Opioid Use Disorder Education for Student Nurse Practitioners

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Abstract

Expansion of opioid use disorder (OUD) care is direly required of United States, and student nurse practitioners (NPs) are capable of assessing and addressing OUD in their clinical settings. However, academic programs for student medical doctors and NPs lack adequate training for such large-scale epidemic. This capstone project recruited 7 student NPs to participate in an interactive learning module prepared by the Centers for Disease Control and Prevention’s (CDC’s): “Module 5: Assessing and Addressing Opioid Use Disorder”. Overall, student NPs found the module useful in increasing knowledge and ability to diagnose and treat OUD. It is time academic programs integrate OUD training into curriculum for future clinicians and encourage students to be MAT-waiver prepared.

**Keywords**: opioid abuse, opioid use disorder, opioid epidemic, opioid crisis, nurse practitioner, student, education, US (for United States).
Opioid Use Disorder Education for Nurse Practitioner Students

Opioid mortality is now the leading cause of accidental deaths in the United States (US) and urgency is required to prioritize addressing the opioid epidemic (Levine & Fraser, 2018). Prescribing providers are key players in repairing this preventable problem, and it is crucial that nursing and medical schools revise their curriculum to enhance education regarding pain, opioids, and addiction management. Nurse practitioners (NPs) have recently been granted the ability and incentives to medically treat opioid use disorder (OUD), including prescribing waivers and potential loan-repayment programs for providing medication-assisted therapies (MATs). Student NPs have the opportunity to diagnose OUD and initiate treatment plans as they participate in clinical experiences. This capstone project implements and evaluates a standardized learning module for student NPs.

Overview

Background

Opioid death is now considered the most lethal problem in the US (Levine & Fraser, 2018). The incline of these deaths has been astounding, tripling in numbers from 1999 to 2014 (Lockwood, 2018; Stratton, Palombi, Blue & Schneiderhan, 2018). By 2016, opioids claimed more than 3 million lives, nearly 1 million due to heroin alone (Moore, 2019). The President of the United States declared the opioid epidemic as a public health emergency on October 26, 2017 (Kuehn, 2017). It is estimated that 90-130 people die each day in the US from opioids (Jackson & Lopez, 2018; Levine & Fraser, 2018;
Lockwood, 2018; Moore, 2019). This devastating epidemic imposes burden to an already-suffering American healthcare system.

The opioid problem is complex and involves many stakeholders: the public body, pharmaceutical companies, researchers and their overseeing agencies, legislators, and prescribing providers. The opioid epidemic is the result of multifaceted causes and therefore requires a complete evaluation of the epidemic as a whole for each shareholder to make informed actions toward restoring health to the public. Barriers to resolving this epidemic include: a cultural resistance for discomfort; misleading pharmaceutical marketing; loose government oversight; lack of centralized national healthcare system; insurance barriers for alternative modalities and timely delivery of MATs; unsafe prescribing practices; and inconsistency within licensure processes for prescribers (Bai, Bao, Bhatia, & Chan, 2018; Fuji et al., 2018; Geuvremont, Barnes, & Haupt, 2018; McCance-Katz et al., 2017; O’Riley, 2018; Overton et al., 2018; Spetz Toretsky, Chapman, Phoenix, & Tierney, 2019; Tan et al., 2018; Vashishta, Mittal, & Werb, 2017).

Programs designed to resolve the opioid epidemic are currently exhibiting mixed results. For example, prescription drug monitoring programs (PDMPs) are effective in minimizing opioid prescriptions; however, they are also blamed for the increase of opioid deaths since its implementation as patients seek cheaper and more readily-available forms of opioids on the streets (Cicero, 2018). Prescribers are not exhibiting safe pain and opioid management, but increasing stringency of legislation over prescribers leads to dire consequences for the public (Bai, Bao, Bhatia, & Chan, 2018; Cicero, 2018; Overton et al., 2018; Tan et al., 2018; Vashishta, Mittal, & Werb, 2017). Academic programs should
attempt to close knowledge gaps for future prescribers by equipping them with education to prevent, identify, and treat OUD.

Student nurse practitioners have the opportunity to diagnose and initiate treatment plans for patients inflicted with OUD in their clinical settings. Beyond schooling, NPs are ideally situated to address the epidemic as they advance into policy, research, teaching, and patient care, especially as primary care providers. Providing OUD treatment under the primary care model offers patients continuous care, close follow-up, holistic perspectives, and stigmatization reduction (Schottenfeld et al., 2018). Lastly, NPs are in a position to educate patients, the public, and other providers regarding evidence-based practices.

Review of the literature identifies MATs as priority treatment for patients suffering from OUD. Medical doctors were previously the only professionals available to provide MATs; however, unfavorable proportionality of OUD patients and qualified doctors to treat them has expanded the prescribing scope to include NPs. In the last 3 years, programs incentivizing NPs to obtain MAT waivers and medically treat OUD have been increasing. Still, there is a limited number of MAT prescribers to fulfill the need. It is imperative that NP programs incorporate information regarding the opioid epidemic including preventing, identifying, and treating OUD into their curriculum. Medical and nursing programs should enroll and encourage students to pursue the additional education required to meet licensure requirements for MAT-prescribing.

Every prescriber should first have adequate knowledge regarding safe pain management and how to prevent OUD to ensure safe patient care. This is outside the scope of
this capstone project, which implements an education module for student NPs and evaluates its effectiveness in teaching students how to diagnose and treat OUD.

**Problem Statement**

Nurse practitioner schools currently do not have adequate education regarding OUD assessment and treatment in their curriculum. This project PICO question asked: “Will NP students report an increase in knowledge and confidence to diagnose and treat OUD following the completion of the Centers for Disease Control and Prevention’s (CDC’s) opioid Module 5: Assessing and Addressing Opioid Use Disorder” (CDC, 2017)?

**Purpose Statement**

The purpose of this project was to increase student NP knowledge and confidence to diagnose and treat OUD by incorporating the CDC’s opioid Module 5: Assessing and Addressing Opioid Use Disorder into the curriculum (CDC, 2017).

**Outcomes**

To measure outcomes, student NPs rated their own perceived levels of knowledge and confidence in diagnosing and treating OUD. The survey was presented as a Likert scale rating system to quantify the following 4 statements: (1) “I have sufficient knowledge to diagnose opioid use disorder”; (2) “I am confident in my abilities to diagnose opioid use disorder”; (3) “I have sufficient knowledge to treat opioid use disorder”; and (4) “I am confident in my abilities to treat opioid use disorder” (Appendix A). For comparison, students were asked to complete this survey before and after participating in the interactive educational module.
Review of the Literature

A literature review was conducted using three data bases: Academic Search Elite, Medline Complete, and CINAHL Complete. “Nurse practitioner” and “education” and “US” (for United States) were key words used for each search. Because the term “opioid epidemic” is commonly referred to as “opioid crisis”, they were both utilized as separate searches. “Opioid abuse” was termed in place of “opioid use disorder.” Limiters were activated for each search to ensure results contained only peer-reviewed articles that were published between 2016 and 2019. The search began with the year 2016 in order to ensure publication that considered CDC’s “Guideline for Prescribing Opioids for Chronic Pain - United States, 2016”, which provides 12 recommendations to the clinician in order to prevent OUD and opioid deaths (CDC, 2016).

Each resulting article from these searches were evaluated through an inclusion-exclusion process. Fifteen articles were kept for appraisal; however, 6 were excluded during the appraisal phase due to meeting exclusion criteria upon further investigation. Articles excluded were mostly due to their irrelevancy to the opioid epidemic and to American settings; focus on comparing pain medications, MATs, or prescribing methods; and studies on opioid use disorder in special populations (such as in pregnancy). More information on excluded articles can be found in the Search Trail Diagram (Appendix B).

The 9 articles listed in the Reference Matrix marked with an asterisk (*) are results of this literature search, the rest are from previous searches prior to this proposal (Appendix C). Each article was assigned a level of evidence (LOE) from I to VII (Ackley,
Swan, Ladwig, & Tucker, 2008). Of all 28 articles used for this literature review, there were six LOE I articles, one LOE II, one LOE III, five LOE IV, and 15 LOE VII - totaling in 28 included articles utilized for literature review.

**Magnitude of the Problem**

Opioids have now taken 6 times more lives than US military casualties of the Vietnam War (Moore, 2019). In 2016, the CDC reported an occurrence of 64,000 drug-overdose deaths, of which 45,000 involved opioids (Kuehn, 2017). Increase in infections due to intravenous drug use associated with opioids (such as hepatitis and HIV) is estimated to be costing the US approximately $504 billion (Jackson & Lopez, 2018). More than 1,000 emergency visits are associated with opioid use on a daily basis (Jackson & Lopez, 2018). America is lacking the resources to properly treat these patients and prevent unprecedented death tolls. Nurse practitioners have the opportunity to carry out effective treatment for opioid use disorder (OUD).

**Dynamics Leading to the Epidemic**

Before the 1980’s, America had long been faulted with the negligence of palliative comforts (Lockwood, 2018). As a result, the ’80’s was an era emphasized on quality-of-life advocacy for terminally ill patients, including those with cancer (Lockwood, 2018). By the 1990’s, study publications from medical research began reporting significant results with promoting quality of life as it propelled opioids as a way to minimize discomfort (Lockwood, 2018). Most people do not perceive prescription opioid as dangerous (Costetillo, Thompson, Aurelien, & Luc, 2016). Literature demonstrated opioid’s therapeutic effects, but falsely assured low potential for dependency (Lockwood, 2018;
Stratton et al., 2018). Meanwhile, the American Pain Society identified pain as the “5th vital sign” - a reasonable reaction considering pain’s negative effects on mental and physical healing (Stratton et al., 2018). In the year 2000, the Joint Commission (JCAHO) released standards for pain management and further declaring pain as “the 5th vital sign”, possibly as a result of funding from pharmaceutical manufacturers (Guevremont, Barnes, & Haupt, 2018; Stratton et al., 2018).

