

MITIGATING THE RISK OF OPIOID OVERDOSE AND DEATH OF THE VETERAN:
AN INTEGRATIVE REVIEW

A Scholarly Project

Submitted to the

Faculty of Liberty University

In partial fulfillment of

The requirements for the degree

Of Doctor of Nursing Practice

By

Cheryl Anne Landry

Liberty University

Lynchburg, VA

June, 2021

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Scholarly Project Chair Approval:

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Date

ABSTRACT

Pain is a complicated phenomenon; it is an individual's subjective experience and is often characterized by its duration. Chronic pain lasts longer than 90 days and can continue after the injury or illness that caused it has healed or gone away. Chronic pain was identified as a national public health problem in a 2017 study by the National Academy of Medicine. Not only is chronic pain a national problem, but there is an opioid epidemic in the United States that is perpetuated by prescription pain medications. The opioid epidemic continues to consume veterans daily, but not much is said about the providers who prescribe opioids to veterans. The uniqueness of veterans' experiences while serving on active duty predisposes them to chronic pain treatable with opioids. There are strategies to mitigate opioid overprescribing practices. The purpose of this paper is to determine if the strategies implemented by the Veterans Health Administration are effective in mitigating the risk of opioid overdose and death in veterans. This integrative review established that the OSI initiative has been effective in improving the opioid prescribing practices of providers because of the real-time data seen on the OSI dashboard causing a decrease in opioid overdose and death; however, challenges exist, as all providers are not using the PDMP, and some do not follow the steps of the OSI. With these challenges, there will continue to be opioid overdoses and overdose death of the veteran.

Keywords: opioid safety initiative, prescription drug monitoring program, non-VA provider, opioid overdose

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Dedication

First, to my Lord God and Savior who is first in my life, thank you for covering me with your Grace and Mercy throughout this journey and the next. I love you.

Second, to my husband Larry, who has been there beside me through those sleepless nights.

Thank you for trying your best to help me gain insight into this project.

Thank you for the coffee you brought to me every morning.

Thank you for your words of encouragement when I thought I wanted to quit.

Thank you for loving me, because you mean more to me than you will ever know.

I love you.

Cheryl

Acknowledgments

I want to acknowledge my God, my Jesus, my Lord, and Savior because He is the reason for my existence; without Him, there would be no me. Thank you. I would also like to thank everyone who has helped me along this journey, from my work colleagues to the leadership at the Washington, DC, VAMC. A special thank you to my project chairperson, Dr. Cindy Goodrich, for continually inspiring and motivating me from the beginning of this project to the end. Her encouragement and words of wisdom allowed me to reach my goal of completion. I want to acknowledge Charmaine Wilson and Erica Wilson, two brilliant, professional women who love being nurses; they have been there with me from the beginning and watched this project grow and come to fruition. I thank you both. Finally, I would like to thank my daughter Lariana J. Landry, Loretta Strachan, and Dr. Tayray Jasmine; words cannot express how thankful I am to you. You always held my feet to the fire and told me “Come on, Che, you can do this.” I love you all.

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List of Abbreviations

Centers for Disease Control and Prevention (CDC)

Collaborative Institutional Training Initiative (CITI)

Department of Veterans Affairs (VA)

Electronic health record (EHR)

Institutional Review Board (IRB)

Milliequivalent (MEQ)

Nonmedical use prescription opioid (NMUPO)

Office of Inspector General (OIG)

Opioid Safety Initiative (OSI)

Prescription Drug Monitoring Program (PDMP)

Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)

Veterans Health Administration (VHA)

Opioids are commonly prescribed for pain. An estimated 20% of patients presenting to physician offices with noncancer pain symptoms or pain-related diagnoses (including acute and chronic pain) receive an opioid prescription (Centers for Disease Control and Prevention [CDC], 2020; Daubresse et al., 2013). However, opioid pain medication use presents serious risks, including overdose and opioid use disorder, while having the short-term effect of treating chronic pain (Boudreau et al., 2009)

Pain management is a medical specialty and has evolved with advances in medications and therapeutic procedures. A complete and combined pain management approach requires both medical and psychological treatment (VA Office of Inspector General [OIG], 2018). Considering veterans' unique experiences, it is not surprising that so many veterans suffer from some form of chronic pain. In 2013, the Deputy Under Secretary for Health informed Congress that more than 50% of veterans who obtained care through the Department of Veterans Affairs (VA) were affected by chronic pain (VA OIG, 2017).

Throughout the 1990s and into the 21st century, the US has seen a surge of substance abuse disorders, primarily driven by prescription opioids. As a result, from 1999 to 2019, more than 500,000 people died from a drug overdose, in a twenty-year period prior to 2019 there were six times the number of opioid-involved overdose deaths (CDC, 2020). The overall harmful effects of this crisis have been diverse. For example, in 2019, in five percent of U.S. counties, enough opioid prescriptions were dispensed for every person to have one, while the overall dispensing rate of prescriptions was 46.7 prescriptions per 100 people (CDC, 2020).

