original plan due to the low response rate of the questionnaire.

On the date of the webinar, there was a morning webinar session and an evening webinar session. The webinar was presented online in a virtual meeting room utilized by this group for meetings involving individuals who are in different locations. The webinar occurred in real time and the system identified each participant as they joined the meeting. Prior registration for the webinar was not required. The webinar included a PowerPoint presentation (Appendix D) which included four slides on the significance of prescription opioid abuse both nationally and locally, a slide on best practice for treating pain with opioid medications, five slides on the Current Opioid Misuse Measure (Butler et al., 2007) including an introduction to the tool, assessment of the participants' knowledge of and previous use of the COMM, the tool's reliability and validity data, and the complete tool with scoring instructions, one slide describing possible knowledge gaps and barriers to using evidence-based practice, and two slides for implications and discussion including the following points: (a) the challenging conditions faced by primary care providers; time constraints, complex patients with multiple comorbidities, and the difficulty of providing patients what they want in the context of evidence-based care; (b) the electronic version of the COMM (Appendix E) prepared by this researcher, was offered to the participants for their

own use and, (c) the participants were asked if there were any other points of discussion or questions; finally, there were seven slides of references for a total of twenty-one slides in the presentation. If a provider returned a questionnaire, a unique code number was assigned. When this provider attended a webinar session, their code number remained the same. If a webinar participant did not complete a questionnaire, this participant was assigned a code number starting with 100, continuing in chronological order. This distinguished those who completed a questionnaire and webinar session from those who completed only the webinar. Likewise, the master list and data entered into SPSS revealed participants who completed a questionnaire but did not attend a webinar session. In this way, a participant's progress through the project was tracked. Data was entered into SPSS after each webinar session.

Four weeks after participation in the webinar, electronic medical records (EMR) of those patients who had been prescribed an opioid medication by one of the participating primary care providers was examined for the presence of a completed COMM in the patient record. The EMRs reviewed dated from four weeks prior to the webinar sessions to four weeks post the webinar sessions. A chart review checklist (Appendix F) was utilized. This checklist documented (a) the date of the opioid prescription, (b) the type of opioid prescribed, (c) whether the prescriber was a nurse practitioner, physician, or physician assistant (d) the prescriber code number, (e) the patient's age, (f) the patient's gender, (g) the patient's diagnosis the opioid was prescribed for, and (h) was the COMM used during the visit. Collecting data on patient age and gender could possibly reveal trends in opioid use, informing the use of risk assessment tools such as the COMM.

Protection of Human Subjects

Approval for the translational pilot project was obtained prior to the implementation of the pilot project and data collection. A contract was agreed to by the University of Connecticut School of Nursing and the participating healthcare system, allowing for the researcher's access to the primary care providers and the acknowledgement of the healthcare system's HIPPA requirements and privacy policy. The participants of the pilot project were protected from coercion by informing them that their participation would be completely voluntary and could be withdrawn at any time without repercussions. The information sheet included the names of the principal investigator and co-investigator, the title and purpose of the pilot project, and the risks and benefits of completing the questionnaire and participating in the pilot project. Confidentiality of information obtained during the pilot project, the method for returning the questionnaire, and who to contact if there were any questions or concerns was also included in the information sheet. Privacy was maintained by the researcher and only the researcher had access to any data collected. Confidentiality of the participants was protected by assigning each participant a code number. Tracking of each participant through the course of the project was managed as previously described. The master list of each participant and any other data collected was stored in a locked location in this researcher's office at the healthcare system in which the pilot project took place. There were no known perceived risks to the participants of the translational pilot project. The benefits of participating in the pilot project included raising awareness of evidence-based practice for treating pain with prescription opioid medications and access to a risk assessment tool. No identifying information was used. The researcher and her advisor were the only persons with access to the coded data.

The electronic medical records reviewed as part of the pilot project contained personal health information (PHI). Identifiers collected included the provider code number, patient name, age, gender, and diagnosis, and the date and type of opioid prescribed. The master list of provider names and code

numbers, and patient PHI, were stored for the length of time required by federal regulations and then destroyed.

Data Management

All data collected was entered into SPSS Version 24 by the researcher for analysis. Data was entered as it was gathered. Planning for data management was as follows; incomplete questionnaires and any missing data would be identified and documented. The frequency of each missing item would be calculated to determine if there was any pattern to the missing data. Depending upon the pattern and type of variable missing from the data, single or multiple imputation would be implemented (Penny & Atkinson, 2012). A questionnaire would be excluded from the analysis if the question concerning prior use of the COMM (question number 18), in the demographic section of the questionnaire, was not answered. A password protected personal laptop was used by the researcher and any data was saved to an encrypted thumb drive. The encrypted thumb drive was stored in a locked location in this researcher's office at the participating healthcare system. The data was cleaned before analysis. Any data that was incomplete or missing would be identified and removed from the analysis.

Data Analysis

The purpose of the translational pilot project was to assess primary care provider knowledge of a specific risk assessment tool, educate primary care providers about this risk assessment tool via a real time webinar, and evaluate primary care providers' use of this risk assessment tool four weeks after the webinar. Scores from the Attitudes to Evidence-Based Practice Questionnaire (McKenna, Ashton, & Keeney, 2004) were obtained and analyzed along with the biographical/demographic information obtained from this tool. Descriptive statistics were utilized on this data. The following translational pilot project questions were then addressed:

Question #1

“What are the attitudes of the primary care providers in this sample regarding use of evidence-based practice guidelines in primary care?”

This question was answered through scores on the Attitudes to Evidence-Based Practice Questionnaire using descriptive statistics.

Question #2

“Had the COMM been utilized prior to the translational pilot project by the primary care providers in this sample?”

This question was answered through participant response to question 18 on the Attitudes to Evidence-Based Practice Questionnaire (McKenna, Ashton, & Keeney, 2004) and through participant responses to questions posed during the webinar sessions using descriptive statistics.

Question #3

“How has the COMM been previously utilized by the primary care providers in this sample and if so, by whom?”

This question was answered through participant response to question 18 on the Attitudes to Evidence-Based Practice Questionnaire (McKenna, Ashton, & Keeney, 2004) and through participant responses to questions posed during the webinar sessions using descriptive statistics.

Question #4

“Why have the sample primary care providers not utilized the COMM?”

This question was answered through participant response to question 18 on the Attitudes to Evidence-Based Practice Questionnaire (McKenna, Ashton, & Keeney, 2004) and through participant responses to questions posed during the webinar sessions using descriptive statistics. Pre and post intervention differences, if any observed, would be analyzed with Wilcoxon signed ranks test due to a potentially small sample size and lack of homogeneity within the sample.

Question #5

“Will the sample primary care providers request access to the electronic version of the COMM, available within the electronic medical record system used by the sample, after the webinar?”

This question was answered by documenting how many primary care providers requested access to the electronic version of the COMM, prepared by this researcher, using descriptive statistics. Pre and post intervention differences, if any observed, would be analyzed with Wilcoxon signed ranks test due to a potentially small sample size and lack of homogeneity within the sample.

Question #6

“Will documentation that the COMM has been utilized by a primary care provider who participated in the translational pilot project be present four weeks after the webinar?”

This question was answered by reviewing the records of patients who were prescribed an opioid medication by a participating primary care provider for a completed COMM using descriptive statistics. These records were identified through a search of the electronic health record utilized by this healthcare system. Wilcoxon signed ranks test would be utilized to assess differences in primary care provider use of the COMM, if any observed, from time zero to four weeks post webinar due to a small sample and lack of homogeneity within the sample.

Summary

This translational pilot project attempted to answer the pilot project questions using the methods outlined and described in this chapter. Descriptive statistics were used to analyze the aggregate responses to the translational pilot project questions along with demographic information. Pre and post intervention differences among the sample, if any observed, would be analyzed with Wilcoxon signed ranks test due to a potentially small sample and lack of homogeneity within the sample. Attitudes toward and knowledge of evidence-based practice were also explored to determine possible barriers to the use of evidence-based practice in primary care.

Chapter 4

Results

The purpose of this translational pilot project was to assess primary care provider knowledge of a specific opioid risk assessment tool, educate primary care providers about this risk assessment tool via a real time webinar, and evaluate primary care providers' use of this risk assessment tool four weeks after the webinar. Attitudes toward evidence-based practice in primary care and demographic variables were also explored.

The pilot project was introduced to the target primary care providers via an email invitation sent on three separate dates prior to the scheduled webinar sessions. Included in the email invitation was the Attitudes to Evidence-Based Practice Questionnaire by McKenna, Ashton, and Keeney (2004). The email invitation instructed participants to complete and return the questionnaire prior to the webinar sessions. The webinar sessions occurred approximately one week after the last email invitation was sent. The first session took place early in the morning prior to scheduled patient appointments and the second session took place in the late afternoon, at the end of the clinical day. Four weeks after the webinar sessions, records of those patients who had been prescribed an opioid medication by one of the participating primary care providers were examined for the presence of a completed Current Opioid Misuse Measure (Butler et al., 2007) in the patient record. The records reviewed dated from four weeks prior to the webinar sessions to four weeks post the webinar sessions. Data obtained from questionnaire responses and the two webinar sessions were analyzed and entered into SPSS Version 24 within three weeks of the webinar sessions. This was a change from the original design and plan because of the low questionnaire response rate and the small number of primary care providers who attended a webinar session. Changes made to the design and plan of the pilot project were approved by the healthcare system's IRB and the University of Connecticut IRB prior to implementation (Appendix J).

Description of the Sample

The email invitation was sent to 122 primary care providers. Nine primary care providers completed and returned the questionnaire, reflecting a response rate of approximately 7% percent. Five primary care providers attended a webinar session. Only one provider, a physician, completed the questionnaire and attended a webinar session. The questionnaire addressed barriers to the use of evidence-based practice in primary care along with demographic variables and a question querying the primary care providers about previous use of the COMM. All of the respondents to the questionnaire were female. Approximately 89% of the respondents were between the ages of 41 and 60. Over half of the respondents were identified as nurse practitioners (n=5). The remainder were physician assistants (n=2) or physicians (n=2). Approximately 67% of the respondents had earned a Master's degree (n=6) and of these respondents, two had earned a DNP, one an MD. Both of the physician assistants in this sample were Bachelor prepared. One physician assistant also had a Master's degree.

The providers who attended a webinar session were split between female (n=3) and male (n=2) providers. Two of the female providers were identified as nurse practitioners. The other female provider was identified as a physician. The male providers were identified as a physician and a physician assistant. The demographic characteristics of the sample are summarized in Appendix I, Table 1 and Table 2.

A list of all of the primary care providers who had either completed a questionnaire or attended a webinar session was generated by the information technology department of the healthcare system. The list contained every opioid prescription written by the participating primary care providers during the specified timeframe and included the patients' names and the date the prescription was written. Four of the nurse practitioners and one physician assistant who had completed the questionnaire had not prescribed any opioid medications in the specified time period. The chart review data collected and

analyzed was from the primary care providers who had prescribed an opioid medication in the specified time period (n=8; 3 nurse practitioners, 2 physician assistants, 3 physicians). The list was obtained four weeks after the webinar sessions and the records for each provider were reviewed over the course of one week after the list was received. The chart review checklist was utilized for each record reviewed. All data collected from the record review was entered into SPSS Version 24 approximately five weeks after the webinar sessions. There were a total of 178 opioid prescriptions written by the sample primary care providers (n=8) during the selected time period. A total of 94 patient records were reviewed. One physician assistant worked per diem in urgent and emergency care in addition to primary care. Twenty two records were reviewed for this provider but twenty one of the records were excluded from the analysis because these patients were treated in urgent care or the emergency room. Records of primary care patients prescribed an opioid medication during the specified time frame (n=73) were included in the data analysis. All of the providers, except for the physician assistant previously discussed, managed at least one patient who received more than one type of opioid prescription which accounted for the total number of prescriptions (n=178) being larger than the total number of patient records analyzed (n=73). Approximately 47% of these prescriptions were written one month prior to the webinar. The remainder, approximately 53%, were written one month after the webinar. The patients ranged in age from 23 years to 93 years old. The median age was 55 years old. The largest proportion of the total number of prescriptions were written for female patients, 117 prescriptions which is 65.7% of the total number of prescriptions (n=178). The three most commonly prescribed opioid medications were hydrocodone acetaminophen (n=74, 41.6%), oxycodone acetaminophen (n=41, 23%), and oxycodone (n=31, 17.4%). Opioid medications were prescribed most often for chronic back pain (n=72, 40.4%), chronic pain (n=27, 15.2%), and chronic neck pain (n=14, 7.9%). See Tables 7-10 (Appendix I) for the total frequencies and percentages of patient age, patient gender, opioid medication prescribed, and diagnosis for which an opioid medication was prescribed.

One nurse practitioner had completed one questionnaire and had not attended a webinar session but had documented use of the COMM in one patient record. One nurse practitioner had attended a webinar session but had not completed a questionnaire had documented use of the COMM in one patient record. Otherwise, none of the remaining primary care providers who had written a prescription for an opioid medication after the date of the webinar sessions had documented use of the COMM in a patient record. Table 11 (Appendix I) summarizes participant movement through the project.