As a result of opioid marketing, an excessive emphasis on pharmaceutical interventions led to an imbalanced approach to pain management in the US health system, namely the dismissal of alternative modalities (Stokes, 2019). Following the momentum to increase patient comfort, the US fell into a despairing distribution of opioids without knowledge, education, or standardized practices to treat pain. In 2007, Purdue Pharma executives pled guilty to misbranding OxyContin as less addictive than other opioids and agreed to pay $600 million in fines (Rothberg & Stith, 2018). In recent years, more opioid manufacturing companies are being found guilty of misbranding these lethal substances.

Government agencies such as the Food and Drug Administration (FDA) and the Drug Enforcement Administration (DEA) have been criticized for loosening criteria over opioid clinical trials and failing to enforce drug regulations (Stratton et al., 2018). The FDA has previously permitted pharmaceutical companies the utilization of “enriched enrollment” to ascertain sample characteristics for clinical trials (Stratton et al., 2018). Additionally, the number of cases filed by the DEA has significantly dropped over the same years in which opioid-use has increased at an alarming rate (Stratton et al., 2018).
The Centers of Medicare & Medicaid Services (CMS) has also been accused of potentiating the epidemic by employing patients’ satisfaction ratings upon providers (Stratton et al., 2018). The CMS star rating systems demonstrated an increase in patient satisfaction when previously low-rating providers started to prescribe more opioids (Stratton et al., 2018). The patient satisfaction ratings model has recently been modified within the CMS frameworks. The 3 questions regarding patient experience with pain management in the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) Survey is now replaced with 3 questions regarding patient experience with hospital staff communication regarding pain management (HCAHPS, 2017).

It is not evident in the literature what political agenda may have occurred that influenced the opioid epidemic, but it should be considered. The opioid issue carries ammunition for political platforms that may lobby restrictions on prescribers (Guevremont, Barnes & Haupt, 2018; Raji, Kuo, Adhikari, Baillargeon & Goodwin, 2017). It has been argued that the increase in opioid use is attributed naturally to the increase of chronic pain conditions. Populations are now living longer with cancer and surviving more often from severe injuries (Dasgupta, Beletsky & Cicerone, 2018). Despite this, the number of opioids prescribed declined 13% from 2012 to 2015, but the incidence of opioid deaths did not improve - in fact, in increased by 38% (Dasgupta et al., 2018). Social, economic, and political implications of this epidemic are enormous and still not well understood. Efforts in closing knowledge gaps are required to produce successful strategies managing the opioid epidemic.

Disparities and Determinants
Opioids are being prescribed at different rates per region. Major cities such as Los Angeles, San Francisco, Boston, Atlanta, New York, and Chicago have the lowest rates of opioid prescribing (Rolheiser, Cordes & Subramanian, 2018). However, urban communities generally experience more opioid misuse (Saloner, Palombi, Blue & Schniderhan, 2018). Vulnerable groups are identified as white, increasingly female (but men still cover 68% of persons with OUD), criminal-justice-involved individuals, and sex workers (Moore, 2019; Saloner et al., 2018). Adolescents are identified as vulnerable due to immature pathways of mu receptors and dopaminergic transmissions, making the group biologically susceptible to OUD (Lockwood, 2018). Determinants for OUD include economical disadvantages and poor working conditions (Dasgupta et al., 2018). Areas of traumatic disasters (such as hurricanes) also tend to have higher risk for OUD and alcoholism (Dasgupta et al., 2018).

White persons are more frequently offered prescriptions of opioids than black persons are (Ringwalt, Roberts, Gugelmann & Skinner, 2015). Additionally, black populations are not as likely to fill opioid prescriptions; whereas, white populations are filling more percentages of written scripts (Ringwalt et al., 2015). It is necessary to examine these trends, label them more accurately, and discover their true implications.

**Barriers in Prescribing Practices**

Prescribing practices is a factor of the opioid epidemic. Numerous studies have consistently illustrated ways in which prescribers frequently disregard recommended guidelines on pain medication dosing, duration of therapy, and individualized patient assessments of pain and risks (Bai et al., 2018; Overton et al., 2018, Tan et al., 2018). For
common surgical procedures, some providers order opioids that are as high as 14 times
the recommended dose in morphine milligram equivalents (MME) (Bai et al., 2018;
Overton et al., 2018).

Patients are not using all the opioids prescribed to them. Over one-third do not fill
their opioid prescriptions after common surgical procedures, and those that do consume
about a quarter of the regimen (Fujii et al., 2018). The surplus of opioids in the home is
hazardous, considering 53% of misused prescription opioids are obtained from friends or
family members (CDC, 2017). One study exists to demonstrate a consensus between
providers can be reached regarding dosing of opioids based on specific procedures per-
formed, but that consensus is significantly less that what is currently seen in practice
(Overton et al., 2018).

Ethical concerns have arisen since a federal policy in 2014 implemented prescrip-
tion drug monitoring programs (PMDPs), which has been placed as a surveillance and
control of prescription drugs. Currently, 41 states are mandated to utilize PMDPs when
ordering controlled substances (The Pew Charitable Trusts, 2018). Physicians are exhibit-
ing fear to prescribe opioids due to PMDPs, even when it is warranted (Raji et al., 2017).
Significant decline in opioid prescription has occurred in patients actively treating cancer
(Raji et al., 2017). Legislations limiting physicians are the strictest in the 5 states with the
highest drug-overdose rates (Guevremont, Barnes & Haupt, 2018).

Barriers in a Fragmented System

Another common barrier in the literature points to America’s lack of an overall
effective national healthcare system (Moore, 2019; Vashishtha, Mittal & Werb, 2017).
Some literature suggests implementation of state-level compensatory systems to track opioid prescriptions, such as PMDPs (CDC, 2016). Legislation regarding such programs vary state to state (sometimes county to county), leading to system incompatibilities and care delivery inconsistencies throughout the US.

The literature also suggest the lack of national health legislations as a barrier to opioid solutions, including the lack of insurance coverages for alternative pain management (Stokes, 2019). Interventions such as extended physical therapy or acupuncture can assist patients in achieving optimal pain relief and reduce usage of pharmacological treatment (Stokes, 2019). Third-party payers do not tend to include such modalities within their premium. Coverage for alternative pain management methods is inadequate and advocacy for non-pharmacological interventions is a worthy reaction to implement in this state of pharmacological crisis.

A second insurance-coverage barrier is the pre-authorization requirements for MATs (O’Riley, 2018). Requiring processes that delay care in addiction can be detrimental to patients’ attitudes about cessation of opioids, and may even prove fatal for some individuals. A few states (namely the first successful state of Maryland) are starting to pass laws prohibiting insurance companies the ability to require pre-authorization for MATs and more states are expected to follow (O’Riley, 2018). This undertaking is expected to expand MAT accessibility.

In the last year, the DEA and the Health and Human Services (HHS) has allocated $900 million to remedy this epidemic (Kuehn, 2017). The National Institutes of Health (NIH) has partnered with over 30 pharmaceutical companies and academic research cen-

ters to further investigate the epidemic (Kuehn, 2017). Public funding has increased to efficiently open and run addiction treatment centers (Lockwood, 2018). Emergency and anti-abuse medications are more available and attainable than ever before, but there is a still a long way to go to expand adequate accessibility. New abuse-deterrent formulations exists to help decrease frequency of opioid prescriptions, yet clinician shortage in OUD treatment must be addressed in order to carry our appropriate corrective actions (Jackson & Lopez, 2018; Moore, 2019; Spetz et al., 2019; Vashishtha, Mittal & Werb, 2017).

The Need for Medication Assisted Therapy Prescribers

Countries similar to the US have already produced evidence in the usefulness of methadone clinics and low-threshold MATs availability, such as in Hong Kong, Canada (in Vancouver), Switzerland, and France (Vashishtha, Mittal, & Werb, 2017). Still, the estimated amount of patients suffering from OUD in the US far surpasses the number of qualified providers to treat it, especially with the restrictions on how many OUD-affected patients may be treated by each provider (Guevremont, Barnes, & Haupt, 2018; O’Riley, 2018; Spetz et al., 2019).

Along with 5.6% of US physicians and 1.7% of PAs, only about 3.2% of NPs in the country are currently equipped with waivers to prescribe buprenorphine - the current MAT of choice for OUD (Jackson & Lopez, 2018; Spetz et al., 2019; Vashishtha, Mittal, & Werb, 2017). Further, 90% of these prescribing NPs are located in urban locations, while the majority of US is made up of rural communities (Moore, 2019). Currently, not even 20% of the population affected by OUD are under treatment (Moore, 2019).
Patrice A. Harris, MD, AMA president-elect and chair of the AMA Opioid Task Force, estimates only 12% of substance-abusers are getting treated for their addiction (O’Riley, 2018). One explanation for this crippling number is that each of these providers are capped at 30 OUD patients in the first year of MAT-waiver completion, 100 patients the second year, and 250 - and not all prescribers with MAT-waivers are actively treating any OUD (Guevremont, Barnes, & Haupt, 2018; Spetz et al., 2019). This leaves an undeniable gap in access to care for the large population that suffers from OUD.