The opioid epidemic has impacted veterans. Overdose and overdose deaths among veterans remain elevated compared to the civilian population (Bohnert et al., 2011). Because of the number of veterans seen at the VA and the limited number of providers, veterans are often

referred to contracted non-VA providers under the Mission Act, a purchased care program that enables veterans to access medical care in the community when necessary (VA OIG, 2017).

In partnering with contracted non-VA providers, the VA has implemented safe opioid prescribing practices to ensure that opioids are appropriately prescribed to veterans. A detailed integrated review will permit this project leader to demonstrate that the Opioid Safety Initiative (OSI) and the prescription drug monitoring program (PDMP) are dependable when appropriately used. This integrated review will show that if non-VA providers followed the OSI steps when prescribing opioids to veterans, veteran opioid overdose and death would be mitigated.

Background

Overdose deaths involving prescription opioids have quadrupled since 1999. In 2014, more than 14,000 lives were lost to opioid overdoses involving prescription opioids (CDC, 2020). With growing opioid overdose deaths, the emphasis on opioid prescribing has shifted to opioid dose reduction, increased assessment, and monitoring of patients on chronic opioid therapy (VA OIG, 2017).

Millions of Americans experience agonizing pain and are often prescribed opioids as treatment. The dangers of opioid overprescribing, opioid use disorder, and opioid overdose have been a growing problem throughout the United States (CDC, 2020). Overdose deaths involving prescription opioid medications are comparable to poisoning deaths from other drugs and accounted for 27% or 17,181 of 63,632 overall drug overdose deaths in 2016 (Moyo et al., 2017). Prescription opioid overdose remains an essential issue despite the decreased number of opioid prescriptions dispensed (Pezalla et al., 2017).

The opioid epidemic continues to consume veterans daily, but not much is said about the provider's prescribing practices that place opioids in veterans' hands. The uniqueness of veterans' experiences while serving predisposes them to chronic pain treatable with opioids. During pain

management, the medical use opioid prescription often becomes a nonmedical use prescription opioid (NMUPO). NMUPO is a national concern primarily driven by the high and rising NMUPO in the veteran population. These drugs, which non-VA providers overprescribe, have the propensity to cause respiratory depression or overdose or lead to dysrhythmias, hypertension, heart failure, stroke, or seizures. In the US, the rate of opioid-involved overdose deaths between 2000 and 2014 increased by 200% (Rudd et al., 2016). The number of overdoses caused by opioids seen in the emergency department increased by 30% between 2016 and 2017 (Vivolo-Kantor et al., 2018). Additional care and safety measures must be put in place for high-risk veterans treated by non-VA providers before they prescribe opioids.

A complete review is required to determine if the OSI and PDMP initiatives provide safe and effective opioid prescribing practices for non-VA providers. This project lead will complete a detailed integrated review to determine if non-VA providers' accurate compliance with and complete utility of the OSI and PDMP would decrease veteran opioid overdoses and death. Parts of this initiative must be addressed to ensure the rigor of the response to this question. For the past eight years, the OSI has been used to address the safety concerns of opioid prescribing practices to high-risk patients. However, there remains an epidemic of gross proportion of NMUPO for veterans.

Defining Concepts

- Care coordination: The deliberate organization of patient care activities and sharing of information among all participants concerned to achieve safe and effective care.
- Chronic pain: Any pain that lasts three to six months or more. This pain can affect an individual's physical, emotional, and mental health.
- Opioid Safety Initiative (OSI): The first of several VHA initiatives to address opioid overuse. These initiatives reduced the use of opioid medications VA and non-VA

providers, and improved the safety of opioid prescribing while expanding alternative pain therapies.

- Nonmedical use prescription opioid (NMUPO): The use of another person's opioid medication or use of the medication only for the experience it causes. NMUPO is associated with the use of heroin and psychiatric, medical, and non-opioid substance use problems.
- Pain: An unpleasant sensation caused by actual or perceived injury to body tissues producing a physical and emotional reaction.
- Pain management: A specialty of training in evaluating, diagnosing, and treating all different pain types.
- Prescription drug monitoring program (PDMP): An electronic database that tracks controlled substance prescriptions in states. PDMPs can provide health authorities timely information about prescribing and patient behaviors that contribute to the opioid epidemic and facilitate targeted response.

Rationale for Conducting the Review

The OIG has resolved that a significant risk exists for veterans who are in anguish from chronic pain and mental health illnesses and obtain opioid prescriptions from non-VA providers where opioid prescribing practices and monitoring guidelines conflict with VA guidelines (VA OIG, 2017). Furthermore, the risk is intensified when information about the veteran's opioid prescriptions is not shared between VA and non-VA providers. Identified health information sharing and care coordination between VA and non-VA providers are often nonexistent (VA OIG, 2017). Care coordination addresses the patient's needs and preferences prior to care delivery and communicated to the correct people at the right time. This information is conveyed to provide

safe, appropriate, and effective care of the patient (Agency for Healthcare Research and Quality, 2018).

Purpose of the Project

The purpose of this integrative review is to identify and examine the literature related to safety initiatives implemented by the Veterans Health Administration (VHA) that would mitigate the risk of opioid overdose and death of veterans.