Additional Statistical Analyses

An evaluation of the types of pain treated by this sample of primary care providers (n=8) revealed approximately 16% of the diagnoses were for acute pain conditions of various types (Table 9). The remainder, approximately 84%, had chronic pain diagnoses (Table 10). The data demonstrated the sample primary care providers treat a wide variety of acute and chronic pain conditions.

Analysis of Translational Pilot Project Questions

Question #1: “What are the attitudes of the primary care providers in this sample regarding use of evidence-based practice guidelines in primary care?”

This question was answered using descriptive statistics of participants’ responses (n=9) to the barrier rankings on the Attitudes to Evidence-Based Practice Questionnaire (McKenna, Ashton, & Keeney, 2004). Approximately 78% (n=7) of the sample primary care providers (PCPs) were confident in their ability to evaluate the quality of research literature and 100% of the sample PCPs were confident in their ability to utilize computers to search for research literature. Cost was identified as a barrier to the use of evidence-based practice by approximately 78% (n=7) of the sample PCPs. Slightly more than half, or 56% (n=5), of the sample PCPs identified time limitations, patient compliance, the large volume of available research literature, and the difficulty of transferring research evidence into clinical practice as

barriers to the use of evidence-based practice in primary care. The healthcare system's leaders and managers were identified as supportive of evidence-based practice by approximately 89% (n=8) of the sample PCPs yet approximately 67% (n=6) believed there were no incentives to develop research skills in their clinical practice. Approximately 56% (n=5) of the sample PCPs believed there are benefits to changing their practice based on research, and approximately 44% (n=4) believed colleagues knowledgeable of research findings are available. There was no majority consensus regarding the sample PCPs' belief in the difficulty of keeping up with changes in the work environment. Approximately 67% (n=6) of the sample PCPs believed they have the ability to affect change in primary care. The questions and the sample PCPs' responses are located in Table 3 (Appendix I).

The answers to the barrier rankings on the Attitudes to Evidence-Based Practice Questionnaire (McKenna, Ashton, & Keeney, 2004) were also examined by provider position, either nurse practitioner, physician assistant, or physician. Of the nurse practitioners (NPs) who responded to the questionnaire (n=5), 100% were confident in their ability to evaluate the quality of research literature and 100% were confident utilizing computers to search for research literature. Barriers to the use of evidence-based practice in primary care identified by the NPs included time limitations and cost (n=4, 80%), and the difficulty of transferring research evidence into clinical practice (n=3, 60%). Compared to the total sample of PCPs, patient compliance and the large volume of available research literature was perceived as less of a barrier by the NPs (n=2, 40%). The healthcare system's leaders and managers were identified as supportive by 80% (n=4) of the NPs yet the same percentage of NPs also believed there were no incentives to develop research skills in their clinical practice. The majority of the NPs believed colleagues knowledgeable of research findings were available (n=4, 80%), and in their ability to affect change in primary care (n=3, 60%). Sixty percent (n=3) of the NPs did not believe there were benefits to changing their practice based on research. There was no majority consensus found among the sample

NPs' belief regarding the difficulty keeping up with changes in their work environments. The questions and sample NPs' responses are located in Table 4 (Appendix I).

The physician assistants (n=2) had no variability in their responses to the barrier questions of the Attitudes to Evidence-Based Practice Questionnaire (McKenna, Ashton, & Keeney, 2004). Both felt confident in their ability to evaluate the quality of research literature and in their ability to utilize computers to search for research literature. The sample physician assistants (PAs) both identified cost, patient compliance, the large volume of available research literature, and the difficulty of transferring research evidence into clinical practice as barriers to the use of evidence-based practice in primary care. The PAs (n=2) were unsure if time limitations were a barrier to the use of evidence-based practice in primary care. The healthcare system's leaders and managers were identified by both PAs as supportive of evidence-based practice and both PAs believed there were incentives to develop research skills in their clinical practice. Both PAs believed there are benefits to changing their practice based on research and in their ability to affect change in primary care. Both PAs were uncertain if colleagues knowledgeable of research findings were available and uncertain if they believed it was difficult to keep up with changes in their work environments. The questions and the sample PAs' responses are located in Table 5 (Appendix I).

The physicians (n=2) did not feel confident in their ability to evaluate the quality of research literature but did feel confident in their ability to utilize computers to search for research literature. Both physicians (MDs) were uncertain if the difficulty to transfer research evidence into clinical practice is a barrier to the use of evidence-based practice in primary care. One MD identified time limitations, patient compliance, and the large volume of available research literature as barriers to the use of evidence-based practice in primary care. The other MD was uncertain if time limitations, patient compliance, and the large volume of available research literature were barriers to the use of evidence-based practice in primary care. Both MDs believed the healthcare system's leaders and managers were

supportive of evidence-based practice yet both also believed there were no incentives to develop research skills in their clinical practice. One MD believed there were benefits to changing their practice based on research; the other did not. One MD felt there were no colleagues knowledgeable of research findings available; the other was uncertain. Both MDs believed it is difficult to keep up with all the changes happening in their work environments. One MD believed in their ability to affect change in primary care; the other was uncertain. The questions and the sample MDs' responses are located in Table 6 (Appendix I).

Question #2: "Had the COMM been utilized prior to the translational pilot project by the primary care providers in this sample?"

This question was answered through participant response to question #18 on the Attitudes to Evidence-Based Practice Questionnaire (McKenna, Ashton, & Keeney, 2004) and through participant responses to questions posed during the webinar sessions using descriptive statistics. Of the providers who completed the questionnaire, none of them (n=9) had previously utilized the COMM. Of the providers who attended a webinar session (n=5), none of them had previously utilized the COMM. Only one provider had previously heard of this specific tool.

Question #3: "How has the COMM been previously utilized by the primary care providers in this sample and if so, by whom?"

The COMM had not been previously utilized by any of the primary care providers who completed a questionnaire or attended a webinar session. The majority of the sample had never heard of the COMM. The one provider who had heard of the COMM had never utilized it.

Question #4: “Why have the sample primary care providers not utilized the COMM?”

As previously stated, the majority of the sample (n=9 responders to the questionnaire; n=5 participants in a webinar session) had never heard of the COMM. The one provider who had heard of the COMM did not previously utilize the tool due to a lack of familiarity with the tool and time constraints.

Question #5: “Will the sample primary care providers request access to the electronic version of the COMM, available within the electronic medical record system used by the sample, after the webinar?”

This question was answered by documenting how many primary care providers requested access to the electronic version of the COMM prepared by this researcher during the webinar sessions using descriptive statistics. All five of the primary care providers who attended a webinar session requested access to the electronic version of the COMM created by this researcher for use in the electronic medical record system utilized by the sample PCPs.

Question #6: “Will documentation that the COMM has been utilized by a primary care provider who participated in the translational pilot project be present four weeks after the webinar?”

This question was answered by reviewing the records of patients who were prescribed an opioid medication by a participating primary care provider for a completed COMM using descriptive statistics. Two nurse practitioners had documented use of the COMM in a patient record one time each. One of the NPs had attended a webinar session but had not completed a questionnaire. The other NP completed the questionnaire but did not attend a webinar session. The electronic version of the COMM prepared by this researcher was offered only to those primary care providers who attended a webinar session. The NP who used the COMM but did not attend a webinar session had used a paper version of the COMM which was completed by the patient and scanned into the patient’s record.

In summary, the demographic characteristics of the sample were described along with an exploration of the sample's responses to the barrier questions on the Attitudes to Evidence-Based Practice Questionnaire (McKenna, Ashton, & Keeney, 2004). The findings reveal the sample PCPs overall felt confident in their ability to evaluate the quality of research literature; however, when the findings were evaluated by position, the MDs had less confidence in their ability to assess the quality of research literature compared to the NPs and PAs in this sample. All of the sample PCPs felt confident in their ability to search for research literature electronically. Barriers to the use of evidence-based practice in primary care were identified by the sample PCPs, including cost, time limitations, patient compliance, the large volume of available research literature, and the difficulty of transferring research evidence into clinical practice. Cost was identified as a barrier by the NPs and PAs, but not by the MDs. Time limitations were described as a barrier by 80% of the NPs and 50% of the MDs but both PAs and one MD were uncertain if time limitations were barriers. Patient compliance was identified as a significant barrier by both PAs and one MD. The NPs described patient compliance as a less significant barrier. Both PAs and one MD agreed the large volume of available research literature was a barrier; however, only 40% of the NPs believed the large amount of available research literature was a barrier. Both PAs believed the difficulty of transferring research evidence into clinical practice was a barrier; the MDs were uncertain, and 60% of the NPs believed transferability was a barrier to the use of evidence-based practice in primary care. Eighty nine percent of the sample PCPs agreed the healthcare system's leadership and management were supportive of evidence-based practice, yet both MDs and 80% of the NPs felt there were no incentives to develop research skills in clinical practice. However, both PAs believed there were incentives to develop research skills in clinical practice. The sample PCPs believed there are benefits to changing practice based on research; however, a larger percentage of the MDs and PAs believed this compared to the NPs. The majority of the sample did not feel isolated from colleagues knowledgeable in research findings but both PAs were uncertain. Both MDs and only one NP felt that it

is difficult to keep up with changes in their work environments; the remainder of the sample did not feel it is difficult to keep up with changes or were uncertain. The majority of the sample also believed in their ability to affect change in primary care; one MD and one NP were uncertain and one NP did not feel able to affect change in primary care. Generally, the findings suggest the sample PCPs have favorable attitudes toward evidence-based practice but face barriers and challenges in transferring research evidence into clinical practice.

The summary findings from the translational pilot project demonstrated the sample PCPs were unaware of the COMM and had never utilized the COMM previous to the webinar sessions. One PCP had heard of the tool but was not familiar with it. All of the PCPs expressed interest in using the COMM but documented use of the tool was found in only two patient records out of 94 patient records reviewed in the specified time frame after the webinar sessions. These findings suggest further assessment of PCPs' perceived barriers and challenges as well as increased support and provider education on pain management and substance abuse may be helpful for PCPs when treating chronic pain with prescription opioid medications. Additional findings from the translational pilot project demonstrated the sample PCPs treat a wide variety of acute and chronic pain with opioid medications suggesting the need for additional study and intervention in primary care.

The next chapter of this dissertation will compare the findings of this translational pilot project to the current literature on similar projects. An evaluation of the theoretical framework utilized for this translational pilot project, the Theory of Planned Behavior by Icek Ajzen (1985), will be presented along with limitations to the project, potential quality improvement evaluation, and implications for future study.

Chapter 5

Discussion

Given the magnitude of prescription opioid abuse, it is imperative primary care providers identify patients who are misusing or abusing prescription opioids and offer evidence-based treatment to these individuals. The translational pilot project described in this dissertation was an attempt to assess PCP knowledge of a specific risk assessment tool, educate PCPs about this risk assessment tool via a real time webinar, and evaluate PCPs' use of this tool four weeks after the webinar. Attitudes toward evidence-based practice were also explored.

Pilot projects or studies with methodologies and purpose like that of this translational pilot project could not be found in the literature. Meltzer et al. (2011) utilized the COMM on primary care patients with chronic pain. These authors were not examining whether or not the PCPs would utilize the COMM (Meltzer et al., 2011). Other pilot studies utilizing the COMM examined (a) impulsivity and sensation seeking in chronic pain patients who were misusing opioid medications (Marino et al., 2013), (b) shortening the response burden of the COMM while maintaining the tool's sensitivity and specificity (Finkelman et al., 2013), and (c) evaluating the impact of a motivational intervention to reduce overdose risk in emergency department patients who report opioid misuse (Bohnert et al., 2016). None of these authors evaluated primary care provider awareness of or utilization of the COMM.

Two studies were found that evaluated primary care provider adherence to and documentation of recommendations from clinical practice guidelines for obesity in adults (Barnes, Theeke, & Mallow, 2015) and obesity and overweight in children (Joerg, 2012). As part of a quality improvement project, Joerg (2012) introduced a clinical practice guideline to improve the screening and identification of children who were overweight or at risk for overweight through educational outreach visits and performance feedback with individual primary care providers. Using the Theory of Planned Behavior

(Ajzen, 1985) as a theoretical framework, the intervention was successful in improving primary care provider documentation of diet and activity but the study was limited by a very small sample (n=6). The primary care providers in Joerg's (2012) sample also had positive attitudes toward clinical practice guidelines similar to the sample primary care providers in this translational pilot project.

Barnes, Theeke, and Mallow (2015) introduced a clinical practice guideline for the diagnosis and treatment of obesity in adults in primary care also using the Theory of Planned Behavior (Ajzen, 1985) as the theoretical foundation of their intervention. These authors utilized educational sessions, provided resources for patient education, a provider reminder system, and feedback. One hundred charts were reviewed and the findings demonstrated no significant increase in provider documentation of obesity, however, there was a significant increase in documentation of body mass index (BMI) by medical assistants (Barnes, Theeke, & Mallow, 2015). The translational pilot project also demonstrated little to no documented use of the COMM by the sample primary care providers. Both Joerg (2012) and Barnes, Theeke, and Mallow (2015) introduced a guideline to primary care providers utilizing the Theory of Planned Behavior (Ajzen, 1985) similar to the translational pilot project. These authors focused on documentation and identification of obesity unlike this translational pilot project which focused on screening for prescription opioid abuse.