Evolution of the Nurse Practitioner’s Role

The Substance Abuse and Mental Health Services Administration (SAMHSA) implemented the Drug Addiction Treatment Act of 2000 (DATA 2000), which was developed to assist in expanding MATs availability but specifically excluded NPs and physician assistants (PAs) from prescribing the medications (SAMHSA, 2019). Sixteen years later (the same year CDC released new opioid recommendations), mid-level providers were temporarily allowed to administer and dispense MATs as part of OUD treatment. Under President Obama’s Comprehensive Addiction and Recovery Act (CARA), PAs began having the ability to train and apply for waivers to temporarily prescribe MATs (Jackson & Lopez, 2018; Vashishtha, Mittal, & Werb, 2017). In 2018, Substance Use-Disorder Prevention that Promotes Opioid Recovery and Treatment (SUPPORT) for Patients and Communities Act was implemented, permitting trained NPs to permanently prescribe buprenorphine for the care of OUD (Moore, 2019). Despite this, NPs are not yet utilizing their full scope of practice to properly treat OUD.
Although the public health sector assume responsibility towards treating opioid-dependent populations, OUD is present in all settings. (Jackson & Lopez, 2018; Schottenfeld, Waldman, Gluck, & Tobin, 2018). Nearly half of opioid prescriptions come from primary care providers (CDC, 2017). Nurse practitioners are considered primary care providers in 43 states (Jackson & Lopez, 2018). The primary care setting offers effective chronic management, lack of stigmatization, and has further opportunities to expand MAT accessibility and educate communities (Jackson & Lopez, 2018; Vashishtha, Mittal, & Werb, 2017).

Education as an Approach

Knowledge and education is evidently required of prescribers. Instead of penalizing prescribers or seizing autonomy, it is recommended to seek opioid’s rightful place in medical and nursing practices (Schottenfeld et al., 2018). Prescribers require the ability to make individualistic decisions for each patient when endorsing such high-risk drugs (Guevremont, Barnes, & Haupt, 2018, Raji et al., 2017). Training regarding pain management is often vague and incomplete within US medical and nursing schools. Education regarding pain and opioid should be prioritized (Cicero, 2018; Costello, Thompson, Aurelien, & Luc, 2016; Dasgupta, Beletsky, & Ciccarone, 2018; McCance-Katz, George, Scott, Dollase, Tunkle & McDonald, 2017; Midgley, 2017; Schottenfeld et al., 2018).

Over-prescribing opioids increases risk for dependency, and under-prescribing leads to non-therapeutic use and could encourage patient to attain more dangerous forms of opioids. Opioid prescribers would benefit from better understanding of recommended MME dosing, individual risk assessments, procedure-specific prescribing, and maintain
autonomy to help patient reach therapeutic goals (Bai et al., 2018; Dasgupta et al., 2018; Midgley, 2017; Overton et al., 2018, Raji et al., 2017; Saloner et al., 2018).

Inconsistency within the licensure and education prevails in the system and is an obstacle worth attention. For example, minimal pain management education is required to attain DEA licensure to dispense opioid prescriptions, but intense training and regulation upholds the requirements to prescribe buprenorphine, a Schedule III medication that does not produce euphoria and may be life-saving for peoples struggling with OUD (Jackson & Lopez, 2018; Midgley, 2017). Currently, physicians are required to complete an 8-hour course to manage MAT patients; whereas NPs and PAs must participate in 24-hour training before qualifying to treat up to 30 patients in the first year of certification (SAMHSA, 2019). In order to reverse these inconsistencies, it is debated whether pain management prior to attaining DEA number should be increased and/or the requirements for MAT prescriptions be decreased (Jackson & Lopez, 2018; McCance-Katz et al., 2017; Midgley, 2017; Vashishtha, Mittal & Werb, 2017).

Most medical students do not receive even 11 hours of pain management training in their 4 years of education (Midgley, 2017). Campaigning for the integration of an extensive pain education throughout medical and nursing programs is necessary in the face of this epidemic and care deficiency (McCance-Katz et al., 2017; Midgley, 2017). One exceptional example of such extensive program is represented at Brown University’s medical school, in which require all students to participate in mandatory hours of pain education and/or addiction management throughout the medical program (McCance-Katz et al., 2017).
Healthcare providers should treat OUD as the pathology that it is. Research should headway into methods of identifying the presence of the pathology (OUD or the risk for it), even if the etiology is not yet well understood. Scoring systems have long been established to identify patients at high risk for drug misuse, but are underutilized (Bai et al., 2018). These instruments should be part of standard practice in the medical and nursing fields to minimize risk of OUD.

Sufficient staff and patient knowledge upon initiation of pain medication therapy decreases the risk for unsafe and non-medical use of opioids (Costello, Thompson, Aurelien, & Luc, 2016). It is important to consider patient teaching when addressing the opioid epidemic with an educational approach. Patient education should include safe use, secure storing, and appropriate disposal of unused medication (Costello et al., 2016). Currently, only 18% of opioid-receiving patients are educated on what to do with their leftover pills and most misused opioid prescriptions occur by sharing these prescribed pills (CDC 2017; Fujii et al., 2018).

**Theoretical Framework**

Permission has been granted to utilize The Iowa Model as an overarching framework to guide this capstone project (Cullen et al., 2018) (See Appendix D and E). Steps from the model used for implementation include: (1) identifying opportunity, (2) assemble, appraise, and synthesize body of evidence, (3) design and pilot practice change, and (4) integrate and sustain practice change. The model provides various instrumentation that help determine appropriateness of articles, research studies, and evidence-based pro-
cesses. It is used to guide this written proposal, project design, and implementation methods and materials.

**Organizational Assessment**

This section provides an assessment of the participating organization with focus on implementation factors, such as its readiness for change, facilitators and barriers, and risks that are involved. Permission has been attained from the organization to implement this project (Appendix F).

The organization’s mission statement demonstrates commitment to improving health through care, education, and innovation (Nebraska Methodist Health System, 2019b). Addressing the opioid epidemic is a priority for this organization. The change readiness of this setting is evidenced by a large-scale initiative created by the organization’s own health system in order to reduce narcotic prescribing and usage (Great Plains Quality Innovation Network, 2019). The organization’s efforts resulted in a 32% reduction in opioid prescriptions within their systems between 2013-2018 (Nebraska Methodist Health Systems, 2019a). Nevertheless, opioid deaths are still on the rise in this state (National Institute of Drug Abuse, 2019). More than ever, urgency is called for in identifying and treating OUD in this community.

In fall semester 2018, there were 89% female students and 11% male students at this school; 83% of the student body was white (Collegenavigator.com, 2019). An overwhelming amount of graduate students (90%) were full-time students (Collegenavigator.com, 2019).
As nurses who have some experience in the healthcare field, it is likely that these NP students already encounter patients suffering from OUD. Previous participant experiences with OUD could be facilitators or barriers for the implementation, depending on how those experiences were perceived by the NP student. Facilitators of this project include: (1) facilitating individuals such as organization’s program directors, faculty, and students that are taking part in contributing to this project; (2) clearly stating anticipated time of participation and deadline for completion so that the student may plan; (3) a learning module that is easy and free to access as a link in participants’ email; (4) the inquisitive and altruistic nature of nursing graduate students used to leverage recruitment; and (5) “opioid” as a buzz word.

Barriers of organizational readiness for change shed light to potential barriers of implementing this project, such as conflict with current policies and procedures (Weiner, 2009). Due to participation being voluntary, implementation barriers may exist if student NPs feel that participation is too challenging, too time consuming, and/or ineffective. Finally, a distracting environment during participation is an important barrier for online students and is a factor in which investigators have little to no control over. There are also barriers to having questions answered because investigators and participants are not face-to-face.

Risks occur with this project. As with all projects that involve self-reporting measures, bias could risk interpretation and results. Unintended consequences could occur from project: students who perceive experience of project as negative could develop a
distaste for future projects that are similar in nature (i.e., email surveys or module learning).

**Methodology**

This capstone project was an implementation and evaluation of a free standardized learning module for student NPs of one Midwestern online doctoral school. The project utilized quantitative methodology to measure participants’ self-reporting usefulness of the learning module. Methodology took into account the organization, participants, and the purpose of this project. A discussion of setting and sample illustrates ways in which project is appropriate for participants. Intervention selection was based on educational frameworks and implementation procedures, and materials followed the Iowa Model. Data collection and analysis is detailed in this section, and relevant ethical considerations are explored.

**Setting**

This school’s physical location is set in a large city in the Midwest in which its healthcare system offers 4 hospitals, 21 clinic locations, nursing and allied health college, medical supply distribution, and central laundry. All student NPs are enrolled in a Doctoral Nursing Practice (DNP) program at this school; however, Master of Science in Nursing (MSN) programs are offered for nursing educators, executives, and informatics (Nebraska Methodist College, 2019). Other programs of allied health exists within the school (i.e., sonography, surgical technician, physical therapy assistant, pharmacy technician, respiratory therapist, and imaging technicians).

**Sampling**
This project enrolled a convenience sampling of student NPs in the DNP programs of the organization, obtained via school emailing. All student NPs at this organization were committed to school emailing and most were in clinical training, making implementation of diagnosing knowledge via email appropriate for this population. Selection was limited to individuals in which organization gives permission to access, and then further limited to self-volunteering students.

No target sample size was determined prior implementation. Inclusions were the three following doctoral programs: family nurse practitioner, adult gerontology primary care nurse practitioner, and advanced practice register nurses (APRNs) to DNP (APRN-DNP) students - regardless of what classes they were enrolled in at the time of implementation. Inclusion for recruitment included 2 clinical nurse specialist doctorate students, as they were identified as prescribers by program directors. Exclusion occurred for students enrolled in programs that do not diagnose or treat OUD in the clinical setting, such as DNP Public Health Policy students and master programs.

**Implementation Procedures**

Implementation procedures were presented in the form of a single-exposure email to student NPs. This section of the proposal details parts that make up the email, according to respective phases of the Iowa Model (See Appendix I). The email was presented in an appealing and easy-to-read manner that consumes little time to access and comprehend information.