Review Questions

- Does the noncompliance with the OSI by non-VA opioid prescribing providers have a causal effect on veteran opioid overdose and death?
- What is the effectiveness of the OSI and PDMP on the opioid prescribing practices of non-VA providers who treat veterans?

Because the OSI is a national initiative, this review's positive or negative outcome must be disseminated to the VHA to support analysis. This project leader will review all articles included in this integrated review for the effectiveness of the OSI and PDMP and how these initiatives mitigate opioid overdose and death. Safety is primary when it concerns veterans and mitigating the risk of an undesirable effect from prescription opioids.

Inclusion and Exclusion Criteria

According to Toronto and Remington (2020), "Because integrative reviews address broad questions, it is likely that a search will retrieve large volumes of literature. Application of the inclusion and exclusion criteria makes the amount of literature manageable" (p. 17). The project leader conducted a comprehensive search of six databases: ProQuest, PubMed, Medline, CINAHL, Psychology & Behavioral Sciences Collection, and Health Source: Nursing/Academic Edition, along with manual sources. Keywords used were *opioid prescribing practices*, *opioid prescribing*, *opioids*, *long-term opioid therapy*, *veterans*, *Veterans Affairs*, *OSI*, *PDMP*,

community care provider, non-VA provider, and Mission Act. The Liberty University librarian was also consulted to assist with the literature search.

Articles dated 2012 and later were considered because the OSI initiative was developed and implemented after 2012, and the OSI is a significant part of this review. Studies were considered if the sample population was made up of veterans and the study took place in a VA medical center within the US. Age of the veteran was not a consideration for this review. Interventions of concentration included the OSI and PDMP, which are used to enhance the VA opioid safety efforts. Outcomes of interest were those explicitly related to safe opioid prescribing practices and the OSI, including the PDMP. The number of articles excluded was 273. Studies were excluded if the topic was not related to safe opioid prescribing practices ($n = 109$). Also excluded were articles with limited quality research (101), studies that used a location outside of the US ($n = 32$), studies with a level of evidence of five or more (on Melnyk's level of evidence) and articles that were missing an abstract ($n = 31$). The project leader identified 20 articles for inclusion to address the safety measures needed when prescribing opioids to veterans. Melnyk's level of evidence was used to sort and support the article's quality and strength (Melnyk, 2016). The articles utilized included four Level I studies, four Level II studies, four Level III studies, four Level IV studies, three Level V studies, and one Level VI study.

Conceptual Framework

A framework is a structure that provides support in organizing and shaping. It is much like a house's frame that supports its roof, walls, and structures. A conceptual framework is less formal in organizing facts than a theoretical framework. A conceptual framework describes the unified and central concepts of the issue or subject (Polit & Beck, 2014). The conceptual framework of an integrative review is very complex and is developed using a standardized, systematic method to ensure the required rigor of research and therefore establish the validity of

evidence. The problem and purpose of this review are vital to this project and have clearly been defined to provide limitations for the integrative review process (Whittemore & Knafl, 2005).

SECTION TWO: COMPREHENSIVE AND SYSTEMATIC SEARCH

The literature search utilizes diverse terms, databases, various search strategies, and inclusion and exclusion criteria to determine relevant primary sources (Whittemore & Knafl, 2005). A comprehensive search was conducted using six databases: ProQuest, PubMed, Medline, CINAHL, Psychology & Behavioral Sciences Collection, and Health Source: Nursing/Academic Edition, along with manual sources. The manual sources were retrieved after the database search was exhausted. Manual searching included, but was not limited to, searching references from retrieved studies and assessing articles related to safe opioid prescribing practices. The search was then revised according to each specific database to get the most relevant results. The search terms were improved during an experimental search, and additional search terms were identified from retrieved articles. Articles were published between 2012 and 2021. The Liberty University librarian was also consulted to assist with the literature search.

Search Strategy

The project leader's search revealed 333 articles from the search databases when the words "safety practices" were added to the search. A total of 273 articles were excluded for the following reasons: topic not related ($n = 109$), limited quality of article ($n = 101$), study location was outside of a VA ($n = 32$), studies with a level of evidence of five or more, or article was missing abstract ($n = 31$). Duplicates ($n = 40$) were then removed, leaving 20 peer-reviewed journal articles for this integrative review. Keywords used were *opioid prescribing practices*, *opioid prescribing*, *opioids*, *long-term opioid therapy*, *veterans*, *Veterans Affairs*, *OSI*, *PDMP*, *community care provider*, *non-Veterans Affairs provider*, and *Mission Act*. An evidence (literature) matrix (Appendix A) and the Preferred Reporting Items for Systematic Reviews and

Meta-Analyses (PRISMA; Appendix B) were used to reveal all pertinent information regarding the safe practices of prescribing opioids to veterans. These tools assisted in validating the intervention that will mitigate unsafe practices and prevent opioid overdose and overdose death of the veteran (Guo & Jacelon, 2014; Page & Moher, 2017).