Lack of primary care provider knowledge about risk assessment tools for identifying prescription opioid abuse has been documented (Kaye et al., 2017; Quanbeck et al., 2016; Rasu et al., 2013; Reid et al., 2002; Wright et al., 2014). The primary care providers who participated in the translational pilot project, either through questionnaire completion or webinar attendance, were unaware of the COMM with the exception of one provider. Patient compliance, time constraints, cost, the large volume of available research literature, and research findings not being easily transferable to practice were identified by the sample primary care providers as barriers to evidence-based practice. These findings

are also supported in the literature (Kanouse & Compton, 2015; Kaye et al., 2017; Hooten et al., 2013; McKenna, Ashton, & Keeney, 2004; Nuckols et al., 2014 ;).

Overall, findings from the translational pilot project including lack of primary care provider knowledge of the COMM and lack of documentation of use of the COMM are consistent with the literature on primary care provider knowledge of and adherence to evidenced-based practice for the treatment of pain with prescription opioid medications (Kaye et al., 2017; Manchikanti, Kaye, & Kaye, 2016). The translational pilot project also demonstrated the sample primary care providers treated patients with many different types of pain conditions at differing levels of complexity. This finding is also consistent with the literature (Fink-Miller, Long, & Gross, 2014; Fleming et al., 2007; Hooten et al., 2013; Kaye et al., 2017; Rasu et al., 2013; Reid et al., 2002).

The Theory of Planned Behavior

The TPB (Ajzen, 1985) was utilized as the theoretical underpinning for this translational pilot project. The basic premise of the theory is sound; intention to perform a behavior leads to the performance of the behavior. The TPB has been utilized successfully in the same manner as the translational pilot project in multiple studies (Barnes, Theeke, & Mallow, 2015; Buriak, Potter, & Bleckley, 2015; Eiamsitrakoon et al., 2013; French et al., 2011; Gustafson & Borglin, 2013; Joerg, 2012; Knowles et al., 2015; Reyes et al., 2013; Young et al., 1991). The theory was useful for the translational pilot project, however, a more robust use of the theory would be beneficial for future projects. For example, subject recruitment and webinar attendance would have been improved with additional planning and outreach, addressing the three components of behavioral intention; attitudes toward behavior, subjective norm, and perceived behavioral control (Ajzen, 1985). An in-person presentation of the webinar slides during a scheduled lunchtime meeting may have increased the number of participants in the webinar. This approach would be consistent with all three components of behavioral

intention. Likewise, a personal distribution of the questionnaires, as opposed to email, may have increased the number of completed questionnaires, a strategy to address subjective norm. Changes in the methods, or technique, used for this translational pilot project utilizing the TPB could possibly have improved the outcome of the translational pilot project.

Limitations

There were several limitations to the implementation and design of this project which resulted in a very small sample size (n=9 completed questionnaires; n=5 webinar attendees). Subject recruitment would be improved by utilizing multiple methods of recruitment such as email along with telephone calls and face to face requests. Email alone was utilized for the translational pilot project which resulted in a poor questionnaire completion and return rate of approximately 9%. The attendance at the webinar sessions was very small. Scheduled meetings with individual primary care providers may have resulted in an increased number of primary care providers that viewed the presentation. Additional support from individual office practice managers and regional directors could be used to facilitate attendance and participation in future pilot projects.

The small sample size significantly limits any generalizability of the findings of this project. Also, participants, with the exception of one provider, did not participate in the complete project. Four providers attended the webinar only. Eight providers only completed the questionnaire. The small sample size and lack of equivalent groups makes any statistical analysis beyond frequencies inappropriate. The finding of five primary care providers that had not written any prescriptions for an opioid medication during the project timeframe was surprising and further limited the amount of information that could be collected from medical record review. Future projects may benefit from exploring factors that may have impacted the primary care providers' prescribing habits. Any findings

from the translational pilot project must be viewed from the perspective of the providers who did participate. The findings otherwise have no generalizability to other primary care providers.

Implications for Future Studies

Future study of the translation of evidence-based practice into primary care is warranted and supported by the literature (Aakhus, Oxman, & Flottorp, 2014; Fink-Miller, Long, & Gross, 2014; Fleming et al., 2007; Gudin, 2012; Hariharan, Lamb, & Neuner, 2007; Kanouse & Compton, 2015; Kaye et al., 2017; Krokmydral & Andenaes, 2015; Luther, Nelson, & Powell-Cope, 2004; McKenna, Ashton, & Keeney, 2004; Morgan, 2014; Nuckols et al., 2014; Quanbeck et al., 2016; Rasu et al., 2013; Reid et al., 2002; Wilcock et al., 2009). The translational pilot project did not demonstrate any significant findings, however, lack of awareness of the COMM and very limited documentation of use of the COMM may indicate the sample primary care providers are not aware of evidence-based practice for the treatment of pain with prescription opioid medications. Similar findings have been reported in the literature (Fleming et al., 2007; Gudin, 2012; Kanouse & Compton, 2015; Kaye et al., 2017; Nuckols et al., 2014; Rasu et al., 2013; Reid et al., 2002). Given the current crisis of prescription opioid abuse and misuse, additional studies exploring increased use of evidence-based practice for treating pain with opioid medications in primary care is urgently needed.

Implications for Practice

The translational pilot project demonstrated the sample primary care providers manage complex chronic pain patients. The findings of the pilot project also suggest a possible knowledge gap regarding evidence-based practice for the treatment of pain with prescription opioid medications. Primary care is struggling with a shortage of primary care providers coupled with increasing responsibilities for care coordination, patient centered medical homes, electronic health records, and managing chronic disease (Bae & Encinosa, 2016). Given these factors, it is understandable why

knowledge gaps exist and documentation of evidence-based practice is inconsistent at best. Increased interdisciplinary support along with a standard curriculum of continuing education for primary care providers would improve clinical practice, decrease knowledge gaps, and improve documentation of evidence-based practice (Barnes, Theeke, & Mallow, 2015; Kaye et al, 2017; Quanbeck et al, 2016). This type of support and education would be helpful for a wide range of common primary care problems, such as diabetes, obesity, and substance abuse among others. A doctoral prepared advanced practice nurse (DNP) has the background and experience to develop and implement standardized curricula to address the knowledge gaps in primary care (American Association of Colleges of Nursing (AACN), 2006). The implications for improvements in patient outcomes and population health are significant.

Implications for Policy

The findings from the translational pilot project support further study and exploration of translating evidence-based practice into clinical practice for prescribing opioid medications in primary care. In terms of policy, legislation was passed in 2016 enabling nurse practitioners and physician assistants to prescribe buprenorphine for the treatment of opioid addiction through the Comprehensive Addiction and Recovery Act (CARA). Given the current opioid epidemic and the difficulty of accessing treatment (Ashrafioun et al., 2015), the passage of this legislation will aid in increasing access to treatment for opioid addiction.

Implications for Education

The translational pilot project has implications for education on several levels. Given the gap in knowledge demonstrated for primary care providers in the treatment of pain with opioid medications, (Kaye et al., 2017; Quanbeck et al., 2016; Rasu et al., 2013; Reid et al., 2002; Wright et al., 2014), additional pilot/quality improvement projects such as the translational pilot project discussed will be instrumental in educating primary care providers about evidence-based practice for treating pain with

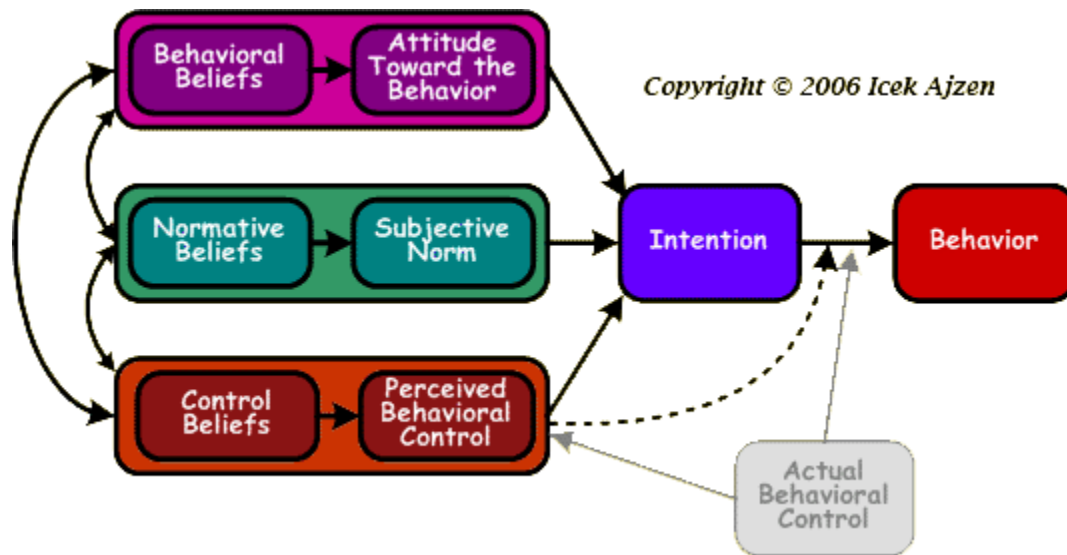
opioid medications. Gaps between evidence-based practice and clinical practice in primary care exist for obesity (Barnes, Theeke, & Mallow, 2015), dementia (Wilcock et al., 2009), and depression (Aakhus, Oxman, & Flottorp, 2014) among other conditions. The development of a standard curriculum for primary care providers would be useful in decreasing the gap between evidence-based practice and clinical practice, leading to improved patient and population health outcomes. Primary care providers could potentially experience increased satisfaction with patient care due to improved patient outcomes (Bae & Encinosa, 2016). Given the current and expected future shortage of primary care providers (Bae & Encinosa, 2016), investment in structured continuing education for PCPs could ultimately decrease health care costs with improved quality of patient care and possibly improve retention of providers in primary care.

In summary, prescription opioid abuse in primary care is a significant problem. Providing primary care providers the necessary tools to identify and treat patients who are addicted to prescription opioid medications along with evidence-based practice guidelines for treating pain with prescription opioid medications in a safe and responsible manner is urgently needed. The translational pilot project as well as the literature reviewed in this dissertation has demonstrated that primary care providers may lack knowledge in pain management and substance abuse, yet primary care providers treat a wide variety of acute and chronic pain conditions and write a large proportion of opioid prescriptions. The acknowledgment of the reality of prescription opioid misuse and abuse coupled with the need for opioid medications in patient care supports further study of the implementation of evidence-based practice in primary care for treating pain with prescription opioid medications. The translational pilot project did not demonstrate any significant findings, however, replication of the project with additional stakeholder support and participant outreach would be beneficial for future pilot studies or quality improvement initiatives. The implication of the opioid crisis is far reaching. The time to address the problem of prescription opioid abuse in primary care is here. Changes in policy allowing

nurse practitioners and physician assistants to prescribe buprenorphine along with structured continuing education for primary care providers in pain management and substance abuse are part of the solution.

Conclusion

The translational pilot project did not significantly impact primary care provider use of the Current Opioid Misuse Measure (Butler et al., 2007) but did demonstrate a possible knowledge gap in the sample primary care providers regarding the treatment of pain with prescription opioid medications. The magnitude of the prescription opioid epidemic along with the identified need to educate primary care providers on evidence-based practice recommendations for treating pain with prescription opioid medications support the need for additional study. Identification of the barriers to evidence-based practice primary care providers may encounter along with resource allocation for additional education and quality improvement initiatives would be beneficial in combatting prescription opioid abuse, improving patient outcomes, and supporting the current workforce of primary care providers. The translational pilot project should be replicated, addressing identified limitations. The DNP prepared nurse practitioner is ideally suited to develop, implement, and champion education on evidence-based practice in primary care.