Recruitment strategies addressed barriers of participation. For example, being respectful to participants’ time facilitated the likelihood of recruitment: specifying antici-
pated time required for participation (1 hour) allowed participants to plan. Providing adequate amount of time for completion before deadline was also useful in recruiting and implementation. Implementation was be presented as an email and students may have perceived the project as spam; however, internal emailing should have acted as a remedying factor to that barrier. A program director within the organization presented the email to increase likelihood of participation. Two rounds of implementation occurred, detailed in the data collection section of this article.

**Identify opportunity.** Due to the SARS-CoV-2 pandemic, participants had the option to continue attaining clinical hours in their academia programs via alternative learning platforms. Opportunity to offer participants 1 clinical hour credit was identified and approved by program directors. Recruitment strategies also appealed to the altruistic nature of student NPs by offering participation as a way to play a part in addressing the opioid epidemic in their own community. The first round was implemented from April 2 until April 13, 2020, and a second round occurred from April 15 to April 23, 2020.

**Assemble, appraise, and synthesize body of evidence.** Content within the email started with evidence that had already been appraised by this project for the reader to assess. In this particular state, one person dies of drug overdose every 3 days (Nebraska Hospital Association, 2019). Opioid deaths are rising exponentially, even though prescriptions rates have decreased significantly (National Institute of Drug Abuse, 2019). These are relatable statistics that assisted readers in synthesizing an urgency for identifying OUD in patients and preventing common opioid deaths.
**Design and pilot practice change.** The email contained: (1) anticipated time required (approximately 1 hour) in order to complete the implementation, and (2) a deadline for completion.

Instructions for utilizing the module were as follows: (1) take the pre-intervention survey before participating, (2) complete the intervention (learning module), and then (3) take the post-intervention survey. This phase of the email included links from Survey Monkey and access to the intervention. Participation was emphasized as voluntary and completing surveys was stated to imply student permission to participate.

**Integrate and sustain practice change.** The email provided a link to the Opioid Toolkit. The package is available in PDF format and is free and available to all on the internet (Nebraska Hospital Association, 2019). Various tools exist in this package for the clinician to integrate and sustain practice changes regarding opioid management.

**Intervention**

The learning module satisfies organizational guidelines, nursing education theories, comes from a reputable agency, match participant frame of reference, and effectively teaches providers how to diagnose and treat OUD.

The module was selected from the CDC website in order to make certain the application of their own 2016 opioid guidelines. The module addresses diagnosing providers specifically, and offers relevant resources. The length of the module when played as a continuous video is 51 minutes long; however, interactive participation can prolong that by some minutes.
Content of the CDC’s Module 5: Assessing and Addressing OUD contains the following:

- DSM-5 diagnosing criteria for OUD (formerly “Opioid Abuse”)
- Treatment & Care for OUD
  - Medication-Assisted Therapy (MATs) & prescribing waivers
- Practice difficult conversations
- Resources for both patient and provider

**Measurement Instrument(s)**

The measurement utilized in this project relies on students self-reports of knowledge and confidence to: (1) diagnose OUD and (2) treat OUD. The Likert rating scale was used to quantify outcome measures from 1 (Strongly Disagree) through 5 (Strongly Agree) as responses to 4 statements: “I have sufficient knowledge to diagnose opioid use disorder”; “I am confident in my abilities to diagnose opioid use disorder”; “I have sufficient knowledge to treat opioid use disorder”; and “I am confident in my abilities to treat opioid use disorder” (Appendix A). Student NPs were surveyed before and after participating in the online learning module. In order to determine the module’s overall impact on student NP knowledge and confidence, aggregate averages for each outcome statement was kept separate for pre-intervention and post-intervention surveys.

**Data Collection Procedures**

Data was pulled from Survey Monkey as participants completed surveys, and transferred to an Excel spreadsheet. Data was verified upon implementation completion and prior to analysis by cross-checking printed spreadsheet with Survey Monkey’s online
data. In order to appropriately track each outcome, reported ratings were categorized for all 8 outcome statements as well as total scores per participant.

**Ethical Considerations/Protection of Human Subjects**

Institutional Review Board (IRB) approval was obtained prior to initiating the capstone project. Investigators are each Collaborative Institutional Training Initiative (CITI) certified prior to the initiation of this project (Appendix G). Investigator agreement was completed with the involved organization (Appendix H). This project presented no greater than minimal risk to participants. Potential benefits were numerous: individual gain in knowledge and confidence to diagnose and treat OUD, opportunity to practice with challenging patient-provider conversations, exposure to a new professional path, provider growth in the field of addiction treatment, and an understanding of opioid misuse treatment and death prevention. Potential risks included loss of time and negative experiences that could affect similar projects in the future. Student status and grades were not affected by participation or lack thereof, nor by survey results that were reported. Participants were not paid or offered benefits other than what is provided by the learning module. Results of this project also did not benefit investigators in any monetary or positional manner.

Data integrity was maintained. No personal identifiers needed to be utilized for this project. Organizational emails were protected by passwords and require multi-factorial authentication to sign on to. All laptops and computers were used to access emails and maintain data were also protected with passwords which investigators kept privately.
Only investigators had access to data until analytical reports were completed. Data was kept on an Excel sheet for efficient analysis only accessed by investigators.

**Data Analysis**

Data analysis was performed on the same Excel worksheet in which data was maintained. Each outcome statement had its own average: 4 for pre-intervention statements and 4 for post-intervention statements. Aggregate averages were found for each outcome statement pre- and post-intervention, as well as for the total survey scores. Three possible results could have occurred for each of the 4 outcomes measured and for the total survey average scores: an increase, decrease, or no change at all. Finally, statistical analysis was performed for each outcome statement using the paired-samples t-test. Organization extended statistician’s services to the project to ensure correct analysis. The analysis methods aided in determining if there were any significant differences made by the intervention.

**Results and Discussion**

Two rounds of implementation occurred wherein 86 emails were distributed among the following doctorate students: 2 adult-gerontology clinical nurse specialists (because these specific persons do prescribe medications), 8 adult-gerontology nurse practitioners, 6 advanced-practice registered nurses, and 70 family nurse practitioners. A total of 7 valid data sets were included in data analysis.

A paired-samples t-test was conducted to compare aggregate survey scores pre- and post-intervention. With the small sample in mind, there was a statistical significance in the differences of pre-intervention scores ($M = 9.1, SD = 2.5$) and post-intervention
scores (M = 14.9, SD = 3.1); t = -4.58, p = .004. Results suggest that this intervention was an overall effective teaching module for these student NPs. Specifically, the data implies that the CDC module was able to improve student NP knowledge and ability to diagnose and treat OUD.

Indeed, each outcome had a mean increase in scores as shown in Table 1. Every outcome had a mean of the differences of at least 1.00. Knowledge was consistently higher than ability when it came to treating. Prior to intervention, student NPs seemed to have confidence in their ability to diagnose OUD, although they weren’t as confident in their knowledge about it. The intervention appeared to have corrected this, creating consistency with knowledge and ability scores between diagnosing and treating outcomes. In the end, it is clear that an increase in overall outcomes were met for this particular sample with a 5.714 mean of the difference increase in total scores and an average of 1.384 increase in outcome scores.

Table 1. Means of Survey Scores

<table>
<thead>
<tr>
<th>Outcome 1: Knowledge to diagnose OUD</th>
<th>Pre-Intervention</th>
<th>Post-Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.571</td>
<td>3.857</td>
</tr>
<tr>
<td>Outcome 2: Ability to diagnose OUD</td>
<td>2.751</td>
<td>3.571</td>
</tr>
<tr>
<td>Outcome 3: Knowledge to treat OUD</td>
<td>2.143</td>
<td>3.857</td>
</tr>
<tr>
<td>Outcome 4: Ability to treat OUD</td>
<td>1.857</td>
<td>3.571</td>
</tr>
<tr>
<td>Total Average Mean</td>
<td>2.330</td>
<td>3.714</td>
</tr>
</tbody>
</table>
Limitations

The first limitation to this project is the small sample size and demographics. Due to the fact that only 7 student NPs were included in this study and they come from one academic organization, it would be difficult to generalize these results to other student clinicians. The second limitation is impossible to verify, but effects on individual students due to the SARS-CoV-2 pandemic could have negatively affected recruitment of this project in unknown ways.

Plan for Sustainability

Emails dispensed to recipients (participating or otherwise) contained a link to The Opioid Toolkit document, which includes various clinical instruments for pain, opioid, and OUD management. The document is free and now available to all 86 email recipients, along with the intervention itself. This project suggests that the CDC module intervention be made available or even mandatory to student clinicians before the start of first semester clinical. Because of the prevalence and mortality of OUD, mandatory curriculum and early education regarding OUD for all future clinicians in the country would not be unreasonable.

Implications for Practice

As the economic and social effects of the SARS-CoV-2 pandemic continue to increase the statistics of substance abuse in this country, it is a growing concern that so few student clinicians are adequately trained on how to identify and treat OUD - especially considering its high fatality rate. Although lacking in sample size, this project prompts academic programs of medicine and allied sciences to integrate OUD education into their
requirements. This project suggests the existence of reliable resources that can optimize care for populations with OUD, and that training can start long before prescribers are qualified to apply for DEA licensure. Enrolling student clinicians in identifying and addressing OUD in itself an expansion of care. This project has illustrated the usefulness of CDC’s OUD interactive module 5: “Assessing and Addressing Opioid Use Disorder” in increasing knowledge and ability to diagnose and treat OUD for student NPs.