It is common in research studies to identify the inclusion and exclusion criteria for an integrative review. Inclusion and exclusion in research are a means of controlling research variables to ensure that contributing groups are as much alike as possible. The project leader excluded 313 articles and identified 20 articles for inclusion. Melnyk's hierarchy of evidence supports the article's quality and strength (Melnyk et al., 2010). Four Level I articles, four Level II articles, four Level III articles, three Level IV articles, three Level V articles, and one Level VI article were included in this integrative review.

Terminology

Database terminology can be confusing, mainly because words have different meanings in different professions. For this integrative review, the words *platform*, *database*, and *software* will be used as described below:

- A *platform* is an integrated technology solution that allows data located in database(s) to be governed, accessed, and delivered to users, data applications, or other technologies for strategic business purposes (Homewood, 2000).
- A *database* is a collection of independent works, data or other materials, arranged in a systematic or methodical way and individually accessible by electronic means (Derclaye, 2002)
- *Software* are the programs and other operating information used by a computer (Gagliardi, 1980).

SECTION THREE: MANAGING COLLECTED DATA

Primary research on the project subject was complex because of the large number of concepts related to prescription opioids studied over the years across multiple health care disciplines. The project leader was the only individual collecting the literature and following the steps of the data collection process. Before beginning the research project, the researcher completed the Collaborative Institutional Training Initiative (CITI), and the project was approved by Liberty University's Institutional Review Board (IRB).

After a comprehensive literature search was conducted and results were refined using the inclusion and exclusion criteria, the remaining articles were imported into Zotero. Zotero is a free and open-source reference management software that manages bibliographic data and related research materials. This software includes adding web browser information, online syncing, and creating in-text citations, footnotes, and bibliographies ((Klemme Eliceiri, 2014). This software was chosen as the tool to sort the articles chosen and make the process more efficient.

Screening, Selecting, and Sorting Data

Before the articles were entered into Zotero, they were screened. First, the project lead assessed the titles and abstracts. This process was incorporated to remove studies not relevant to the project. The second step to data collection was to retrieve and select full-text articles; the articles should have met all the required criteria. However, at times, valuable articles may not have had all the required criteria and still was utilized. The third part of data collection is the process of sorting the articles into studies. Sometimes one report contains numerous studies that should be treated separately (Toronto & Remington, 2020). PRISMA was used to screen and select the data to be included (Page & Moher, 2017).

SECTION FOUR: QUALITY APPRAISAL

This project undertakes the initiative to identify value in the standing literature regarding opioid prescribing practices. This research focuses on what non-VA providers should or should not do to deliver safe opioid prescriptions to veterans. The OSI which contains the PDMP are two popular safety tools used to provide safe opioid prescribing practices. To determine if the OSI and PDMP are suitable ways of ensuring safe opioid prescribing practices and decreasing opioid overdose and overdose deaths is the purpose of this literature review.

The project lead reviewed all of the articles related to safe practices for prescribing opioids to veterans and determined which ones met the requirements for inclusion and therefore lay the foundation for a solid answer to the integrative review question. During the literature analysis, the features of the reviewed studies were placed on a spreadsheet for analysis. The studies were analyzed by design, method, research validity, and reliability. The studies were performed using a variety of research and data collection methods. Many of the studies were retrospective (n = 7, 35%), Cohort (n=4, 20%) Qualitative (n=3, 15%) there were multiple study designs for the remaining six articles. There was no significant design correlation between the remaining studies; the quality assessment was performed to provide the author and future readers with an awareness of the quality of the included studies without excluding studies of lower quality (Singh, 2013).

Sources of Bias and Validity

With today's internet connectivity moving at tremendous speeds, it is not easy to remain at the front of research and assess the shared evidence in a particular area of research. For this reason, a literature review as a research process is more relevant than ever. Traditional literature reviews often lack thoroughness and rigor and are conducted ad hoc rather than according to a specific methodology. Therefore, questions can be raised about the quality and trustworthiness of these types of reviews, as they are often biased sources (Snyder, 2019). The trustworthiness of the

articles can be assessed by looking at four components: (a) transferability, or the ability to transfer conceptual findings to other settings; (b) credibility, which means that the research account is believable and appropriate; (c) dependability, the use of methods and decisions that are logically traceable and documented; and (d) confirmability, which is the extent to which findings are grounded in the data (Toronto & Remington, 2020).

A tool that was used to ensure the rigor of the findings and adequate reporting is the PRISMA flow diagram (Page & Moher, 2017). The flow diagram served to reduce the bias that could exist from a focus that is too narrow during the literature search. During this integrative review, there was no risk of bias noted within the themes or strategies of the selected studies. No risk of bias was relevant to the safe prescribing practices of opioids to veterans.

Internal Validity

The project leader's search revealed 733 journal articles from the search databases. When the words "safety practices" were added, the search revealed 333 journal articles; these articles were further reviewed. Two hundred ten articles were excluded due to lack of relevance to the project topic, differentiating weaknesses, limited quality of research, and limitations. Forty full-text articles were excluded because of duplication, population, and cause of pain. Thirty-two articles were excluded because the study location was outside of a VA Medical Center or contracted facility. Thirty-one articles were excluded because the level of evidence was five or greater, and the articles were missing either an abstract, design, or method.