Appendix A**Figure 1****The Theory of Planned Behavior**

Permission to use this graphic was given in writing by the copyright holder at

<http://people.umass.edu/aizen/tpb.diag.html>; image copied from this link

Appendix A

Figure 2

The Theory of Planned Behavior (Ajzen, I., 1985) Formula

$$BI = (W_1)AB[(b) + (e)] + (W_2)SN[(n) + (m)] + (W_3)PBC[(c) + (p)]$$

BI: Behavioral intention

AB: Attitude toward behavior

(b): the strength of each belief

(e): the evaluation of the outcome or attribute

SN: Subjective norms

(n): the strength of each normative belief

(m): the motivation to comply with the referent

PBC: Perceived Behavioral Control

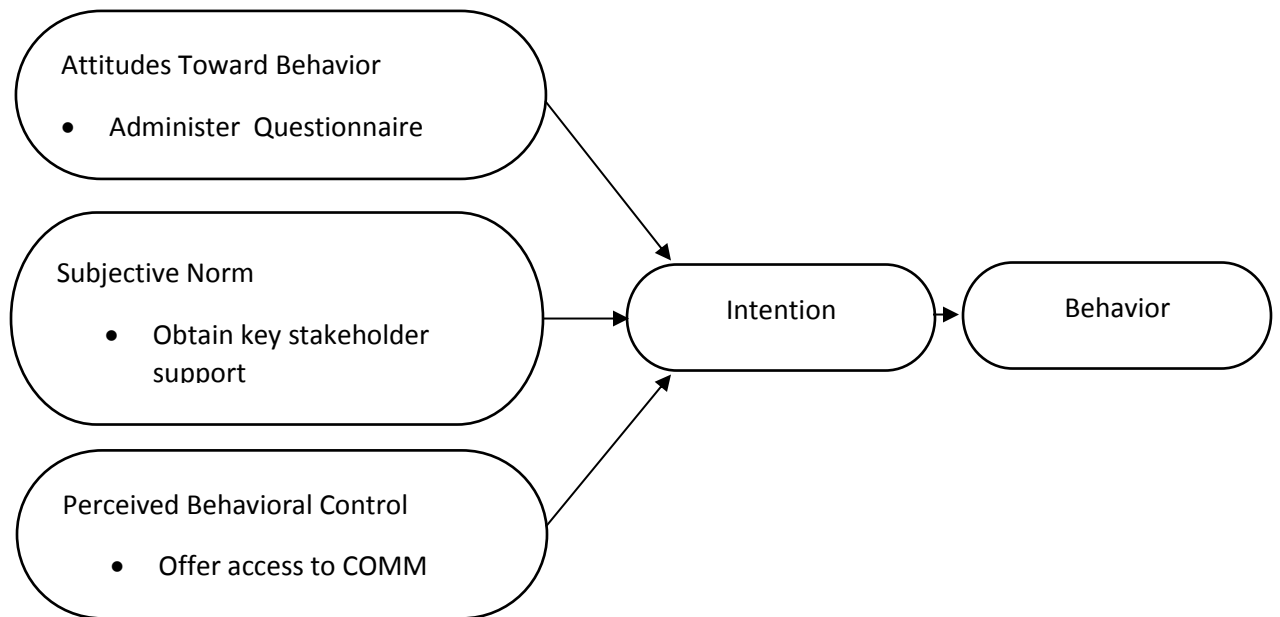
(c): the strength of each control belief

(p): the perceived power of the control factor

W': empirically derived weight/coefficient

Formula obtained from Ajzen, I. (1985). *From intentions to actions: A theory of planned behavior*. In

Kuhl, J. & Beckman, J. (Eds.). *Action-control: from cognition to behavior*, (p. 23). Heidelberg: Springer.

Appendix A**Figure 3****Theory of Planned Behavior (Ajzen, I., 1985)**

Adapted from Barnes, Theeke, & Mallow (2015, p. 301).

Appendix B

Attitudes to Evidence-based Practice Questionnaire Copyright University of Ulster 2000

When considering each of these questions think of yourself in your present work setting. Reflect on how you feel about each question, as it is your considered opinion that we are interested in. Please answer **all** the questions. Circle the response you feel is most applicable by using the following rating scale:

1=Strongly Disagree (SD)

2=Disagree (D)

3=Unsure (U)

4=Agree (A)

5=Strongly Agree (SA)

This section should take no longer than **5 minutes of your time**.

1. I feel confident in my ability to evaluate the quality of research papers.
2. I believe that putting research into practice is to some extent dependent on how much it is going to cost.
3. Much of the available research is not relevant to my professional practice.
4. I find it difficult to access the nearest library on a regular basis.
5. I find that management are supportive in the use of evidence based practice.
6. I find that available research specific to my work area is of poor quality.
7. I find that research articles are not easily understood.
8. I feel that there are benefits to changing my practice, based on research.
9. There are no incentives to develop my research skills for use in my clinical practice.
10. I feel isolated from knowledgeable colleagues with whom I could discuss research findings.
11. I find patient compliance is a major factor in the use of evidence.
12. I am confident using computers to search for evidence based information.
13. I find that the mass of research literature is overwhelming.
14. I find it difficult to keep up with all the changes happening in my work environment at present.
15. I know how to search for evidence based information.
16. My onsite computer facilities are adequate for searching evidence based literature.
17. I find it hard to influence changes to clinical practice in my work setting.
18. I have found that research literature can report conflicting results.
19. I believe that I should do a course to help me use research effectively.
20. There is not enough money to fund health care research.
21. I find time limitations prevent evidence based practice being used effectively in my practice.
22. I believe the results of the research that I read.
23. I would feel more confident if there was an individual experienced in research to supply me with relevant information.
24. My colleagues support the concept of putting sound research into practice.
25. Research findings are often not easily transferable into my practice.
26. Implementing evidence based practice will be of benefit to my professional development.

Biographical/Demographic Questions

1. Gender, male or female
2. Age; (a) 22-30 years, (b) 31-40 years, (c) 41-50 years, (d) 51-60 years, and (e) 61+ years
3. What position do you currently hold? (a) district nurse, (b) general practitioner, (c) health visitor, (d) nurse practitioner, (e) practice nurse, and (f) other. This question was changed to reflect the types of providers that would be involved in the proposed study as follows; what position do you currently hold? (a) nurse practitioner, (b) physician's assistant, (c) physician, and (d) medical director
4. Are you a training practice? (a) yes, (b) no, and (c) not applicable. This question was changed for clarity to, do you precept students? (a) yes, (b) no, and (c) not applicable
5. Are you a fundholding practice? (a) yes, (b) no, and (c) not applicable. This question was changed for clarity to, what type of practice best describes your primary practice? (a) primary care or (b) urgent care
6. Educational qualifications, choose all that apply; (a) degree, (b) diploma, (c) ENB courses, (d) FRCGP, (e) PhD, (f) Masters, (g) M.D., (h) MICGP, (g) MRCGP, (h) RCN courses, and (i) other. This question was changed for applicability to the sample population as follows; educational qualifications, choose all that apply (a) Bachelor's degree, (b) Master's degree, (c) MPH, (d) PhD, (e) DNP, (f) MD, and (g) DO
7. Have you completed or are you currently involved in a research module/course? (a) yes, go to Question 8, (b) no, go to Question 10
8. Research course title and year taken?
9. How satisfied were you with the content of the most recent course you have attended? (a) very satisfied, (b) satisfied, (c) unsure, (d) unsatisfied, and (e) very unsatisfied
10. Have you previously been involved in carrying out research? (a) yes, go to Question 11, (b) no, go to Question 12
11. Please supply brief details of the research study; please do not include filling out questionnaires, taking part in interviews, etc. in this section.
12. Do you have access to the internet? (a) yes, go to Question 13, (b) no, go to Question 15
13. How often do you access the internet? (a) daily, (b) once a week, (c) once a month, (d) twice a month, (e) other, please state number
14. What do you access on the internet? Check as many as apply (a) On-line journal & name (b) government sites, specify which (c) professional organization & name, (d) electronic database, specify which ones, and (e) other, specify
15. Please check the source(s) of information that you use to inform your practice on a day to day basis; (a) media, (b) colleagues, (c) conferences, (d) journals, (e) own judgement, (f) evidence based circulars, (g) official clinical guidelines, (h) protocols, (i) courses, (j) pharmaceutical representatives, and (K) other, please specify

16. Approximately what percentage of your practice do you consider to be evidence based? Please enter a numerical percentage from 0% to 100%
17. If there are any other comments that you wish to make about evidence based practice in primary care please do so in here
18. This question has been added by this researcher; have you ever utilized the Current Opioid Misuse Measure (COMM) when prescribing an opioid medication to a patient? (a) if yes, how and by whom? (b) if no, why?

Appendix C

Appendix D**Webinar Slides**

The Current Opioid Misuse Measure (COMM)

BUTLER ET AL., 2007

Significance of Prescription Opioid Abuse

- ▶ According to the CDC (2016):
- ▶ Overdose deaths have increased from approximately 4000 persons/year in 1999 to approximately 47,055 persons/year in 2014
- ▶ In 2013, approximately 250 billion opioid prescriptions were dispensed by retail pharmacies in the US, the highest number ever recorded
- ▶ Approximately 2 million persons abused or were dependent upon prescription opioids in 2014

Significance of Prescription Opioid Abuse

- ▶ In Connecticut:
- ▶ Deaths due to opiate medications increased by 818% from 1979 to 2010 according to the Connecticut Department of Public Health
- ▶ The overdose death rate in CT is 10.1/100,000 persons, compared to the national overdose death rate of 12.9/100,000 persons (Healthy People, 2020)
- ▶ The incidence of opiate overdose is highest in suburban & rural areas in CT (Connecticut Department of Public Health, 2015)

Significance of Prescription Opioid Abuse

- ▶ Morbidity related to prescription opioid abuse
- ▶ According to the CDC (2016), for every one overdose death in 2010 there were:
 - ▶ 733 past year nonmedical users
 - ▶ 108 people with opioid abuse and/or dependence
 - ▶ 26 ER visits for opioid abuse/misuse
 - ▶ 10 opiate treatment admissions
 - ▶ The cost of opioid abuse to the healthcare system is approximately 72.5 billion dollars/year in the U.S.

Significance of Prescription Opioid Abuse

- ▶ Controversy exists about the use of opioid medications for chronic, non-cancer pain such as chronic back pain, fibromyalgia, and migraine headache among others.^{1, 2, 3, 8, 10, 16, 17, 22, 23}
- ▶ Primary care practices are where most patients with acute or chronic pain present and a large proportion of prescriptions for opioid medications are written by primary care providers.^{9, 15}

Best Practice when Prescribing Opioid Medications

- ▶ There is a general consensus in the research literature that risk assessment tools are useful.^{12, 15, 20} Recommended risk assessment tools include:
 - ▶ Written treatment agreements or contracts
 - ▶ Urine drug testing
 - ▶ Prescription drug monitoring programs such as CTPMP
 - ▶ Screening questionnaires
 - ▶ Use of all 4 screening mechanisms produces the most accurate assessment of prescription opioid abuse/misuse

The Current Opioid Misuse Measure (COMM) by Butler et al., 2007

- ▶ The Current Opioid Misuse Measure (COMM) developed by Butler et al., 2007
- ▶ 17 questions to assess past month aberrant drug related behaviors
- ▶ Score > or equal to 9 indicates potential increased risk of misuse/abuse of opioid medications.
- ▶ Scoring key: never=0; seldom=1; sometimes=2; often=3; very often=4
- ▶ Had anyone heard of the COMM before this presentation?
- ▶ Has anyone used and documented use of the COMM before this presentation?

The COMM

- ▶ 1. How often have you had trouble with thinking clearly or had memory problems?
- ▶ 2. How often do people complain that you are not completing necessary tasks (i.e., doing things that need to be done, such as going to class, work, or appointments)?
- ▶ 3. How often have you had to go to someone other than your prescribing physician to get sufficient pain relief from your medication (i.e., another doctor, the ER)?
- ▶ 4. How often have you taken your medications differently from how they are prescribed?
- ▶ 5. How often have you seriously thought about hurting yourself?
- ▶ 6. How much of your time was spent thinking about opioid medications (having enough, taking them, dosing schedule, etc.)?

The COMM

- ▶ 7. How often have you been in an argument?
- ▶ 8. How often have you had trouble controlling your anger (e.g., road rage, screaming)?
- ▶ 9. How often have you needed to take pain medications belonging to someone else?
- ▶ 10. How often have you been worried about how you're handling your medications?
- ▶ 11. How often have others been worried about how you're handling your medications?
- ▶ 12. How often have you had to make an emergency phone call or show up at the clinic without an appointment?
- ▶ 13. How often have you gotten angry with people?

The COMM

- ▶ 14. How often have you had to take more of your medication than prescribed?
- ▶ 15. How often have you borrowed pain medication from someone else?
- ▶ 16. How often have you used your pain medicine for symptoms other than for pain (e.g., to help you sleep, improve your mood, or relieve stress)?
- ▶ 17. How often have you had to visit the emergency room?

The COMM

- ▶ Initial validation study of the COMM:
 - ▶ Sensitivity 0.77; specificity 0.66; area under the curve (AUC) 0.81 significant at $p < 0.001$ (Butler et al., 2007)
 - ▶ Additional research has confirmed consistent reliability & validity of the COMM ^{1, 5, 14, 21, 11, 19}

Use of Evidence Based Practice

- ▶ Primary care providers may not be aware of EBP guidelines and/or use EBP guidelines consistently. ²²
- ▶ Possible barriers to implementation and documentation of EBP. ¹⁸
 - ▶ Limited relevance of research to practice
 - ▶ Difficulty keeping up with current changes in primary care
 - ▶ Difficulty searching for evidence based information
 - ▶ Lack of computer facilities
 - ▶ Difficulty influencing changes in primary care
 - ▶ Time and workload constraints

Implications & Discussion

- ▶ Primary care providers work under challenging conditions:
 - ▶ Time constraints
 - ▶ Complex patients with multiple problems & comorbidities
 - ▶ Competing interests; what patients want versus what patients need

Implications & Discussion

- ▶ Would anyone like a Smart Phrase of the COMM for use in EPIC? I have one that I made that I will share.
- ▶ Additional thoughts?.
- ▶ Thank you very much for taking the time to participate in this webinar.

References

References

1. Ashrafioun, L., Bohnert, A. S. B., Jannausch, M., & Ilgen, M. A. (2015). Evaluation of the current opioid misuse measure among substance use disorder treatment patients. *Journal of Substance Abuse Treatment*, 55, 15-20. doi:<http://dx.doi.org.ezproxy.lib.uconn.edu/10.1016/j.jsat.2015.02.007>
2. Barth, K. S., Balliet, W., Pelic, C. M., Madan, A., Malcolm, R., Adams, D., . . . Borckardt, J. J. (2014). Screening for current opioid misuse and associated risk factors among patients with chronic nonalcoholic pancreatitis pain. *Pain Medicine*, 15(8), 1359-1364. doi:10.1111/pme.12403
3. Bohnert, A. B., Valenstein, M., & Bair, M. J. (2011). Association between opioid prescribing patterns and opioid overdose-related deaths. *Journal of the American Medical Association*, 305(13), 1315.