**Conclusion**

In response to the opioid epidemic at hand, the US has implemented responses in various sectors: in media, legislation, public health, and both patient and prescriber management. Instead of placing blame on any one shareholder, it should be recognized that the opioid epidemic is a result of complex, multifactorial relationships between many sectors and further complicated by cultural context. Where the problem lies, there are opportunities for solutions.

The magnitude of this preventable fatality warrants urgently in educating future providers on how to address the opioid epidemic. Improvements in licensing processes may be required to increase amount of active MAT prescribers. Advancement in pain and opioid research and training can help address deficiencies that exist in pain management. Research databases have much to be desired and requires unadulterated studies that will progress opioid knowledge and make up for the inadequacy of past research.

Repair of economical and health conditions of this country related to opioid losses is dependent on the enrollment and education of NPs on how to respond to discussed barriers. Restricting rates of prescription is not proving therapeutic to public health. Instead,
agency and institutional measures should exist to ensure effective staff and patient education (Costello et al., 2016; Fujii et al., 2018; Stokes, 2019). This project reflects one effective method to equip student clinicians with the ability to identify and treat OUD.

In conclusion, this project was an attempt to address the opioid epidemic by improving student NPs’ knowledge and ability to identify and treat OUD via a standardized teaching module prepared by the CDC. By increasing provider knowledge and confidence, this project employs student NPs to properly diagnose OUD and go over treatment options with patient. Other OUD initiatives may have resulted in unintended consequences, but educating student clinicians aid expansion of opioid death prevention and MAT-prescribers on the field. Finding of this project suggests an effectiveness in the CDC module’s teaching of OUD care for student NPs. Academic programs of future prescribers should further explore the appropriateness of this intervention - or ones like it - for their students.
References


Appendices

Appendix A

Project Survey

<table>
<thead>
<tr>
<th>1 - strongly disagree</th>
<th>2 - disagree</th>
<th>3 - neutral</th>
<th>4 - agree</th>
<th>5 - strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BEFORE INTERVENTION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. I have sufficient knowledge to diagnose opioid use disorder</td>
<td></td>
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<tr>
<td>2. I am confident in my abilities to diagnose opioid use disorder</td>
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<tr>
<td>3. I have sufficient knowledge to treat opioid use disorder</td>
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<tr>
<td>4. I am confident in my abilities to treat opioid use disorder</td>
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<tr>
<td><strong>AFTER INTERVENTION</strong></td>
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<td></td>
<td></td>
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<tr>
<td>1. I have sufficient knowledge to diagnose opioid use disorder</td>
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<tr>
<td>2. I am confident in my abilities to diagnose opioid use disorder</td>
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<tr>
<td>3. I have sufficient knowledge to treat opioid use disorder</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I am confident in my abilities to treat opioid use disorder</td>
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</tbody>
</table>
Appendix B

Search Trail Diagram
## Appendix C

### Reference Matrix

**PICO Question:**
Will NP students report an increase knowledge and confidence in ability to assess and address OUD following the completion of the CDC’s Module 5: Assessing and Addressing Opioid Use Disorder (CDC, 2017)?