Critical Appraisal Tools

Tools used to appraise studies for this integrative review include the literature matrix, Zotero, PRISMA diagram, and Melnyk's levels of evidence. All of the tools discussed have been previously established.

- Evidence or literature matrix: Writings from one author cannot answer a research question. However, the writings of many authors who are experts in the field and are addressing the same issue can be compared. The matrix method is a structured, systematic process for reviewing literature and bringing order out of the chaos of too much information spread across too many sources (Goldman & Schmalz, 2004; Mathews, 2004).
- Melnyk's levels of evidence: The tool used to evaluate the research articles' quality and strength was Melnyk's levels of evidence (Melnyk et al., 2010). A standard notation for the relative weight of different primary studies used when making decisions about clinical interventions also considers the "hierarchy of evidence," which comprises the following levels. Level I articles provide evidence from a systematic review or meta-analysis of all relevant randomized controlled trials or evidence-based clinical practice guidelines based on systematic reviews of randomized controlled trials. Level II study's comprise evidence obtained from at least one well-designed randomized controlled trial. Level III articles provide evidence obtained from well-designed controlled trials without randomization. Level IV articles include evidence from well-designed case-control or cohort studies. Level V articles provide evidence from systematic reviews of descriptive and qualitative studies. Level VI articles contain evidence from a single descriptive or qualitative study. Level VII articles present evidence from the opinion of authorities and reports of expert committees (Melnyk et al., 2010). Melnyk's levels are denoted in the literature matrix of this paper (see Appendix A).
- PRISMA: This tool is used as a reporting guideline to provide evidence-based recommendations for authors on how to report their research methods and findings clearly (Guo & Jacelon, 2014; Page & Moher 2017).

- Zotero: Zotero is well-developed, free, online software with the capability to capture, store, annotate, and cite web pages. This unique tool is of great value to anyone who retrieves information from the internet. Zotero's sorting, note-taking, and organizing capabilities are intuitive and easy to use. Zotero also has the advantage of being free, open source, and supported by an energetic community of users. Because of these features, Zotero is beneficial to users of PubMed for quick capture of bibliographic data (Klemme Eliceiri, 2014; Trinoskey et al., 2009).

Applicability of Results

This integrative review identified multiple studies on the subject of patient health outcomes. However, seven studies included evidence of inappropriate prescribing practices whereby documentation was related to self-reported outcomes such as pain control and quality of life. Among the studies that evaluated patient health outcomes, the results were mixed, and notably, tapering opioid analgesics did not always lead to improved patient outcomes. Although patient health outcomes are essential for understanding the impact of prescribing limits, they are difficult to measure.

The OSI had a major contributing impact on veteran overdose and overdose deaths; after implementing the OSI initiative, opioid overdose and overdose deaths began to decline rapidly. The OSI had an immediate effect on suicides for veterans, there was no location that was better or worse than the other, and its effect increased each year for all veterans. It is suggested that the evolution of the OSI initiative can explain decreased veteran overdoses and deaths. Over time, as the OSI gained momentum in decreasing adverse opioid prescribing, it also played a large part in making the PDMP use mandatory for all providers who prescribe opioids.

PDMPs were not meaningfully associated with decreased drug overdoses, opioid overdose deaths, or lower rates of ingesting opioid drugs. PDMP states consumed more significant amounts

of Schedule III and nonsignificant amounts of Schedule II opioids. The increases in overdose mortality rates and use of prescription opioid drugs from 1999 to 2005 were significantly lower in three PDMP states (California, New York, and Texas) that required the use of unique prescription forms. While PDMPs are potentially an important tool to prevent the NMUPO, the impact is not seen in drug overdose or overdose mortality rates.

Implementing the OSI dashboard made a vast difference in the effectiveness of the OSI as it relates to provider opioid prescribing practices. From 2012 to 2019, the charted data forms a bell curve. The number of prescriptions written by non-VA providers has drastically declined. The use benzodiazepines concurrently with opioids is associated with an increased risk of death from overdose, which has gone down significantly. The OSI Dashboard makes the totality of opioid use visible within the VHA and provides feedback to stakeholders at VA facilities regarding fundamental limitations of opioid prescribing and providers out of compliance.

The results of this integrative review signify that the OSI had a major effect on opioid overdose and death. However, there is an OSI dashboard that lists all patient names and providers contracted by the VA. Determining if the providers are compliant with the OSI can be accomplished using the veteran's electronic health record (EHR). Other review results signify that there remain barriers to the utilization of the PDMP, reducing its effectiveness in increasing the safe opioid prescribing practices of non-VA providers who treat veterans. Overall, the VHA has an OSI that, if used correctly, has the potential to identify the veteran who is at risk for opioid overdose and death.

SECTION FIVE: DATA ANALYSIS AND SYNTHESIS

During the literature analysis, the characteristics of the reviewed studies were placed on a worksheet for analysis. The studies were analyzed based on their design, method, research validity, and reliability. The studies had been conducted using a variety of research and data

collection methods. Many of the studies were retrospective (n = 7, 35%), Cohort (n=4, 20%) Qualitative (n=3, 15%) there were multiple study designs for the remaining six articles. There was no significant design correlation between the remaining studies; the quality assessment was performed to provide the authors and future readers with an awareness of the quality of the included studies without excluding studies of lower quality (Singh, 2013).