References

4. Butler, S. F., Budman, S. H., Fernandez, K. C., Houle, B., Benoit, C., Katz, N., & Jamison, R. N. (2007). Development and validation of the current opioid misuse measure. *Pain*, 130(1-2), 144-156. doi:<http://dx.doi.org.ezproxy.lib.uconn.edu/10.1016/j.pain.2007.01.014>
5. Butler, S. F., Zacharoff, K., Charity, S., Lawler, K., & Jamison, R. N. (2014). Electronic opioid risk assessment program for chronic pain patients: Barriers and benefits of implementation. *Pain Practice*, 14(3), E98-E105. doi:10.1111/papr.12141
6. CDC. (2016). Retrieved from <http://www.cdc.gov>.
7. Connecticut Department of Public Health. (2015). Retrieved from <http://www.ct.gov/dph/>

References

8. Edlund, M. J., Steffick, D., Hudson, T., Harris, K. M., & Sullivan, M. (2007). Risk factors for clinically recognized opioid abuse and dependence among veterans using opioids for chronic non-cancer pain. *Pain*, 129(3), 355-362. doi:<http://dx.doi.org.ezproxy.lib.uconn.edu/10.1016/j.pain.2007.02.014>
9. Fink-Miller, E. L., Long, D. M., & Gross, R. T. (2014). Comparing chronic pain treatment seekers in primary care versus tertiary care settings. *The Journal of the American Board of Family Medicine*, 27(5), 594-601. doi:10.3122/jabfm.2014.05.130311
10. Fleming, M. F., Palousek, S. L., Klessig, C. L., Mundt, M. P., & Brown, D. D. (2007). Substance use disorders in a primary care sample receiving daily opioid therapy. *The Journal of Pain*, 8(7), 573.

References

11. Finkelman, M. D., Kulich, R. J., Zoukhri, R. J., Smits, N., & Butler, S. F. (2013). Shortening the current opioid misuse measure via computer-based testing: A retrospective proof-of-concept study. *BMC Medical Research Methodology*, 13(126) e sample receiving daily opioid therapy. *The Journal of Pain*, 8(7), 573.
12. Gudín, J. A. (2012). Clinical strategies for the primary health care professional to minimize prescription opioid abuse. *Postgraduate Medicine*, 124(3), 131-138. doi:10.3810/pgm.2012.05.2556
13. Healthy People 2020. Retrieved from <https://www.healthypeople.gov/>
14. Jamison, R. N., Martel, M. O., Edwards, R. R., Qian, J., Sheehan, K. A., & Ross, E. L. (2014). Validation of a brief opioid compliance checklist for patients with chronic pain. *The Journal of Pain*, 15(11), 1092.

References

15. Kanouse, A. B., & Compton, P. (2015). The epidemic of prescription opioid abuse, the subsequent rising prevalence of heroin use, and the federal response. *Journal of Pain & Palliative Care Pharmacotherapy*, 29(2), 102-114. doi:10.3109/15360288.2015.1037521
16. Marino, E. N., Rosen, K. D., Gutierrez, A., Eckmann, M., Ramamurthy, S., & Potter, J. S. (2013). Impulsivity but not sensation seeking is associated with opioid analgesic misuse risk in patients with chronic pain. *Addictive Behaviors*, 38(5), 2154-2157. doi:http://dx.doi.org.ezproxy.lib.uconn.edu/10.1016/j.addbeh.2013.01.020
17. Martel, M. O., Dolman, A. J., Edwards, R. R., Jamison, R. N., & Wasan, A. D. (2014). The association between negative affect and prescription opioid misuse in patients with chronic pain: The mediating role of opioid craving. *The Journal of Pain*, 15(1), 90.

References

18. McKenna, H. P., Ashton, S., & Keeney, S. (2004). Barriers to evidence-based practice in primary care. *Journal of Advanced Nursing*, 45(2), 178-189. doi:10.1046/j.1365-2648.2003.02879.x
19. Meltzer, E. C., Rybin, D., Saitz, R., Samet, J. H., Schwartz, S. L., Butler, S. F., & Liebschutz, J. M. (2011). Identifying prescription opioid use disorder in primary care: Diagnostic characteristics of the current opioid misuse measure (COMM). *Pain*, 152(2), 397-402. doi:http://dx.doi.org.ezproxy.lib.uconn.edu/10.1016/j.pain.2010.11.006
20. Nuckols, T., K., Anderson, L., Popescu, I., Diamant, A., L., Doyle, B., Di Capua, P., & Chou, R. (2014). Opioid prescribing: A systematic review and critical appraisal of guidelines for chronic pain. *Annals of Internal Medicine*, 160(1), 38-47. doi:10.7326/0003-4819-160-1-201401070-00732

References

21. Passik, S. D., Narayana, A., & Yang, R. (2014). Aberrant drug-related behavior observed during a 12-week open-label extension period of a study involving patients taking chronic opioid therapy for persistent pain and fentanyl buccal tablet or traditional short-acting opioid for breakthrough pain. *Pain Medicine*, 15(8), 1365-1372. doi:10.1111/pme.12431
22. Rasu, R. S., Sohraby, R., Cunningham, L., & Knell, M. E. (2013). Assessing chronic pain treatment practices and evaluating adherence to chronic pain clinical guidelines in outpatient practices in the united states. *The Journal of Pain*, 14(6), 568.
23. Reid, M. C., Engles-Horton, L. L., Weber, M. B., Kerns, R. D., Rogers, E. L., & O'Connor, P. G. (2002). Use of opioid medications for chronic noncancer pain syndromes in primary care. *Journal of General Internal Medicine*, 17(3), 173-179. doi:10.1046/j.1525-1497.2002.10435.x

Appendix E

The Current Opioid Misuse Measure (COMM) developed by Butler et al., 2007

Scoring key: never=0; seldom=1; sometimes=2; often=3; very often=4

In the past month:

1. How often have you had trouble with thinking clearly or had memory problems?
2. How often do people complain that you are not completing necessary tasks (i.e., doing things that need to be done, such as going to class, work, or appointments)?
3. How often have you had to go to someone other than your prescribing physician to get sufficient pain relief from your medication (i.e., another doctor, the ER)?
4. How often have you taken your medications differently from how they are prescribed?
5. How often have you seriously thought about hurting yourself?
6. How much of your time was spent thinking about opioid medications (having enough, taking them, dosing schedule, etc.)?
7. How often have you been in an argument?
8. How often have you had trouble controlling your anger (e.g., road rage, screaming)?
9. How often have you needed to take pain medications belonging to someone else?
10. How often have you been worried about how you're handling your medications?
11. How often have others been worried about how you're handling your medications?
12. How often have you had to make an emergency phone call or show up at the clinic without an appointment?
13. How often have you gotten angry with people?
14. How often have you had to take more of your medication than prescribed?
15. How often have you borrowed pain medication from someone else?
16. How often have you used your pain medicine for symptoms other than for pain (e.g., to help you sleep, improve your mood, or relieve stress)?
17. How often have you had to visit the emergency room?

The questionnaire and scoring key as above was created in a Smart Phrase by this researcher for use in EPIC, the health care system's electronic health record.

Appendix F

Post Webinar Chart Review Checklist

Date of opioid prescription

Type of opioid prescribed

Provider type (nurse practitioner, physician, physicians' assistant)

Provider code number

Patient gender

Patient age

Patient diagnosis opioid prescribed for

Was the COMM used during visit?

Appendix G

Email Invitation Sent to Target Sample

Dear Colleagues,

As some of you know, I am currently a student at the University of Connecticut School of Nursing completing the Doctor of Nursing Practice (DNP) degree. As part of my program, I am developing a translational pilot project of primary care providers' knowledge and use of evidence-based practice and a risk assessment tool to be utilized when treating patients over the age of 18 for pain with opioid medications. I will be conducting a brief webinar on prescription opioid abuse and the Current Opioid Misuse Measure (COMM) (Butler et al., 2007), a validated screening tool for detecting risk of prescription opioid abuse and past month aberrant drug related behavior. There is also a questionnaire, the Attitudes to Evidence-Based Practice Questionnaire (McKenna, Ashton, & Keeney, 2004) attached as a Word document. This questionnaire can be filled out and returned electronically. The plan for the proposed pilot project is as follows:

1. Participants complete and return the Attitudes to Evidence-Based Practice Questionnaire
2. Participate in one of the webinar sessions.
3. Patient records will be reviewed four weeks after the webinar for use of the COMM.

Participation in the webinar and completion of the Attitudes to Evidence-Based Practice Questionnaire will be strictly voluntary. An information sheet is attached to explain the research being done and your participation such as completion of the questionnaire and participation in a webinar session. There will be a morning option for the webinar and an evening option for the webinar. Participants who complete the questionnaire and attend a webinar session will be offered a token of appreciation for their time with a five dollar gift card to Dunkin Donuts.

Participation may be withdrawn at any time without repercussions. Privacy will be maintained by this researcher and only the researcher will have access to any data collected. Confidentiality of the participants will be protected by assigning each participant a code number. The master list of each participant and any other data collected will be kept in a locked location in my office at Hartford Healthcare. No identifying information will be used. This researcher and her major advisor, Dr. Annette Jakubisin-Konicki, will be the only persons with access to the coded data. Any data collected will be entered into the Statistical Packages for the Social Sciences (SPSS) Version 22 for analysis. A password protected personal laptop computer will be used by this researcher and any data will be saved to an encrypted thumb drive. The encrypted thumb drive will be stored in a locked location in my office at Hartford Healthcare. The coded data will be backed up with an additional encrypted thumb drive which will be stored in the office of this researcher's major advisor. The proposed translational pilot project will be approved by the University of Connecticut School of Nursing, Hartford Hospital's Institutional Review Board (IRB), and the University of Connecticut's IRB prior to implementation. Feel free to contact me via email or by phone. My cell is 860-874-3450. I truly appreciate your time and attention. Thank you, Liz Mayerson.

This email has been encrypted to protect privacy. Please note that if you reply to or forward this email outside of Hartford Healthcare, the encryption will be lost and the information contained within the email may no longer be secured.

Appendix H

Information Sheet

Information Sheet for the Translational Pilot Project

Principal Investigator: Elizabeth Mayerson APRN, Hartford Healthcare Medical Group

Co-Investigator: Dr. Annette Jakubisin-Konicki, University of Connecticut School of Nursing

Title of Pilot Project: Evaluation of the Effectiveness of an Evidence-Based Webinar on the Behaviors of Primary Care Providers for the Treatment of Pain with Prescription Opioid Medications: A Translational Pilot Project

You are invited to participate in this translational pilot project. I am a graduate student at the University of Connecticut, and I am conducting this pilot project as part of my program for the Doctor of Nursing Practice (DNP) degree. The purpose of this translational pilot project is to assess primary care provider knowledge of a specific risk assessment tool, educate primary care providers about this risk assessment tool via a real time webinar, and evaluate primary care provider use of this risk assessment tool four weeks after the webinar. Attitudes toward evidence-based practice and demographic variables will also be explored.

Your participation in this study will require completion of the attached questionnaire. This should take approximately 10 minutes of your time. Your participation will be anonymous and you will not be contacted again in the future. Your participation is completely voluntary. You do not have to answer any question that you do not want to answer for any reason. You will not be paid for being in this study. This survey does not involve any risk to you. However, the benefits of your participation may include increased awareness of prescription opioid abuse and access to an opioid risk assessment tool. Your doctor and other medical providers do not have access to any information that you provide me. Your access to and quality of healthcare will not be affected in any way.

While your confidentiality will be guarded to the greatest extent possible, certain private identifiable information about you may be used or disclosed for purposes of this research project. The information that may be used or disclosed includes the following: your name, age range, education level attained, and any data collected as part of this research study.

Please complete the attached questionnaire and return. The questionnaire is attached as a Word document that you can complete electronically and return to me via email. Thank you.