* = Result of Capstone Project Literature Search

<table>
<thead>
<tr>
<th>APA Reference Citation &amp; Level of Evidence</th>
<th>Participant/ Setting/ Sample Size</th>
<th>Purpose/ Background</th>
<th>Methods/ Design &amp; Limitations</th>
<th>Findings/ Summary/ Strengths/ Weakness</th>
<th>Applicability to Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ackley, B. J., Swan, B. A., Laflug, G., &amp; Tucker, S. (2008). Evidence-based nursing care guidelines: Medical-surgical interventions. (p. 7). St. Louis, MO: Mosby Elsevier. LOE I: evidence-based nursing care guidelines.</td>
<td>N/A</td>
<td>To educate the nursing student on medical-surgical nursing care based on evidence</td>
<td>N/A</td>
<td>Levels of Evidence: I - Evidence from a systematic review or meta-analysis of all relevant RCTs (randomized controlled trial) or evidence-based clinical practice guidelines based on systematic reviews of RCTs or three or more RCTs of good quality that have similar results. II - Evidence obtained from at least one well-designed RCT (e.g. large multi-site RCT). III - Evidence obtained from well-designed controlled trials without randomization (i.e. quasi-experimental). IV - Evidence from well-designed case-control or cohort studies. V - Evidence from systematic reviews of descriptive and qualitative studies (meta-synthesis). VI - Evidence from a single descriptive or qualitative study. VII - Case series, studies with no controls. Levels of Evidence used for literature appraisal and this reference matrix. Expert opinions are categorized as level VII.</td>
<td></td>
</tr>
<tr>
<td>Bai, J. W., Bao, J., Bhatia, A., Chan V. W. S., (2018). A perioperative approach to the opioid crisis. CMAJ: Canadian Medical Association Journal = Journal De L’association Medicale Canadienne, 190(39), E1131-E1152. doi: 10.1503/cmaj.180801 LOE IV: several cohort studies</td>
<td>N/A</td>
<td>To shed light on current practices in postoperative opioid prescribing (which is ineffective) and explore possible solutions for this specialty.</td>
<td>N/A</td>
<td>This article discusses Canada’s opioid crisis, but utilizes American guideline, data, and sources. It is found that prescribers are overprescribing opioids, disregarding guidelines such as MME recommended daily and re-evaluating pain after 3-5 days. It is found that 6% of opioid-naive patients become persistent users after their surgery. Demonstrates ways in which prescribers may need education regarding opioid management. Illustrates gap in care</td>
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<td>APA Reference Citation &amp; Level of Evidence</td>
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<tr>
<td>Cicero, T. J. (2018). Is a reduction in access to prescription opioids the cure for the current opioid crisis? American Journal of Public Health, 108(10), 1322-1323. <a href="https://doi.org/10.2105/AJPH.2018.304648">https://doi.org/10.2105/AJPH.2018.304648</a></td>
<td>N/A</td>
<td>Express perspective regarding prescription restrictions and how it may be adding to the heroin problem</td>
<td>N/A</td>
<td>Argues that America has a tendency to react in extreme fashions. Demonstrates the possibility that heroin is the transition drug from prescription opioids due to the implementation of programs that decrease prescription opioids. Author states PDMP's have value, but their unintended effects should also be considered.</td>
<td>This discusses how restricting prescribers may not be proving effective – this is justification for focus on education and re-education regarding pain and opioid management for the prescriber.</td>
</tr>
<tr>
<td>Costello, M, Thompson, S., Arellano, J., &amp; Luc, T. (2016). Patient opioid education: Research shows nurses’ knowledge of opioids makes a difference.” Med Surg Nursing, 25(5): 307-33. Retrieved from <a href="https://www.library.university.org/login?url=http://search.ebscohost.com/login.aspx?direct=true&amp;db=atn&amp;AN=118640344&amp;site=ehost-live&amp;scope=site">https://www.library.university.org/login?url=http://search.ebscohost.com/login.aspx?direct=true&amp;db=atn&amp;AN=118640344&amp;site=ehost-live&amp;scope=site</a></td>
<td>53 voluntary nurses in a hospital of Northeastern United States</td>
<td>Literature review seeks to determine whether education for nurses equate to safer use for patients.</td>
<td>Quasi-experimental pretest-posttest design</td>
<td>Article makes suggestions on how nurses can promote compliance and safe opioid use and focuses on how nurses can educate patients to promote safer use. It points to evidence where nurses may lack knowledge of important concepts regarding opioid management. It reports a study of 213 post-operative patients resulting in 92% of them never receiving instructions for their opioid prescription, and 91% kept their pills long after they were needed for their initial symptom. Another study revealed only 29% of 331 nurses could identify acceptable patient instructions of safe storage and disposal. The author’s study revealed percentage of patients who received education increased after education on the following categories: safe storage of opioids (increased 36%), disposal of opioids (increased 28%), decreased use of opioids with decreased pain (increased 40%), avoidance of opioid use other than for pain (increased 48%), and not sharing opioids (increased 49%)</td>
<td>In order to promote quality of patient opioid discharge instructions, providers would benefit from increasing knowledge. Safe use of opioids rely on provider’s knowledge and the knowledge they pass on to patients. This particular study shows that increasing nurse knowledge increased patient knowledge.</td>
</tr>
<tr>
<td>APA Reference Citation &amp; Level of Evidence</td>
<td>Participant/ Setting/ Sample Size</td>
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<td>Dasgupta, N., Beletsky, L., &amp; Ciccarone, D., (2018). Opioid crisis: No easy fix to its social and economic determinants. American Journal of Public Health, 108(2), 182–186. <a href="https://doi.org/10.2105/AJPH.2017.304187">https://doi.org/10.2105/AJPH.2017.304187</a></td>
<td>N/A</td>
<td>Explore elements leading to the opioid crisis, including determinants, culture, and social distress models as factors of dependency.</td>
<td>N/A</td>
<td>Points to increase opioid deaths during drop of opioid prescription decline and states exclusive focus on restricting supply is not effective. Explores social distress and dependency.</td>
<td>Discusses need to train health care providers to address structural factors (such as economic/racial disadvantages and life satisfaction) which are significant to dependency.</td>
</tr>
<tr>
<td>Fujii, M. H., Hodges, A. C., Russell, R. L., Roensch, K., Beymonn, B., Ahern, T. P., Holoch, P., Moore, J. S., Ames, S. E., &amp; MacLean, C.D., (2018). Post-discharge opioid prescribing and use after common surgical procedure. Journal American College of Surgeons, 226(6), 1004-1012</td>
<td>Data from a 340-bed academic medical institution and its affiliated outpatient surgical facility included retrospective medical record data and prospective telephone questionnaire and medical record data.</td>
<td>Objective was to identify opioid prescribing and use patterns after surgery to inform evidence-based practices.</td>
<td>Primary outcomes were the quantity of opioid prescribed and used in morphine milligram equivalents (MME), and the proportion of patients receiving instructions on disposal and non-opioid strategies.</td>
<td>In the retrospective dataset, 76% of patients received an opioid after surgery, and 87% of prescriptions were prescribed by residents or advanced practice providers. Median prescription size ranged from 0 to 503 MME, with wide interquartile ranges (IQR) for most procedures. In the prospective dataset, there were 359 participants (67% participation rate). Of these, 92% of patients received an opioid and the median proportion used was 27%, or 24 MME (IQR 0 to 96). Only 18% of patients received disposal instructions, while 84% of all patients received instructions on non-opioid strategies. Median opioid use after surgery was 27% of the total prescribed, and only 18% of patients reported receiving disposal instructions.</td>
<td>Residents and advanced practice providers are prescribing for the majority of this study, and they are showing to not be discharging patients with proper instructions for opioids. Highlights gaps in care that is potentially dangerous; this gap has been shown to improve with further provider education (Costello et al., 2016).</td>
</tr>
<tr>
<td>Guervemont, N., Barnes, M., &amp; Haupt, C. E., (2018). Physician autonomy and the opioid crisis. Journal of Law, Medicine &amp; Ethics, 46(2), 203–219. <a href="https://doi.org/10.1177/1073110518782922">https://doi.org/10.1177/1073110518782922</a></td>
<td>N/A</td>
<td>To discuss laws and regulations associated with opioid prescribing</td>
<td>N/A</td>
<td>Makes case for physician retention of autonomy by exemplifying the worse 5 states regarding opioid epidemic. Explains flawed history of regulations on opioids. Explores sociopolitical climate around opioids. Much like gun and abortion, opioid issue holds ammo for political platforms that lobby restrictions on prescribers. Differentiates public health and medical board responsibilities and highlights ways in which the 2 sectors can work together to address epidemic.</td>
<td>Argues restrictions on MATs are inappropriate and restrictions on prescription practices is ineffective. Does not address provider education, but provides format for its need by eliminating restrictions on providers as a solution.</td>
</tr>
<tr>
<td>APA Reference Citation &amp; Level of Evidence</td>
<td>Participant/Setting/Sample Size</td>
<td>Purpose/Background</td>
<td>Methods/Design &amp; Limitations</td>
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<td>*Jackson, H. J., &amp; Lopez, C. M. (2018). Utilization of the nurse practitioner role to combat the opioid crisis. Journal for Nurse Practitioners, 14(10), e213–e216. <a href="https://doi-org.methodistlibrary.idm.oclc.org/10.1016/j.nurpra.2018.08.016">https://doi-org.methodistlibrary.idm.oclc.org/10.1016/j.nurpra.2018.08.016</a></td>
<td>N/A</td>
<td>Access to opioid use disorder treatment is still a barrier. Many state laws limit waiver practices</td>
<td>N/A</td>
<td>Illustrates NPs as qualified and necessary clinicians to address the epidemic, especially occupying the primary care setting (where stigma is reduced, earlier interventions can be provided, and access to treatment is improved)</td>
<td>Suggests NPs are qualified and necessary to address epidemic</td>
</tr>
<tr>
<td>Kuehn, B., (2017). NIH strategy to combat opioid crisis. Journal of American Medical Association, 318(24), 2418. Retrieved from <a href="https://doi-org.methodistlibrary.idm.oclc.org/10.1001/jama.2017.19920">https://doi-org.methodistlibrary.idm.oclc.org/10.1001/jama.2017.19920</a></td>
<td>N/A</td>
<td>To update agency regarding NIH’s statements and strategies to address the opioid epidemic</td>
<td>N/A</td>
<td>Announces that NIH is working with 30 pharmaceutical companies to address the epidemic. Explains where the funds are coming from (AIDS/HIV funds will be shifted for substance use disorder under the HHS, and DEA increases telemedicine services for opioid addiction and $900 million to support treatment, including training first responders.)</td>
<td>Gives background information to what is being currently done to address epidemic. Does not discuss prescriber education.</td>
</tr>
<tr>
<td>*Levine, M., &amp; Fraser, M. (2018). Elements of a comprehensive public health response to the opioid crisis. Annals Of Internal Medicine, 169(10), 712–715. <a href="https://doi-org.methodistlibrary.idm.oclc.org/10.7326/M18-1757">https://doi-org.methodistlibrary.idm.oclc.org/10.7326/M18-1757</a></td>
<td>N/A</td>
<td>There were 116 deaths per day due to opioids in 2016 still. Measures already underway include: PDMP &amp; expanding availability of MATs &amp; naloxone</td>
<td>N/A</td>
<td>Author believes that a program should be able to do at least the following: 1) reduce rate of death from opioids; 2) alleviate the effect of the opioid crisis; 3) reduce supply of prescription opioids &amp; diversion while developing integrated approaches to pain management; 4) ensure widespread &amp; timely availability of MATs; 5) use evidence-based programs to prevent misuse; and 6) offer opportunities to sustain recovery. This article provides a comprehensive public health approach in the framework of 6 elements: (1) leadership; (2) partnership; (3) epidemiology; (4) education/prevention; (5) recovery; &amp; (6) harm reduction.</td>
<td>NPs often work in public health sectors. As this epidemic is a public health problem, it is necessary to explore alternative methods in which NPs can address this problem, other than as a clinician.</td>
</tr>
<tr>
<td>APA Reference Citation &amp; Level of Evidence</td>
<td>Participant/ Setting/ Sample Size</td>
<td>Purpose/ Background</td>
<td>Methods/ Design &amp; Limitations</td>
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<tr>
<td>*McCance-Katz, E. F., George, P., Scott, N. A., Dollese, R., Tunkel, A. R., &amp; McDonald, J. (2017). Access to treatment for opioid use disorders: Medical student preparation. The American Journal On Addictions, 26(4), 316–318. <a href="https://doi.org/methodslibrary/idn.oocl.org/10.1111/ajad.12550">https://doi.org/methodslibrary/idn.oocl.org/10.1111/ajad.12550</a></td>
<td>N/A</td>
<td>In attempt to normalize addiction medicine, a model is presented from Brown University in which medical students receive comprehensive training in OUD treatment.</td>
<td>N/A</td>
<td>Mandatory hours are fulfilled by medical students every year of their program that includes pain and addiction management. This training qualifies for waiver and includes didactic, simulations, clinical experience, residency, MAI's training, behavioral change counseling, and emergency medicine as an elective.</td>
<td>Although framework is created by psychiatrists and physicians of Brown University under the medical model, it is worth considering that there exists a curriculum that spans all 4 years of medical school.</td>
</tr>
<tr>
<td>*Moore, D. J. (2019). Nurse practitioners’ pivotal role in ending the opioid epidemic. Journal for Nurse Practitioners, 15(5), 323–327. <a href="https://doi.org/methodslibrary/idn.oocl.org/10.1016/j.nurpra.2019.01.005">https://doi.org/methodslibrary/idn.oocl.org/10.1016/j.nurpra.2019.01.005</a></td>
<td>N/A</td>
<td>Open to NPs seeking rights to care for patients of OUD</td>
<td>CDC estimates more than 130 deaths per day due to opioids (2018). This CE learning activity is designed to augment the knowledge, skills, and attitudes of NPs so they may effectively utilize buprenorphine for opioid use disorder.</td>
<td>A score of at least 70% on the CE evaluation quiz earns 1 contact hour of CE. Valid until 6/1/21.</td>
<td>SUPPORT act supersedes CARA act and allows NPs to be permanent buprenorphine prescribers, rather than granting temporary waivers. Overview of legislation, treatment approaches, barriers, and opportunities are provided. Article estimates 90% of prescribers practice in urban settings, 30% of rural prescribers are not actively treating OUD patients, and 40% of those that are treating OUD patients in rural settings are no longer taking new patients. Further, those with 100-patient waivers are only treating an average of 56.9 patients and 30-patient waivers are covering 8.8 patients on average. Barriers in treatment include MAT-prescribing abilities, but cannot exclude other factors.</td>
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<td>APA Reference Citation &amp; Level of Evidence</td>
<td>Participant/ Setting/ Sample Size</td>
<td>Purpose/ Background</td>
<td>Methods/ Design &amp; Limitations</td>
<td>Findings/Summary/ Strengths/ Weakness</td>
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<td>O’Riley, K. B., (2018). 5 reasons to read the surgeon general’s opioid epidemic report. Retrived from: <a href="https://www.ama-assn.org/delivering-care/opioids/5-reasons-read-surgeon-generals-opioid-epidemic-report">https://www.ama-assn.org/delivering-care/opioids/5-reasons-read-surgeon-generals-opioid-epidemic-report</a></td>
<td>N/A</td>
<td>To highlight what the surgeon general reported in 2018 regarding the opioid epidemic</td>
<td>N/A</td>
<td>Surgeon general is advocating for legislation against pre-authorization requirements for MATs. Some states are putting in bills for such life-saving efforts and Maryland has been successful in passing the bill. This means that there would be less barriers to access MATs like buprenorphine. AMA president reports 12% of substance abusers are getting treatment for addiction.</td>
<td>Highlights the necessity to expand MATs and gives an important statistics regarding gap in care that requires expansion of MAT treatment. Educating future prescribers is a crucial part of addressing the epidemic</td>