Literature (Evidence) Matrix

Whittemore and Knafl (2005) used several methods to synthesize studies, including a constant comparison method. The overall classification scheme was based upon the study purpose and initially derived after analysis of study outcomes. Data analysis procedures consisted of five concurrent activities: data reduction, data display, data comparison, conclusion drawing, and verification (Miles & Huberman, 1994; Whittemore & Knafl, 2005).

Data reduction is the process of organizing masses of data and somehow meaningfully reduced or reconfigure the data. The first step of data reduction is selecting. The selection process began after determining what the project was going to be and the review questions. Articles from the inclusion and exclusion process is as follows: The project leader's search revealed 333 articles from the search databases. Articles excluded were: (n=273) topic not related =109, Limited quality of research articles =101, study location was outside of a VA=32, Level of evidence was five or missing abstract = 31. Records after duplicates were removed (n=40), leaving 20 peer-reviewed journal articles for this integrative review. Data was then extracted and placed in a literature (data) matrix. The project leader reduced a large amount of data to that which was significant and relevant to the safe prescribing of opioids to veterans. Concise organization of the literature to appropriately compare the study ideas was achieved.

Data display is the process of displaying extracted data. Data can be displayed in the form of a matrix, chart, graph, or network. For this project, the data are displayed in a literature (data)

matrix. These displays enhance the visualization of patterns and relationships within and across primary data sources and serve as a starting point for interpretation (Whittemore & Knafl, 2005). For the sake of this study, the matrix used the following column headings: article title, background, study, purpose, design, study results/findings, and level of evidence. The literature review matrix organized the articles and allowed mastery of the literature (Garrard, 2017). The matrix method is a structured process for reviewing literature and bringing order out of the chaos of too much information spread across too many sources (Goldman & Schmalz, 2004; Mathews, 2004).

The next step in data analysis is data comparison, which involves examining data displays to identify patterns, themes, or relationships. Once patterns begin to form, a distinguishable conceptual map can be drawn (Brown, 1999). Similar variables are grouped, and a sequential order can be displayed. Relationships can also be shown between variables or themes. This data visualization and comparison process can clarify the practical and theoretical support emerging from early explanatory efforts (Brown, 1999; Miles & Huberman, 1994).

Conclusion drawing and verification is the final phase of data analysis in which the interpretive effort moves from describing patterns and relationships to describing higher levels of the idea, synthesizing the particulars into the general. Conclusion drawing is when ideas, conclusive thoughts, and deductive reasoning are integrated. The researcher determines what trends and conclusions will be explored and what data sources will be used to support them. Bias is any trend or deviation from the truth in data collection. Bias can occur either intentionally or unintentionally. Intentionally presenting bias into someone's research is immoral. However, considering the possible implications of a biased research, it is irresponsible to conduct and publish a biased research unintentionally (Smith & Nobel, 2014). The project leader took three common themes through the synthesis process and developed a strategic awareness that will

inform and improve opioid prescribing practices of non-VA providers. This awareness will be disseminated to the VHA (Whittemore & Knafl, 2005).

Thematic Analysis

Thematic analysis is a common form of analysis of qualitative data. It involves the identification, analysis, and reporting of patterns (or “themes”) within data (Braun & Clarke, 2006). This review seeks to answer the questions related to safe opioid prescribing practices of non-VA providers who care for veterans. The following themes arose during the data analysis.

Inappropriate Prescribing Practices

Inappropriate prescribing practices include the prescription of high daily doses of opioids, concurrent benzodiazepine administration, and geriatric-related indicators. Given the significant contribution of inappropriate opioid prescribing to opioid-related harms, identification of these practices is essential to update and improve opioid prescribing practices among health care providers (Kim et al., 2019)

Opioid Overdose

Opioid overdose occurs when a person has excessive unopposed stimulation of the opiate pathway. Opioid overdose can lead to decreased respiratory effort and possibly death. The frequency of opioid overdose is rapidly increasing. Drug overdose is the leading cause of accidental death in the United States, with opioids being the most common drug involved in overdose (Schiller et al., 2021).

Opioid Safety

Opioids are a class of controlled drugs naturally found in opium poppy plants. Some prescription opioids come from the plant directly, while scientists in labs make others. Opioids contain chemicals that relax the body, and doctors prescribe them to assist patients with moderate to severe pain. Opioids can be highly addictive, and overdoses or death can be expected results if

not handled appropriately. Opioid safety necessitates using all tools necessary to provide safe opioid prescribing (Moyo et al., 2017).

Synthesis

The final step of the data analysis in an integrative review is the synthesis of essential elements or conclusions into an integrated summation of the topic or phenomenon. The first element of the summation is to ensure that non-VA providers follow the criteria of the OSI, which will prevent any undue harm to the veterans when prescribed opioids. The OSI SharePoint provides data on providers who do not comply with the OSI standards and which standard was not met. Once the Chief of Staff is informed of the potential harm the non-VA provider has exposed the veteran to, the provider's contract should be revoked. Until the provider is retrained and their competency regarding the OSI has been satisfactorily proven, no further patients will be sent to this provider.