Who you can call if you have questions about this pilot project:

Questions about the research, research related treatments, or a research related injury: Principal Investigator Elizabeth Mayerson 860-874-3450

Questions about your rights as a research participant: An IRB representative 860-972-2893

Questions about the research in general: Vice President, Research 860-972-2893

Questions about a confidential issue that you would like to discuss with someone not associated with research: Patient Relations 860-972-1400

Appendix I**Table 1***Characteristics of Sample Primary Care Providers Questionnaire Respondents*

Characteristic	Responses	
	n=9	Percentage
Gender		
Female	9	100%
Male	0	0
Age Range		
22-30	0	0
31-40	1	11.10%
41-50	4	44.40%
51-60	4	44.40%
61+	0	0
Position		
Nurse Practitioner	5	55.60%
Physician	2	22.20%
Physician Assistant	2	22.20%

Table 2*Characteristics of Sample Primary Care Providers Webinar Participants*

Characteristic	Responses	
	n=5	Percentage
Gender		
Female	3	60%
Male	2	40%
Position		
Nurse Practitioner	2	40%
Physician	2	40%
Physician Assistant	1	20%

Table 3*Perceived Barriers to Evidence-Based Practice in Primary Care n=9 Questionnaire Respondents*

Item		Strongly Disagree/ Disagree	Unsure	Strongly Agree/ Agree
1.	I feel confident in my ability to evaluate the quality of research papers	0/1	1	3/4
2.	I believe that putting research into practice is to some extent dependent upon cost	0/2	2	1/4
5.	I find that management are supportive in the use of evidence-based practice	0/0	1	5/3
8.	I feel that there are benefits to changing my practice, based on research	2/2	0	3/2
9.	There are no incentives to develop my research skills for use in my clinical practice	0/3	0	3/3
10.	I feel isolated from knowledgeable colleagues with whom I could discuss research findings	1/3	3	0/2
11.	I find patient compliance is a major factor in the use of evidence	0/2	2	0/5
12.	I am confident using computers to search for evidence-based information	0/0	0	3/6
13.	I find the mass of research literature is overwhelming	1/2	1	2/3
14.	I find it difficult to keep up with all the changes happening in my work environment at present	1/1	4	1/2
17.	I find it hard to influence changes to clinical practice in my work setting	1/5	2	0/1
21.	I find time limitations prevent evidence-based practice being used effectively in my practice	0/0	4	2/3
25.	Research findings are often not easily transferable into my practice	0/2	2	0/5

Table 4*Perceived Barriers to Evidence-Based Practice in Primary Care n=5 Nurse Practitioners*

Item		Strongly Disagree/ Disagree	Unsure	Strongly Agree/ Agree
1.	I feel confident in my ability to evaluate the quality of research papers	0/0	0	3/2
2.	I believe that putting research into practice is to some extent dependent upon cost	0/1	1	1/2
5.	I find that management are supportive in the use of evidence-based practice	0/0	1	3/1
8.	I feel that there are benefits to changing my practice, based on research	2/1	0	1/1
9.	There are no incentives to develop my research skills for use in my clinical practice	0/1	0	1/3
10.	I feel isolated from knowledgeable colleagues with whom I could discuss research findings	1/3	0	0/1
11.	I find patient compliance is a major factor in the use of evidence	0/2	1	0/2
12.	I am confident using computers to search for evidence-based information	0/0	0	2/3
13.	I find the mass of research literature is overwhelming	1/2	0	1/1
14.	I find it difficult to keep up with all the changes happening in my work environment at present	1/1	2	0/1
17.	I find it hard to influence changes to clinical practice in my work setting	0/3	1	0/1
21.	I find time limitations prevent evidence-based practice being used effectively in my practice	0/0	1	1/3
25.	Research findings are often not easily transferable into my practice	0/2	0	0/3

Table 5*Perceived Barriers to Evidence-Based Practice in Primary Care n=2 Physician Assistants*

Item		Strongly Disagree/ Disagree	Unsure	Strongly Agree/ Agree
1.	I feel confident in my ability to evaluate the quality of research papers	0/0	0	0/2
2.	I believe that putting research into practice is to some extent dependent upon cost	0/0	0	0/2
5.	I find that management are supportive in the use of evidence-based practice	0/0	0	2/0
8.	I feel that there are benefits to changing my practice, based on research	0/0	0	2/0
9.	There are no incentives to develop my research skills for use in my clinical practice	0/2	0	0/0
10.	I feel isolated from knowledgeable colleagues with whom I could discuss research findings	0/0	2	0/0
11.	I find patient compliance is a major factor in the use of evidence	0/0	0	0/2
12.	I am confident using computers to search for evidence-based information	0/0	0	0/2
13.	I find the mass of research literature is overwhelming	0/0	0	0/2
14.	I find it difficult to keep up with all the changes happening in my work environment at present	0/0	2	0/0
17.	I find it hard to influence changes to clinical practice in my work setting	0/2	0	0/0
21.	I find time limitations prevent evidence-based practice being used effectively in my practice	0/0	2	0/0
25.	Research findings are often not easily transferable into my practice	0/0	0	0/2

Table 6*Perceived Barriers to Evidence-Based Practice in Primary Care n=2 Physicians*

Item		Strongly Disagree/ Disagree	Unsure	Strongly Agree/ Agree
1.	I feel confident in my ability to evaluate the quality of research papers	0/1	1	0/0
2.	I believe that putting research into practice is to some extent dependent upon cost	0/1	1	0/0
5.	I find that management are supportive in the use of evidence-based practice	0/0	0	0/2
8.	I feel that there are benefits to changing my practice, based on research	0/1	0	0/1
9.	There are no incentives to develop my research skills for use in my clinical practice	0/0	0	2/0
10.	I feel isolated from knowledgeable colleagues with whom I could discuss research findings	0/0	1	0/1
11.	I find patient compliance is a major factor in the use of evidence	0/0	1	0/1
12.	I am confident using computers to search for evidence-based information	0/0	0	1/1
13.	I find the mass of research literature is overwhelming	0/0	1	1/0
14.	I find it difficult to keep up with all the changes happening in my work environment at present	0/0	0	1/1
17.	I find it hard to influence changes to clinical practice in my work setting	1/0	1	0/0
21.	I find time limitations prevent evidence-based practice being used effectively in my practice	0/0	1	1/0
25.	Research findings are often not easily transferable into my practice	0/0	2	0/0

Table 7*Patients Prescribed an Opioid Medication by a Participating Primary Care Provider*

Patient Gender	Age Range	Minimum	Maximum	Mean
Female	65	23	88	55
Male	70	23	93	54

Table 8*Type of Opioid Medications Prescribed by Sample Primary Care Providers*

Opioid Medication Prescribed	Frequency N=178	Percent
Fentanyl Patch	6	3.4
Hydrocodone acetaminophen	74	41.6
Hydrocodone ibuprofen	1	0.6
Hydromorphone	3	1.7
Methadone	3	1.7
Morphine ER	10	5.6
Morphine IR	1	0.6
Morphine solution	2	1.1
Oxycodone	31	17.4
Oxycodone acetaminophen	41	23.0
Oxycodone ER	6	3.4
Total	178	100

Table 9*Types of Acute Pain Treated by Sample Primary Care Providers*

Pain Location	Frequency N=28	Percentage
Abdomen	1	0.6
Ankle	1	0.6
Back	3	1.7
Chest	1	0.6
Dental	1	0.6
Elbow	1	0.6
Flank	5	2.8
Knee	2	1.1
Ear	1	0.6
Fracture-Arm	1	0.6
Fracture-Compression	2	1.1
Fracture-Rib	1	0.6
Osteoarthritis-Arm	1	0.6
Osteoarthritis-Hip	1	0.6
Shoulder	3	1.7
Strep Pharyngitis	2	1.1
Zoster	1	0.6
Total	28	16.1

Table 10*Types of Chronic Pain Treated by Sample Primary Care Providers*

Type of Pain	Frequency N=150	Percentage
Abdominal	9	5.1
Ankle	4	2.2
Back	72	40.4
Cancer	2	1.1
End of Life	1	0.6
Hand	2	1.1
Headache	1	0.6
Knee	1	0.6
Neck	14	7.9
Neuropathy-Peripheral	2	1.1
Pain-Widespread	27	15.2
Phantom Limb	2	1.1
Shoulder	6	3.4
Trigeminal Neuralgia	5	2.8
Wrist	2	1.1
Total	150	84.3

Table 11*Participant Progress through Project by Code Number*

Code Number N=13	Completed Questionnaire N=9	Attended Webinar N=5	Used COMM N=2	Total Prescriptions N=178
1	yes	no	yes	44
2	yes	no	no	13
3	yes	no	no	17
4	yes	yes	no	37
5	yes	no	no	0
6	yes	no	no	0
7	yes	no	no	0
8	yes	no	no	0
9	yes	no	no	0
101	no	yes	no	40
102	no	yes	yes	15
103	no	yes	no	11
104	no	yes	no	1



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October 31, 2016

Elizabeth Mayerson



Institutional Review Board (IRB) - (Assurance #FWA00021932) IRB-Panel_A

Study Title: Evaluation of the Effectiveness of an Evidence Based Webinar on the Behaviors of Primary Care Providers for the Treatment of Pain with Prescription Opioid Medications: A Translational Pilot Project
IRB #: HHC-2016-0218

Status: Approved

Approval Date: 10/24/2016

Approval Valid Through: 10/23/2017

Type of Review: Expedite

Category (if applicable): Category 5: Research involving materials (data, documents, records, or specimens) that have been collected, or will be collected solely for nonresearch purposes (such as medical treatment or diagnosis)

Category 7: Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies

Form of Consent: Waiver approved under 45 CFR 46.117 (c) 1 or 2/ 21 CFR 56.109 (c)1 Partial waiver/alteration approved 46.116(c) or (d)

Approved Key Study Personnel: Heller, Cynthia; Mayerson, Elizabeth

This approval includes the following materials:

Type	Document Name	Version	Date Submitted into Workflow	Submission Response by Board:
HHC-IRB	Pre-Review Correction Form - IRB	Version 1.0	10/23/2016 12:59 PM EDT	
Submission Form:				
Submission Form	Initial Review Submission Form	Version 1.0	10/01/2016 08:50 PM EDT	
Submission Attachments:				
Application	HHC Main Research Application Form	Version 1.1	10/23/2016 12:59 PM EDT	
Consent (English)	Participant Information Sheet	Version 1.3	10/23/2016 12:59 PM EDT	
Document - Recruitment Material (i.e., Flyer)	Email Invitation Sent to Target Sample	Version 1.2	10/23/2016 12:59 PM EDT	
Document - Protocol/Proposal	Research Proposal 09092016 (2) (2)(2)	Version 1.1	10/23/2016 12:59 PM EDT	
Document - Budget	In-Kind Budget	Version 1.0	10/01/2016 08:50 PM EDT	

Informed Consent:

If your project requires the use of a written informed consent document, the version of the consent which has been approved for use by the IRB is available within the iRIS system. You must use this stamped form to enroll participants until the project is completed, another extension is approved, or an approved revision supersedes this version.

Progress Reports:

This project requires continued review and approval by the IRB prior to the expiration date. You will be expected to submit the first Progress Report on: **08/23/2017**. The approval of the project will be considered "Lapsed" if a "Request for Continuation (Progress Report)" Form has not been approved prior to that expiration date. A lapse of IRB approval means that no work with human subjects may be conducted, including enrollment of new subjects, data analysis, etc. until re-approval has been granted.

The "Request for Continuation (Progress Report)" Form must include the number of subjects enrolled since the previous report or initiation of the study, as well as a copy of signature page of the informed consent for all subjects enrolled during the approval period.

Please be aware that you will be expected to provide the composition of the patients enrolled by number of males/females and minorities (Hispanic, Black, Other). You should ensure you have procedures in place to collect and track this information.

Protocol and Consent Changes:

You are expected to inform the IRB of proposed protocol or informed consent changes. Any such change must be approved by the IRB *prior to implementation*, except in cases of emergency, when prearranged with the chairman or his designee. To do so, submit the revised materials using the "IRB Request for Modification/Amendment" Form.

Unanticipated Problems/Adverse Events:

You must also notify the IRB promptly of any events that are:

- *Unexpected* (in terms of nature, severity, or frequency) given (a) the research procedures that are described in the protocol-related documents, such as the IRB-approved research protocol and informed consent document; and (b) the characteristics of the subject population being studied;
- *Related or possibly related* to the procedures involved in the research; **and**
- *Suggests that the research places subjects or others at a greater risk of harm* (including physical, psychological, economic, or social harm) related to the research than was previously known or recognized.

These should be reported by submitting the "IRB Unanticipated Event/Problem Report Form."

Beginning the Research:

Please be aware that before implementation of this study, you must have Grants & Contracts approval of your budget, in-kind budget, clinical study agreement, contract, etc. as applicable.

Responsibilities:

As the principal investigator (PI), you are responsible for personally conducting or supervising the conduct of human subjects research and for protecting the rights, safety, and welfare of the subjects enrolled in the research. You are expected to ensure your research is conducted in an ethical manner and in accordance with all federal, state, and local laws and regulations, institutional and HRPP policies, and requirements or determinations of the IRB.

The Hartford HealthCare HRPP Policies and Procedures and the Belmont Report are available for your review on our website at: <http://www.harthosp.org/research/IRB/PoliciesProcedures/default.aspx>.

Sincerely,

Signature applied by Dr. James Rancourt on 10/31/2016 09:37:48 AM EDT

Dr. James Rancourt, PharmD
Institutional Review Board - IRB-Panel_A
Designated Reviewer



To: Institutional Review Board
Hartford Healthcare, Inc.
Office of Research Administration
80 Seymour Street
P.O. Box 5037
Hartford, CT 06102-5112

From: Douglas Bradway, MA, CIP *DB*
Research Compliance Services

Date: November 23, 2016

Re: Acceptance of IRB Review – Designation as IRB of Record
Protocol Title: "Evaluation of the Effectiveness of an Evidence Based Webinar
on the Behaviors of Primary Care Providers for the Treatment of Pain with
Prescription Opioid Medications: A Translational Pilot Project"
HHC IRB Number: 2016-0218
HHC Principal Investigator: Elizabeth Mayerson
Storrs Principal Investigator: Annette Jakubisin-Konicki
Storrs Student Investigator: Elizabeth Mayerson
Storrs IRB Number: HHC-2016-0218
Storrs OSP Proposal Number: N/A

On November 23, 2016, the Institutional Review Board of the University of Connecticut (UConn) accepted the review conducted by your institution for the study noted above. Per the cooperative agreement in place, the IRB of Hartford Hospital will serve as the IRB of record for this study, and, therefore, be responsible for all continuing review and review of amendments. Additionally, the UConn IRB is to be informed of all instances of non-compliance or unanticipated problems, related to this study, should they occur.