</tr>
<tr>
<td>Overton, H.N., Hanna, M.N., Bruhn, W.E., Hutfless, S., Bicket, M.C., Makary, M.A., (2018). Opioid-prescribing guidelines for common surgical procedures: An expert panel consensus. Journal of American College of Surgeons, 227(4), 411-418</td>
<td>3-step modified Delphi method involving a multidisciplinary expert panel of 6 relevant stakeholder groups (surgeons, pain specialists, outpatient surgical nurse practitioners, surgical residents, patients, and pharmacists) to develop consensus ranges for outpatient opioid prescribing at the time of discharge after 20 common procedures in 8 surgical specialties. Thirty experts participated</td>
<td>Hypothesized that a single-institution, multidisciplinary expert panel can establish consensus on ideal opioid prescribing for select common surgical procedures.</td>
<td>Prescribing guidelines were developed for opioid-naïve adult patients without chronic pain undergoing uncomplicated procedures. The number of opioid tablets was defined using oxycodone 5 mg oral equivalents.</td>
<td>Compares therapeutic doses of opioids to actual prescribed doses, which is significantly different. Therapeutic doses are recommended at 50 MME per day, but some patients are dispensed with as high as 700 MME per day for common surgical procedures. There is a consensus that unsafe prescribing practices occur on the field. Article suggests that patient- and procedure-specific dosing may help to combat the opioid epidemic.</td>
<td>Zeroing on a major barrier: prescribers are overprescribing opioids. Education and/or re-education may be required of prescribers regarding effective pain management</td>
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<tr>
<td>Raji M.A., Kuo, Y.F., Adhikari, D., Baillargeon, J., Goodwin, J.S., (2017). Decline in opioid prescribing after federal rescheduling of hydrocodone products. Pharcmacoepidemiol Drug Safety, 27(5), 513–519</td>
<td>Data of 9,202,958 patients from age 18-64 for 2013-2015 were extracted from a large national insurance program</td>
<td>To evaluate effects of more restrictive re-classification of hydrocodone combination products (HCP)</td>
<td>26% decrease from June 2013 to June 2015 in prescriptions of hydrocodone combination product (HCP) has occurred,</td>
<td>After the 2014’s reclassification, there is marked decline in prescribing. This has implications and not necessarily positive ones. For example, patients may not be getting therapeutic pain relief.</td>
<td>Restrictions are declining opioid prescriptions, but this does not mean it is therapeutic. If restricting prescribers is not the answer, perhaps equipping them with better knowledge and tools can promote social health</td>
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<td>Ringwalt, C., Roberts, A. W., Cagelmann, H., &amp; Skinner, A. C., (2015). Racial disparities across provider specialties in opioid prescriptions dispensed to medicaid beneficiaries with chronic noncancer pain. Pain Medicine, 16(4), 633–640. Retrieved from <a href="https://doi.org/10.1111/pme.12555">https://doi.org/10.1111/pme.12555</a> L0E IV: cohort study</td>
<td>The population included white (N = 49,197) and black (N = 26,261) North Carolina Medicaid beneficiaries with CNCP</td>
<td>To explore if there are racial disparities in opioid treatment for chronic noncancer pain (CNCP)</td>
<td>Bivariate statistics and logistic regression analysis to examine race-based discrepancies in opioid prescribing by physician specialty</td>
<td>Black beneficiaries were less likely to be offered opioid prescriptions. White beneficiaries were more often likely to fill their offered prescriptions than black beneficiaries.</td>
<td>Little studies before this one actually showed racial disparities. Understanding these disparities and their context are important to close gaps in health. Speaks to education: “it is generally believed that physician education related to the management of chronic pain is inadequate” (p. 634)</td>
</tr>
<tr>
<td>Rolheiser, L. A., Cordes, J., &amp; Subramanian, S. V. (2018). Opioid prescribing rates by congressional districts, United States, 2016. American Journal of Public Health, 108(9), 1214–1219. Retrieved from <a href="https://doi.org/10.2105/AJPH.2018.304532">https://doi.org/10.2105/AJPH.2018.304532</a></td>
<td>County-level opioid prescribing rates data from the QuintilesIMS Transactional Data Warehouse via the CDC.</td>
<td>To determine the extent to which opioid prescribing rates vary across US congressional districts.</td>
<td>In an observational cross-sectional framework using secondary data, we constructed 2016 congressional district-level opioid prescribing rate estimates using a population-weighted methodology.</td>
<td>High prescribing rate districts were concentrated in the South, Appalachia, and the rural West. Low-rate districts were concentrated in urban centers. Identifying areas of need is helpful to target implementation most effective in addressing the opioid epidemic.</td>
<td>Illustrates geographic disparities</td>
</tr>
<tr>
<td>Rothberg &amp; Stith, (2018). The opioid crisis and federal criminal prosecution. The Journal of Law, Medicine &amp; Ethics, 46(1), 292-313. doi: 10.1177/1073110518782936 L0E VII: case series</td>
<td>N/A</td>
<td>Shed light on current prosecutions surrounding opioid epidemic</td>
<td>N/A</td>
<td>Pharmaceutical companies are losing cases for misbranding opioids. America is leaning more towards rehabilitation rather than punishment when it comes to misusing opioids.</td>
<td>Adds knowledge to the dynamics in which opioid epidemic is center of, especially in the legal aspects</td>
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<td>Salenker, B., McGinty, E.E., Beletsly, L., Bluthenhal, R., Beyer, C., Botticelli, M., and Sherman, S.G. (2018). A public health strategy for the opioid crisis. Public Health Reports 2018, 133(1), 24-34</td>
<td>N/A</td>
<td>Provide a public health perspective that can be used to mobilize a comprehensive local, state, and national response to the opioid crisis</td>
<td>N/A</td>
<td>Suggests that pain management is integrated with addiction management since the two go hand-in-hand. Recommends steps to increase safer prescribing. - novel ecological framework for harmful opioid use that provides multiple recommendations to improve public health and clinical practice, including improved data collection to guide resource allocation, steps to increase safer prescribing, stigma-reduction campaigns, increased spending on harm reduction and treatment, criminal justice policy reform, and regulatory changes related to controlled substances.</td>
<td>Sheds light on dynamic in which opioid epidemic exists and points out ways in which the public health sector can do their part to address the problem, including: (1) treatment expansion, (2) de-criminalize illness like OUD, (3) removing restrictions on NPs to prescribe MATs, and improving data collection. Education about pain management and addiction management is both required of the prescriber to effectively integrate the two concepts. Education is a step to safer prescribing practices.</td>
</tr>
<tr>
<td>* Schottenfeld, J. R., Waldman, S. A., Gluck, A. R., &amp; Tobin, D. G. (2018). Pain and addiction in specialty and primary care: The bookends of a crisis. Journal of Law, Medicine &amp; Ethics, 46(2), 220-237. <a href="https://doi.org/10.17771/1073110518782923">https://doi.org/10.17771/1073110518782923</a></td>
<td>N/A</td>
<td>This article explores pain, addiction, and their relationship to the primary care setting. It goes into barriers, influences, strengths/ weaknesses of modern treatment to pain and to addiction, and explores current conversations within relevant literature</td>
<td>N/A</td>
<td>Authors suggest that physicians be well-versed on the problem as it relates to barriers such as effects of stigma, inadequate education, misaligned expectations, poor regulatory efforts, and irrational use of resources. They illustrate how medical providers are responsible both for the crisis and the resolution of it. They also point out that primary care settings are ideal because providers are responsible to building a team for optimal care.</td>
<td>Although the article is written for the medical model, it is extremely relevant to NPs as we are the “gap-branders” for primary care in the US (as well as opioid treatment, as argued in other articles)</td>
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<td>APA Reference Citation &amp; Level of Evidence</td>
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<td>* Spetz, J., Toretsky, C., Chapman, S., Phoenix, B., &amp; Tierney, M. (2019). Nurse practitioner and physician assistant waivers to prescribe buprenorphine and state scope of practice restrictions. JAMA, 321(14), 1407–1408. <a href="https://doi.org/methodslibrary.idm.oclc.org/10.1001/jama.2019.0834">https://doi.org/methodslibrary.idm.oclc.org/10.1001/jama.2019.0834</a></td>
<td><strong>Using state-level data, NPs/PAs with waivers are divided by total licensed in each field. States requiring physician oversight of NPs considered.</strong></td>
<td>There is a shortage of providers who can prescribe MATs. NPs/PAs are allowed to obtain waivers to prescribe buprenorphine since 2016. This article studies the proportions of NPs &amp; PAs that have those waivers as of Sept 2018.</td>
<td>Scope of practice is measured as independent binary variables. Mean proportions of clinicians compared with waivers per state by clinician type and scope of practice category and Pearson correlations of these proportions were computed, weighted by the total numbers of NPs/PAs in the state. Analyses were conducted using Stata-MP (version 15.1; StataCorp), with 2-group T tests for means and 2-sided t tests for regressions, with significance at $P &lt; .05$</td>
<td>Greater restrictions were associated with lower percentage of NPs - but not PAs - with waivers; 75% larger group of NPs with waivers in less restrictive states. Limitations: (1) denominators include non practicing clinicians; (2) only been 2 years in which waivers are available</td>
<td>Suggests NPs are more willing to expand opioid treatment workforce in states with less restrictions; not the case of PAs, maybe because of consistency in scope of practice in US</td>
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<td>LOE I: systematic review</td>
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<td>* Stokes, L. (2019). ANA Position Statement: The ethical responsibility to manage pain and the suffering it causes. Online Journal of Issues in Nursing, 24(1), 3. <a href="https://doi.org/methodslibrary.idm.oclc.org/10.3912/OJIN.Vol24No01PoS0101">https://doi.org/methodslibrary.idm.oclc.org/10.3912/OJIN.Vol24No01PoS0101</a></td>
<td><strong>To provide ethical guidance to support nurses in providing optimal care to people with pain, meanwhile avoiding harm.</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>Nurses should engage in research to identify modalities and strategies to (a) prevent, assess, and treat pain; (b) minimize disparities in accessing healthcare; (c) promote societal awareness regarding pain as a public health issue; (d) identify effective educational strategies for nurses, healthcare professionals, and the public; (e) explore cultural meanings of pain; and (f) consequences of under-treating pain. Article takes a stand regarding dangers of both under- &amp; over-prescribing opioids. Further, it promotes pharmacogenomics to assist in the determination of appropriate dose for individuals. Barriers discussed are: moral disengagement, knowledge deficits, biases, environments not conducive to optimal practice, and economic limitations</td>
<td>Sheds light on nurses responsibilities to treat pain using nursing process and interventions, multimodal &amp; interprofessional approaches, evidence, policy advocacy, and nursing leadership. Barriers for nurses include knowledge deficit - a need for education</td>
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<td>Stratton, T. P., Palombi, L., Blue, H., &amp; Schneiderhan, M. E. (2018). Ethical dimensions of the prescription opioid abuse crisis. American Journal of Health-System Pharmacy, 75(15), 1145–1150. <a href="https://doi.org/10.2146/ajhp170704">https://doi.org/10.2146/ajhp170704</a></td>
<td>N/A</td>
<td>To discuss the ethical dimensions of the opioid epidemic</td>
<td>N/A</td>
<td>Goes into how pain as “the 5th vital sign” was coined and used as advertising. Statistics given for magnitude of the problem. Highlights various roles in which might have played into the evolution of the epidemic.</td>
<td>Adds knowledge to dynamics of which opioid epidemic exists under, the magnitude of the problem,</td>
</tr>
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<td>Substance Abuse and Mental Health Services Administration (SAMHSA), (2019). Medicated-assisted treatment: Certification of opioid treatment programs (OTPs). Retrieved from: <a href="https://www.samhsa.gov/medication-assisted-treatment/opioid-treatment-programs">https://www.samhsa.gov/medication-assisted-treatment/opioid-treatment-programs</a></td>
<td>N/A</td>
<td>Website information to resources in attaining waivers for MAT prescribing</td>
<td>N/A</td>
<td>Physicians are required to complete an 8-hour course to manage MAT patients; whereas NPs and PAs must participate in a 24-hour training before qualifying to treat up to 30 patients the first year of certification</td>
<td>Gives insight to what education for prescribers currently entails if they want to prescribe MATs.</td>
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<tr>
<td>Tan, W.H. Yu, J. Feaman, S., McAlister, J.M., Kahan, L.G., Quasebarth, M. A. Blanik, J.A., Eagon, J.C., Awad, M.M., &amp; Brunt, L.M., (2018). Opioid medication use in the surgical patient: An assessment of prescribing patterns and use. Journal of American College of Surgeons, 227(2), 203-211</td>
<td>176 narcotic-naïve patients undergoing laparoscopic, robotic, or open abdominal procedures on a minimal- ly invasive surgery service with 5 attending surgeons at an academic hospital from February 2014 through January 2017, 5 surgeons</td>
<td>Few data exist comparing postoperative opioid prescriptions with patient use - sought to better elucidate this relationship in surgical patients.</td>
<td>During the first 14 post-discharge days and at their first postoperative clinic visit, patients recorded pain scores and number of opioid pills taken. Clinical data were extracted from the medical record. Descriptive statistics were used in data analysis.</td>
<td>From 2014 through 2017, one hundred and seventy-six patients completed postoperative pain surveys. Most patients (69.9%) underwent laparoscopic procedures. Hydrocodone-acetaminophen was the most commonly prescribed postoperative pain medication (118 patients [67.0%]), followed by oxycodone-acetaminophen (26 patients [14.8%]). Patients were prescribed a median of 150 MME, equivalent to twenty 5-mg oral oxycodone pills. However, by their first postoperative visit, they had only taken a median 30 MME, or 4 pills. Eight (4.5%) patients received a refill or an additional prescription for pain medications. At the first postoperative visit, 76.7% of respondents were satisfied or very satisfied with their overall postoperative pain management. Postoperative patients might consume less than half of the opioid pills they are prescribed.</td>
<td>More evidence that prescribers are overprescribing. Education could remedy this problem.</td>
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<td><em>Vashisht, D., Mittal, M. L., &amp; Werb, D. (2017). The North American opioid epidemic: current challenges and a call for treatment as prevention. Harm Reduction Journal, 14(1), 7. <a href="https://doi.org/10.1080/21550635.2017.1295401">https://doi.org/10.1080/21550635.2017.1295401</a></em></td>
<td>N/A</td>
<td>To compare/ contrast the practices of similar countries to promote quality care for opioid use disorders and address the opioid crisis and discuss its implications for North American countries (US, Canada, and Mexico)</td>
<td>N/A</td>
<td>Author explores dynamics of opioid crisis response in various Western developed countries. In comparison, America is lacking in its healthcare systems an effective way to prevent and treat opioid use disorder, at the microlevel and the macrolevel. Author recommends low-threshold programs to expand accessibility for MATs, understanding of cultural attitudes, beliefs, and practices.</td>
<td>Article gives examples of evidence-based interventions that have been beneficial in other countries that could be applicable to North American countries. It includes recommendations on education and licensure requirements.</td>
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<td>LOE VII: expert opinion</td>
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Appendix D