Next, the OSI and PDMP are practical tools that should be used by providers that will mitigate the risk of opioid overdose and death of the veteran if and only if the providers put them to use. There is evidence that either the provider does not have the capacity electronically to obtain the veteran's PDMP, or they feel it is time consuming. There is positive evidence that the OSI that includes the PDMP has decreased opioid overdose and deaths since its inception in 2013.

Ethical Considerations

The project was submitted to and approved by Liberty University's IRB. A copy of the IRB approval letter is provided in Appendix D. A copy of this DNP student's CITI Certificate is provided in Appendix C.

SECTION SIX: DISCUSSION

The purpose of this integrative review is to identify and evaluate the literature related to safety initiatives implemented by the VHA that would mitigate the risk of opioid overdose and

death of veterans. Opioids are commonly prescribed for pain. An estimated 20% of patients presenting to physicians' offices with noncancer pain symptoms or pain-related diagnoses (including acute and chronic pain) receive an opioid prescription (CDC, 2020; Daubresse et al., 2013). However, opioid pain medication use presents serious risks, including overdose and opioid use disorder, while having the short-term effect of treating chronic pain (Boudreau et al., 2009).

Overdose deaths involving prescription opioids have quadrupled since 1999. In 2014, more than 14,000 lives were lost to opioid overdoses involving prescription opioids (CDC, 2020). With growing opioid overdose deaths, the emphasis on opioid prescribing has shifted to opioid dose reduction, increased assessment, and monitoring of patients on chronic opioid therapy (VA OIG, 2017).

The opioid epidemic continues to consume veterans daily, but not much is said about providers' prescribing practices that place opioids in veterans' hands. The uniqueness of veterans' experiences while serving predisposes them to chronic pain treatable with opioids. During pain management, the medical use opioid prescription often becomes an NMUPO. NMUPOs are a national concern primarily driven by the high and rising NMUPO in the veteran population. These drugs, which non-VA providers overprescribe, have the propensity to cause respiratory depression or overdose or lead to dysrhythmias, hypertension, heart failure, stroke, or seizures. In the US, the rate of opioid-involved overdose deaths between 2000 and 2014 increased by 200% (Rudd et al., 2016). The number of overdoses caused by opioids seen in the emergency department increased by 30% between 2016 and 2017 (Vivolo-Kantor et al., 2018). Additional care and safety measures must be implemented for high-risk veterans treated by non-VA providers before opioids are prescribed.

Review Questions:

1. Does the noncompliance with the OSI by non-VA opioid prescribing providers contribute to veteran opioid overdose and death? 2. What is the effectiveness of the OSI and PDMP on the opioid prescribing practices of non-VA providers who treat veterans?

Response to Review Questions: 1. The OSI reduces the risks associated with long-term opioid therapy, including opioid use disorder, overdose, and death, when providers are compliant with its' use. When providers are non-compliant with the use of the OSI, this overshadows the primary purpose of the OSI, which is to mitigate and contribute to opioid overdose and overdose death.

2. As previously stated, the OSI effectively reduces opioid overdose and deaths because it diminishes unsafe prescribing practices of non-VA providers. PDMP proves to be an effective tool to recognize when patients have been prescribed an opioid from more than one provider. However, due to infrastructure barriers, non-VA providers do not use or do not have the PDMP available. The result is Veterans with polypharmacy and or a high dosage of opioids. Moreover, at-risk patients potentially will overdose or die from an opioid overdose. The OSI is a VHA directive, and guidelines will be revisited to monitor gaps that must be sufficiently addressed to warrant an update of the guideline and study recommendations for future updates when necessary.

Interpretation of Findings***Inappropriate Prescribing Practices***

While prescription opioids can be effective for treating acute pain, inappropriate prescribing practices can increase the risk of opioid-related problems, including overdose and death (Kim et al., 2019). During fiscal year 2016, 13,928 patients were prescribed opioid medications by choice or (community) providers or both choice and VA providers, and the prescriptions were filled in VA pharmacies. Of these patients, 5,590 were prescribed opioid medications only by choice providers. Since all prescriptions filled at VA pharmacies appear in

the patient's medical record, any provider within VA medical system would be able to view the patient's current medication to include opioid history, avoiding any repeat ordering of opioids. While 13,928 may appear to be an insignificant number compared with the overall number of veterans prescribed opioids within the VHA system (877,253), it is essential to note that the actual number of opioid prescriptions dispensed to these 13,928 patients totaled 85,729 (VA OIG, 2017).

Within the population of patients treated through the VHA, increased rates of opioid prescribing have been related to an increased rate of death from overdose; on an individual level, the peril of death from overdose is higher among those receiving higher doses of opioids. Rose et al. (2018) conducted a study based on the premise that the use of prescription benzodiazepines may be associated with an increased risk of death from overdose in patients who use opioids. Similarly, Park et al. (2015) led a case-cohort study using information extracted from medical records at the VA for 2004–2009. Co-use of benzodiazepines was defined as the use of benzodiazepines while taking other prescription opioids by a patient throughout the study, which was considered inappropriate prescribing practice.