Please forward copies of IRB approval letters and study related activities to the UConn Office of Research Compliance.

cc: Elizabeth Mayerson

Office of the Vice President for Research
Research Compliance Services
438 WHITNEY ROAD EXTENSION, UNIT 1248
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December 21, 2016

Elizabeth Mayerson, APRN

Institutional Review Board (IRB) - (Assurance #FWA00021932) IRB-Panel_A

Study Title: Evaluation of the Effectiveness of an Evidence Based Webinar on the Behaviors of Primary Care Providers for the Treatment of Pain with Prescription Opioid Medications: A Translational Pilot Project
IRB #: E-HHC-2016-0218

APPROVAL OF REQUESTED MODIFICATION / AMENDMENT

Approval Date: 12/20/2016

Type of Review: Expedite

This approval includes the following materials:

Type	Document Name	Version	Date Submitted into Workflow	Submission Form:
	Submission Form		Version 1.0	12/20/2016 10:14 AM EST
	Modification/Amendment Form			
Submission Attachments:				
	Document - Recruitment Material (i.e., Flyer)		Version 1.4	12/20/2016 10:14 AM EST
	Email Invitation Sent to Target Sample			

Stamped copies of the approved documents are available within the iRIS system (if applicable).

Sincerely,

Signature applied by Dr. James Rancourt on 12/21/2016 08:49:32 AM EST

Dr. James Rancourt, PharmD
 Institutional Review Board - IRB-Panel_A
 Designated Reviewer

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January 16, 2017

Elizabeth Mayerson

Institutional Review Board (IRB) - (Assurance #FWA00021932) IRB-Panel_A

Study Title: Evaluation of the Effectiveness of an Evidence Based Webinar on the Behaviors of Primary Care Providers for the Treatment of Pain with Prescription Opioid Medications: A Translational Pilot Project
IRB #: E-HHC-2016-0218

APPROVAL OF REQUESTED MODIFICATION / AMENDMENT

Approval Date: 01/16/2017

Type of Review: Expedite

This approval includes the following materials:

Type	Document Name	Version	Date Submitted into Workflow
Submission Form:			
Submission Form	Modification/Amendment Form	Version 2.0	01/15/2017 06:05 PM EST
Submission Attachments:			
Document - Recruitment Material (i.e., Flyer)	StudyDocument_17135 (1)(2)	Version 2.1	01/15/2017 06:05 PM EST
Document - Recruitment Material (i.e., Flyer)	Email Invitation Sent to Target Sample	Version 2.5	01/15/2017 06:05 PM EST
Document - Protocol/Proposal	Research Proposal 09092016 (2)	Version 2.3	01/15/2017 06:05 PM EST
Document - Protocol/Proposal	Research Proposal 09092016 (2)	Version 2.2	01/15/2017 06:05 PM EST

Stamped copies of the approved documents are available within the IRIS system (if applicable).

Sincerely,

Signature applied by Dr. James Rancourt on 01/16/2017 11:08:10 AM EST

Dr. James Rancourt, PharmD
 Institutional Review Board - IRB-Panel_A
 Designated Reviewer

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January 16, 2017

Elizabeth Mayerson

Institutional Review Board (IRB) - (Assurance #FWA00021932) IRB-Panel_A

Study Title: Evaluation of the Effectiveness of an Evidence Based Webinar on the Behaviors of Primary Care Providers for the Treatment of Pain with Prescription Opioid Medications: A Translational Pilot Project
IRB #: E-HHC-2016-0218

APPROVAL OF REQUESTED MODIFICATION / AMENDMENT

Approval Date: 01/16/2017

Type of Review: Expedite

This approval includes the following materials:

Type	Document Name	Version	Date Submitted Into Workflow
Submission Form:			
Submission Form	Modification/Amendment Form	Version 2.0	01/15/2017 06:05 PM EST
Submission Attachments:			
Document - Recruitment Material (i.e., Flyer)	StudyDocument_17135 (1)(2)	Version 2.1	01/15/2017 06:05 PM EST
Document - Recruitment Material (i.e., Flyer)	Email Invitation Sent to Target Sample	Version 2.5	01/15/2017 06:05 PM EST
Document - Protocol/Proposal	Research Proposal 09092016 (2)(2)	Version 2.3	01/15/2017 06:05 PM EST
Document - Protocol/Proposal	Research Proposal 09092016 (2)(2)	Version 2.2	01/15/2017 06:05 PM EST

Stamped copies of the approved documents are available within the IRIS system (if applicable).

Sincerely,

Signature applied by Dr. James Rancourt on 01/16/2017 11:08:10 AM EST

Dr. James Rancourt, PharmD
 Institutional Review Board - IRB-Panel_A
 Designated Reviewer

References

- Aakhus, E., Oxman, A. D., & Flottorp, S. A. (2014). Determinants of adherence to recommendations for depressed elderly patients in primary care: A multi-methods study. *Scandinavian Journal of Primary Health Care, 32*, 170-179.
- Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In Kuhl, J. & Beckman, J. (Eds.). *Action-control: from cognition to behavior*, (pp. 11-39). Heidelberg: Springer.
- American Association of Colleges of Nursing. (2006). *The essentials of doctoral education for advanced nursing practice*, Retrieved from <http://www.aacn.nche.edu/dnp/Essentials.pdf>
- An Act Concerning Substance Abuse and Opioid Overdose Prevention, State of Connecticut, Substitute House Bill No. 6856, Public Act No. 15-198 (2015). Retrieved from <https://www.cga.ct.gov/2015/act/pa/2015PA-00198-R00HB-06856-PA.htm>
- Ashrafioun, L., Bohnert, A. S. B., Jannausch, M., & Ilgen, M. A. (2015). Evaluation of the current opioid misuse measure among substance use disorder treatment patients. *Journal of Substance Abuse Treatment, 55*, 15-20. doi:<http://dx.doi.org.ezproxy.lib.uconn.edu/10.1016/j.jsat.2015.02.007>
- Bae, J. & Encinosa, W. E. (2016). National estimates of the impact of electronic health records on the workload of primary care physicians. *BMC Health Services Research, 16*(172). doi:10.1186/s12913-016-1422-6
- Barnes, E. R., Theeke, L. A., & Mallow, J. (2015). Impact of the provider and healthcare team adherence to treatment guidelines (PHAT-G) intervention on adherence to national obesity clinical practice guidelines in a primary care centre. *Journal of Evaluation in Clinical Practice, 21*(2), 300-306. doi:10.1111/jep.12308

Barth, K. S., Balliet, W., Pelic, C. M., Madan, A., Malcolm, R., Adams, D., . . . Borckardt, J. J. (2014).

Screening for current opioid misuse and associated risk factors among patients with chronic nonalcoholic pancreatitis pain. *Pain Medicine, 15*(8), 1359-1364. doi:10.1111/pme.12403

Berwick, D. M., Nolan, T. W., & Whittington, J. (2008). The triple aim: care, health, and cost, *Health Affairs, 27*(3), 759-769.

Blackstock, O. J., Mba-Jonas, A., & Sacajiu, G. M. (2010). Family planning knowledge: The role of social networks and primary care providers as information sources for african american women.

American Journal of Sexuality Education, 5(2), 128-143. doi:10.1080/10627197.2010.491060

Bohnert, A. S. B., Bonar, E. E., Cunningham, R., Greenwald, M. K., Thomas, L., Chermack, S., Blow, F. C., & Walton, M. (2016). A pilot randomized clinical trial of an intervention to reduce overdose risk behaviors among emergency department patients at risk for prescription opioid overdose. *Drug and Alcohol Dependence, 163*, 40-47.

Bohnert, A. B., Valenstein, M., & Bair, M. J. (2011). Association between opioid prescribing patterns and opioid overdose-related deaths. *Journal of the American Medical Association, 305*(13), 1315-1321.

Buppractice. (2017). Retrieved from <http://www.buppractice.com/node/20671>

Buriak, S. E., Potter, J., & Bleckley, M. K. (2015). Using a predictive model of clinician intention to improve continuing health professional education on cancer survivorship. *Journal of Continuing Education in the Health Professions, 35*(1), 57-64 8p. doi:10.1002/chp.21266

- Butler, S. F., Budman, S. H., Fanciullo, G. J., & Jamison, R. N. (2010). Cross validation of the current opioid misuse measure to monitor chronic pain patients on opioid therapy. *Clinical Journal of Pain*, 26(9), 770-776. Retrieved from <http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=ovftl&AN=00002508-201011000-00006>; <http://webservices.lib.uconn.edu/redirect/>
- Butler, S. F., Budman, S. H., Fernandez, K. C., Houle, B., Benoit, C., Katz, N., & Jamison, R. N. (2007). Development and validation of the current opioid misuse measure. *Pain*, 130(1–2), 144-156. doi:<http://dx.doi.org.ezproxy.lib.uconn.edu/10.1016/j.pain.2007.01.014>
- Butler, S. F., Zacharoff, K., Charity, S., Lawler, K., & Jamison, R. N. (2014). Electronic opioid risk assessment program for chronic pain patients: Barriers and benefits of implementation. *Pain Practice*, 14(3), E98-E105. doi:10.1111/papr.12141
- Centers for Disease Control and Prevention (CDC). (2017). Retrieved from <http://www.cdc.gov>.
- Comprehensive Addiction and Recovery Act of 2016, Pub .L. No. 114-198, Stat. 524. Retrieved from <https://www.congress.gov/bill/114th-congress/senate-bill/524/text>
- Connecticut Department of Public Health (CDPH). (2017). Retrieved from <http://www.ct.gov/dph/>
- DeMik, D. E., Vander Weg, M. W., Lundt, E. S., Coffey, C. S., Ardery, G., & Carter, B. L. (2013). Using theory to predict implementation of a physician–pharmacist collaborative intervention within a practice-based research network. *Research in Social and Administrative Pharmacy*, 9(6), 719-730. doi:<http://dx.doi.org.ezproxy.lib.uconn.edu/10.1016/j.sapharm.2013.01.003>
- Drug Enforcement Agency (DEA). (2017). Retrieved from <http://www.dea.gov>

Edlund, M. J., Steffick, D., Hudson, T., Harris, K. M., & Sullivan, M. (2007). Risk factors for clinically recognized opioid abuse and dependence among veterans using opioids for chronic non-cancer pain. *Pain*, 129(3), 355-362.

doi:<http://dx.doi.org.ezproxy.lib.uconn.edu/10.1016/j.pain.2007.02.014>

Eiamsitrakoon, T., Apisarnthanarak, A., Nuallaong, W., Khawcharoenporn, T., & Mundy, L. M. (2013). Hand hygiene behavior: Translating behavioral research into infection control practice. *Infection Control and Hospital Epidemiology*, 34(11), 1137-1145. doi:10.1086/673446

Falkowski, C. (2013). The rampant abuse of prescription pain medication. *Minnesota Medicine*, 3, 38-41.

Felicilda-Reynaldo, R. (2014). Recognizing signs of prescription drug abuse and addiction, part I.