The Iowa Model
Appendix E

Permission to Reproduce The Iowa Model

You have permission, as requested today, to review and/or reproduce The Iowa Model Revised: Evidence-Based Practice to Promote Excellence in Health Care. Click the link below to open.

The Iowa Model Revised: Evidence-Based Practice to Promote Excellence in Health Care

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Please contact UIHCNursingResearchandEBP@uiowa.edu or 319-335-9098 with questions.
Appendix F

Investigator Agreement

Individual Investigator Agreement

Nebraska Methodist Colleges Institutional Review Board (IRB) is a federally registered board responsible for the review and approval of all research protocols involving human subjects. Human subjects is defined as “a living individual about whom an investigator (whether professional or student) conducting research obtains (1) data through intervention or interaction with the individual, or (2) identifiable private information.” (CFR Title 45, Part 46).

Providing your signature verifies that as the investigator:

1. You have reviewed the following documents:
   - The Belmont Report
   - 45 CFR 46 of the Code of Federal Regulations
   - Nebraska Methodist College IRB Policy Manual

2. You acknowledge primarily responsibility for safeguarding the rights and welfare of each research subject, and that the subject’s rights and welfare must take precedence over the goals and requirements of the research.

3. You assure all information provided in the IRB Application is accurate.

4. The Investigator will abide by all determinations of the Institutional Review Board (IRB) designated under the above FWA and will accept the final authority and decisions of the IRB, including but not limited to directives to terminate participation in designated research activities.

5. The Investigator will report promptly to the IRB any proposed changes in the research conducted under this Agreement. The investigator will not initiate changes in the research without prior IRB review and approval, except where necessary to eliminate apparent immediate hazards to subjects.

6. The Investigator will report immediately to the IRB any unanticipated problems involving risks to subjects or others in research covered under this Agreement.

7. The Investigator will not enroll subjects in research under this Agreement prior to its review and approval by the IRB.

8. Emergency medical care may be delivered without IRB review and approval to the extent permitted under applicable federal regulations and state law.

Printed name: Lyndie Hall
Date: 12-2-19

Signature: [Redacted] DNP, RN
# Opioid Use Disorder Education for Student Nurse Practitioners

## Background

**Opioid Use Disorder (OUD)**

Formerly “Opioid Abuse”

- **Epidemic:** 90 - 130 deaths/year & **Increasing** (United States)
- Prescription Drug Monitoring Programs (PDMPs):
  - ↓ Opioid Prescribing & ↑ Opioid Deaths

## PICO Question

Will SNPs report an increase in knowledge and confidence to diagnose and treat OUD following the completion of the Centers for Disease Control and Prevention’s (CDC’s) interactive opioid education module S: Assessing and Addressing Opioid Use Disorder?

## Methods

**INTERNAL EMAIL (NMC):**
- All prescribing SNPs = all enrolled in DNP (86 SNPs)

**Email Content:**
- Pre- & Post-Intervention Surveys (SurveyMonkey)
- Link to Intervention (CDC module)
- Link to free PDF: clinical instruments & pain, opioid, & OUD management

**2 rounds of email implementation:**
- 1st: 12 days = 4 SNPs
- 2nd: 9 days = 3 more

**SARS-CoV-2:** SNPs not in clinical during 2nd round
- Volunteers allotted 1 hour clinical credit

## Data Collection

**FOUR OUTCOMES:** measured Pre & Post-Intervention (Likert Scale)

- **Means per outcome**
- **Charts**

## Data Analysis

**EXCEL SPREADSHEET**

- Paired samples t-test
- Aggregate averages

## Results

Statistical significance (paired samples) in differences of pre-intervention scores (M = 9.1, SD = 2.9) and post-intervention scores (M = 14.9, SD = 3.1); t = 4.58, p < .001

## Implications

OUD expected to worsen due to SARS-CoV-2

**What to know:**
- Restricting prescriber autonomy is **not** proving effective in saving lives from OUD

**Expansion of MATs directly required:**
- Primary Care Setting = Ideal for OUD management
  - Less stigmatization & more follow up
  - Currently easier to attain DEA license than MAT-waivers to prescribe buprenorphine
  - *effective & preferred OUD therapy; controlled substance level III*

**Third-Party Payor Barriers:**
- Pre-authorization required for MATs
- Alternative pain therapies frequently not covered

**More education required of clinicians:**
- Pain, alternative modalities, opioid, & addiction

## Conclusions

1. Module is effective:
   - Increases SNP’s knowledge & ability to both assess for and address OUD
2. With the right education, SNPs can influence this high-fatality disorder as soon as start of clinical
3. Effective learning platforms exist for future clinicians
4. It is not unreasonable for academic programs to offer clinical education hours for this learning activity