MEDSURG Nursing, 23(6), 391-396 6p. Retrieved from

<http://ezproxy.lib.uconn.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=c8h&AN=103925715&site=ehost-live&scope=site>

Finkelman, M. D., Kulich, R. J., Zoukhri, R. J., Smits, N., & Butler, S. F. (2013). Shortening the current opioid misuse measure via computer-based testing: A retrospective proof-of-concept study. *BMC Medical Research Methodology*, 13(126), doi: 10.1186/1471-2288-13-126

Fink-Miller, E. L., Long, D. M., & Gross, R. T. (2014). Comparing chronic pain treatment seekers in primary care versus tertiary care settings. *The Journal of the American Board of Family Medicine*, 27(5), 594-601. doi:10.3122/jabfm.2014.05.130311

- Fleming, M. F., Palousek, S. L., Klessig, C. L., Mundt, M. P., & Brown, D. D. (2007). Substance use disorders in a primary care sample receiving daily opioid therapy. *The Journal of Pain*, 8(7), 573-582.
- French, D. P., Williams, S. L., Michie, S., Taylor, C., Szczepura, A., Stallard, N., & Dale, J. (2011). A cluster randomized controlled trial of the efficacy of a brief walking intervention delivered in primary care: Study protocol. *BMC Family Practice*, 12(56). Retrieved from <http://www.biomedcentral.com/1471-2296/12/56>
- Friedman, R., Li, V., & Mehrotra, D. (2003). Treating pain patients at risk: Evaluation of a screening tool in opioid-treated pain patients with and without addiction. *Pain Medicine*, 4(2), 182-185. doi:10.1046/j.1526-4637.2003.03017.x
- Garland, E. L., Froeliger, B., Williams, J. M., Manusov, E. G., Kelly, A., & Howard, M. O. (2014). Mindfulness-oriented recovery enhancement for chronic pain and prescription opioid misuse: Results from an early-stage randomized controlled trial. *Consulting and Clinical Psychology*, 82(3), 448-459.
- Gudin, J. A. (2012). Clinical strategies for the primary health care professional to minimize prescription opioid abuse. *Postgraduate Medicine*, 124(3), 131-138. doi:10.3810/pgm.2012.05.2556
- Gustafson, M., & Borglin, G. (2013). Can a theory based educational intervention change nurses' knowledge and attitudes concerning cancer pain management? A quasi-experimental design. *BMC Health Services Research*, 13(328). Retrieved from <http://www.biomedcentral.com/1472-6963/13/328>

- Hariharan, J., Lamb, G. C., & Neuner, J. M. (2007). Long-term opioid contract use for chronic pain management in primary care practice: A five year experience. *Journal of Geriatric Internal Medicine*, 22, 485-490.
- Hayes, K., & Gordon, D. B. (2015). Delivering quality pain management: The challenge for nurses. *Association of Operating Room Nurses Journal*, 101(3), 327-337. Retrieved from <http://dx.doi.org/10.1016/j.aorn.11.019>
- Healthy People 2020. Retrieved from <https://www.healthypeople.gov/>
- Hooten, W. M., Timming, R., Belgrade, M., Gaul, J., Goertz, M., Haake, B., Myers, C., Noonan, M. P., Owens, J., Saeger, L., Schweim, G., Shteyman, G., & Walker, N. (2013). *Assessment and Management of Chronic Pain*. Bloomington, Minnesota: Institute for Clinical Systems Improvement (ICSI); 2013 Nov. 105 p. {168 references}
- Institute for Healthcare Improvement (IHI). (2016). Retrieved from <http://www.ihl.org/Engage/Initiatives/TripleAim/>
- Jamison, R. N., Martel, M. O., Edwards, R. R., Qian, J., Sheehan, K. A., & Ros, E. L. (2014). Validation of a brief opioid compliance checklist for patients with chronic pain. *The Journal of Pain*, 15(11), 1092-1101.
- Jamison, R. N., & Mao, J. (2015). Opioid analgesics. *Mayo Clinic Proceedings*, 90(7), 957-968. doi:<http://dx.doi.org.ezproxy.lib.uconn.edu/10.1016/j.mayocp.2015.04.010>
- Joerg, K. (2012). *Assessment and early identification of overweight children in primary care* (Unpublished doctoral dissertation). University of Connecticut, Storrs, CT

- Jonker, E. J., Goossens, P. J. J., Steenhuis, I. H. M., & Oud, N. E. (2008). Patient aggression in clinical psychiatry: Perceptions of mental health nurses. *Journal of Psychiatric and Mental Health Nursing*, 15(6), 492-499. doi:10.1111/j.1365-2850.2008.01261.x
- Kanouse, A. B., & Compton, P. (2015). The epidemic of prescription opioid abuse, the subsequent rising prevalence of heroin use, and the federal response. *Journal of Pain & Palliative Care Pharmacotherapy*, 29(2), 102-114. doi:10.3109/15360288.2015.1037521
- Kaye, A. D., Jones, M. R., Kaye, A. M., Ripoll, J. G., Galan, V., Beakly, B. D., ...Manchikanti, L. (2017). Prescription opioid abuse in chronic pain: An updated review of opioid abuse predictors and strategies to curb opioid abuse (Part 1). *Pain Physician*, 20(2S), S93-S109.
- Kaye, A. D., Jones, M. R., Kaye, A. M., Ripoll, J. G., Jones, D. E., Galan, V., ...Manchikanti, L. (2017). Prescription opioid abuse in chronic pain: An updated review of opioid abuse predictors and strategies to curb opioid abuse (Part 2). *Pain Physician*, 20(2S), S111-S133.
- Keyes, K. M., Cerda, M., Brady, J. E., Havens, J. R., & Galea, S. (2014). Understanding the rural-urban differences in nonmedical prescription opioid use and abuse in the United States. *American Journal of Public Health*, 104(2), e52-e59
- Knowles, S., Lam, L. T., McInnes, E., Elliott, D., Hardy, J., & Middleton, S. (2015). Knowledge, attitudes, beliefs and behaviour intentions for three bowel management practices in intensive care: Effects of a targeted protocol implementation for nursing and medical staff. *BMC Nursing*, 14(1), 1-13. doi:10.1186/s12912-015-0056-z

Krokmyrdal, K. A., & Andenæs, R. (2015). Nurses' competence in pain management in patients with opioid addiction: A cross-sectional survey study. *Nurse Education Today*, 35(6), 789-794.

doi:<http://dx.doi.org.ezproxy.lib.uconn.edu/10.1016/j.nedt.2015.02.022>

Lavoie, M., Godin, G., Vezina-Im, L. A., Blondeau, D., Martineau, I., & Roy, L. (2015). Psychosocial determinants of physicians' intentions to practice euthanasia in palliative care. *BMC Medical Ethics*, 16(6), Retrieved from <http://www.biomedcentral.com/1472-6939/16/6>

Luther, S., Nelson, A., & Powell-Cope, G. (2004). Provider attitudes and beliefs about clinical practice guideline. *Spinal Cord Injury Nursing*, 21(4), 206-211.

Manchikanti, L., Kaye, A. M., & Kaye, A. D. (2016). Current state of opioid therapy and abuse. *Current Pain and Headache Reports*, Online publication. doi:10.1007/s11916-016-0564-x

Mann, M., & Chai, E. (2014). Opioid essentials. *Hospital Medicine Clinics*, 3(4), 567-581.

doi:<http://dx.doi.org.ezproxy.lib.uconn.edu/10.1016/j.ehmc.2014.06.008>

Marino, E. N., Rosen, K. D., Gutierrez, A., Eckmann, M., Ramamurthy, S., & Potter, J. S. (2013).

Impulsivity but not sensation seeking is associated with opioid analgesic misuse risk in patients with chronic pain. *Addictive Behaviors*, 38(5), 2154-2157.

doi:<http://dx.doi.org.ezproxy.lib.uconn.edu/10.1016/j.addbeh.2013.01.020>

Martel, M. O., Dolman, A. J., Edwards, R. R., Jamison, R. N., & Wasan, A. D. (2014). The association between negative affect and prescription opioid misuse in patients with chronic pain: The mediating role of opioid craving. *The Journal of Pain*, 15(1), 90-100.

McKenna, H. P., Ashton, S., & Keeney, S. (2004). Barriers to evidence-based practice in primary care.

Journal of Advanced Nursing, 45(2), 178-189. doi:10.1046/j.1365-2648.2003.02879.x

Meltzer, E. C., Rybin, D., Saitz, R., Samet, J. H., Schwartz, S. L., Butler, S. F., & Liebschutz, J. M. (2011).

Identifying prescription opioid use disorder in primary care: Diagnostic characteristics of the current opioid misuse measure (COMM). *Pain*[®], 152(2), 397-402.

doi:<http://dx.doi.org.ezproxy.lib.uconn.edu/10.1016/j.pain.2010.11.006>

Mettner, J. (2013). The opioid crisis: Combatting misuse through better prescribing. *Minnesota*

Medicine, 3, 20-25.

Morgan, B. D. (2014). Nursing attitudes toward patients with substance use disorders in pain. *Pain*

Management Nursing, 15(1), 165-175.

doi:<http://dx.doi.org.ezproxy.lib.uconn.edu/10.1016/j.pmn.2012.08.004>

National Institute on Drug Abuse (NIDA). (2017). Retrieved from <http://www.drugabuse.gov/>

Nuckols, T., K., Anderson, L., Popescu, I., Diamant, A., L., Doyle, B., Di Capua, P., & Chou, R. (2014).

Opioid prescribing: A systematic review and critical appraisal of guidelines for chronic pain. *Annals of Internal Medicine*, 160(1), 38-47. doi:10.7326/0003-4819-160-1-201401070-00732

Nworah, U. (2012). From documentation to the problem: Controlling postoperative pain. *Nursing*

Forum, 47(2), 91-99

Parhami, I., Hyman, M., Siani, A., Lin, S., Collard, M., Garcia, J., . . . Fong, T. W. (2012). Screening for

addictive disorders within a workers' compensation clinic: An exploratory study. *Substance use & Misuse*, 47(1), 99-107. doi:10.3109/10826084.2011.629705

- Pasquale, M. K., Joshi, A. V., Dufour, R., Schaaf, D., Mardekian, J., Andrews, G. A., & Patel, N. C. (2014). Cost drivers of prescription opioid abuse in commercial and medicare populations. *Pain Practice*, 14(3), E116-E125. doi:10.1111/papr.12147
- Passik, S. D., Narayana, A., & Yang, R. (2014). Aberrant drug-related behavior observed during a 12-week open-label extension period of a study involving patients taking chronic opioid therapy for persistent pain and fentanyl buccal tablet or traditional short-acting opioid for breakthrough pain. *Pain Medicine*, 15(8), 1365-1372. doi:10.1111/pme.12431
- Penny, K. I. & Atkinson, I. (2011). Approaches for dealing with missing data in health care studies. *Journal of Clinical Nursing*, 21, 2722-2729. doi:10.1111/j.1365-2702.2011.03854.x
- Pielak, K. L., McIntyre, C. C., Tu, A. W., Remple, V. P., Halperin, B., & Buxton, J. A. (2010). Identifying attitudes, beliefs and reported practices of nurses and doctors as immunization providers. *Journal of Advanced Nursing*, 66(7), 1602-1611. doi:10.1111/j.1365-2648.2010.05326.x
- Polit, D.F. & Beck, C.T. (2012). *Nursing Research: Generating & Assessing Evidence for Nursing Practice* (9th ed.). Philadelphia: Lippincott Williams & Wilkins.
- Presseau, J., Francis, J. J., Campbell, N. C., & Sniehotta, F. F. (2011). Goal conflict, goal facilitation and health professionals' provision of physical activity advice in primary care: An exploratory prospective study. *Implementation Science*, 6(73), Retrieved from <http://www.implementationscience.com/content/6/1/73>

Quanbeck, A., Brown, R. T., Zgierska, A. E., Johnson, R. A., Robinson, J. M., & Jacobson, N. (2016).

Systems consultation: protocol for a novel implementation strategy designed to promote evidence-based practice in primary care. *Health Research Policy and Systems*, 14(8) doi: 10.1186/s12961-016-0079-2

Rasu, R. S., Sohraby, R., Cunningham, L., & Knell, M. E. (2013). Assessing chronic pain treatment practices and evaluating adherence to chronic pain clinical guidelines in outpatient practices in the United States. *The Journal of Pain*, 14(6), 568-578.

Reid, M. C., Engles-Horton, L. L., Weber, M. B., Kerns, R. D., Rogers, E. L., & O'Connor, P. G. (2002). Use of opioid medications for chronic noncancer pain syndromes in primary care. *Journal of General Internal Medicine*, 17(3), 173-179. doi:10.1046/j.1525-1497.2002.10435.x

Reyes, H. L. M., Zuniga, K. P., Billings, D. L., & Blandon, M. M. (2013). Incorporating human rights into reproductive health care provider education programs in Nicaragua and El Salvador. *Revista Panamericana De Salud Publica*, 34(1), 54-59.

Roberto, A. J., Shafer, M. S., & Marmo, J. (2014). Predicting substance abuse treatment providers' communication with clients about medication assisted treatment: A test of the theories of reasoned action and planned behavior. *Journal of Substance Abuse Treatment*, 47, 307-313.

Roberto, A. J., Krieger, J. L., Katz, M. L., Goei, R., & Jain, P. (2011). Predicting pediatricians' communication with parents about the human papillomavirus (HPV) vaccine: An application of the theory of reasoned action. *Health Communication*, 26(4), 303-312.
doi:10.1080/10410236.2010.550021

Schifter, D. E., & Ajzen, I. (1985). Intention, perceived control, and weight loss: An application of the theory of planned behavior. *Journal of Personality and Social Psychology*, 49(3), 843-851.

Seppala, M. (2013). A comprehensive response to the opioid epidemic: Hazelden's approach. *Minnesota Medicine*, 3, 45-47.

United States Department of Health and Human Services (USDHHS). (2016). *The opioid epidemic: by the numbers*. Retrieved from <http://www.hhs.gov/opioids/>

Wilcock, J., Iliffe, S., Turner, S., Bryans, M., O'Carroll, R., Keady, J., . . . Downs, M. (2009). Concordance with clinical practice guidelines for dementia in general practice. *Ageing & Mental Health*, 13(2), 155-161.

Wright, E. R., Kooreman, H. E., Greene, M. S., Chambers, R. A., Banerjee, A., & Wilson, J. (2014). The iatrogenic epidemic of prescription drug abuse: County-level determinants of opioid availability and abuse. *Drug and Alcohol Dependence*, 138, 209-215.

doi:<http://dx.doi.org.ezproxy.lib.uconn.edu/10.1016/j.drugalcdep.2014.03.002>

Young, H. M., Lierman, L., Powell-Cope, G., Kasprzyk, D., & Benoliel, J. (1991). Operationalizing the theory of planned behavior. *Research in Nursing & Health*, 14, 137-144.

Zemore, S. E., & Ajzen, I. (2014). Predicting substance abuse treatment completion using a new scale based on the theory of planned behavior. *Journal of Substance Abuse Treatment*, 46(2), 174-182.

doi:<http://dx.doi.org.ezproxy.lib.uconn.edu/10.1016/j.jsat.2013.06.011>