The U.S. Military Health System provides medical care to approximately 9.4 million recipients annually (Dietrich et al., 2018). These patients also routinely suffer from acute low back pain. Within this health system, patients can receive care and treatment from physicians or physician extenders, including physician assistants and nurse practitioners. Due to the veterans' unique training and practices, such as intense simulations and combat readiness procedures, physical and psychological pain were the primary contributor to the opioid crisis within Veteran population (Dietrich et al., 2018). A study conducted by Dietrich et al, (2018), discovered differences in the prescribing patterns among provider types. The study discovered that contracted and civilian providers had higher odds of prescribing opioids than active-duty providers. Given the significant contribution of inappropriate opioid prescribing to opioid-related harm, identifying

these practices are essential to inform and improve opioid prescribing practices among health care providers. Similarly, Declan et al. (2018) found relatively high rates of NMUPOs among veterans prescribed opioids in the previous year (37%) and NMUPO occurrence over this study period among those reporting no prior history of NMUPO (15%). The study results suggest that providers who prescribe opioids should be aware of this risk when inappropriately prescribing long-term opioids and assess for NMUPO even among those without evidence of abnormal behavior.

Opioid Overdose

Prescription opioid medications are the most implicated substances in unintentional overdoses. Lin et al. (2015) conducted a study that examined all adult patients nationally in the VHA who died from unintentional prescription opioid overdose in fiscal years 2004–2007 and used VHA services anytime within two years of their deaths ($N = 1,813$). For those whose last treatment contact was in an outpatient setting ($n = 1,457$), findings from the study show that primary care and mental health outpatient clinics provide an opportunity to identify and intercede with patients at elevated risk for unintentional prescription opioid overdose (Lin et al., 2015). Data related to veterans who overdose on opioid and those who die from opioid overdose can be found in the VHA National Patient Care Database, and the National Death Index. The National Death Index coded the non-synthetic and semisynthetic opioids that caused overdose, such as codeine, morphine, oxycodone, hydrocodone, oxymorphone, hydromorphone, and synthetic opioids such as methadone (Lin et al., 2015). Im et al. (2015) substantiated that patients receiving opioid therapy are at higher risk of attempting suicide; however, conclusive research to guide clinical practice for risk mitigation is missing. Unmanaged severe, chronic, and intermittent pain conditions increase the risk of suicide attempts, a finding that may encourage providers to take aggressive interventions to decrease pain in the at-risk population. Similarly, Boyle et al. (2018)

states that “VA emergency department visits related to opioid use nearly tripled from 2004 to 2011. Patients with mental illness are more likely to be prescribed opioids and have higher rates of overdose (p.276). Despite experiencing a non-fatal overdose, veterans continued to be prescribed opioids without significant changes in the drug or dosage, some experienced repeated overdose events, possibly due to poor communication and documentation of the non-fatal overdose (Boyle, 2018).

The 65-year-old and above population has been significantly affected by the opioid crisis, experiencing high rates of opioid prescribing, opioid-related overdose deaths, and opioid use disorder (Jayawardhana et al., 2019). Many veterans suffer from comorbid physical and mental illnesses (e.g., posttraumatic stress disorder, open and closed head trauma); these unique experiences in combat, coupled with simultaneous use of prescription opioids and central nervous system depressants, are relatively common. Twenty-seven percent of veterans prescribed opioids were jointly prescribed benzodiazepines, causing a central nervous system suppression (Park et al., 2015). When veterans use opioids and benzodiazepines together, there is an increased likelihood of the veteran being seen in the emergency room and admitted for opioid overdose (Sun et al., 2017). Dwyer et al. (2015) made similar findings; in their study, veterans receiving opioid analgesic and benzodiazepine prescriptions had an increased risk of death from a drug overdose in an excessive level of exposure. The participants represented a high-risk population; between their emergency room visit and study interview, more than one fifth of the veterans reported the combined use of these medications, implicated in nearly half of all veteran opioid overdose deaths (Park et al., 2015).

Opioid Safety

The VHA designed the OSI to decrease opioid prescribing practices related to adverse outcomes across VHA facilities nationwide (Lin et al., 2017). There was a decreasing trend in

high-dose opioid prescribing with 55,722 patients receiving daily opioid dosages > 100 milliequivalent (MEQ) in October 2012, and in September 2014, there was a continued reduction in these numbers high-dose opioid prescribing. The OSI was also associated with an additional decrease, compared to pre-OSI trends, of 331 patients per month receiving opioids > 100 MEQ, a decrease of 164 patients per month receiving opioids > 200 MEQ, and a decrease of 781 patients per month receiving concurrent benzodiazepines.

Comparison of Literature

The significant areas of focus to explain the reduction in numbers include the creation and use of the OSI Dashboard, which aggregates EHR data to audit immediate opioid-related prescribing and identify a clinical champion at every medical center to implement and enforce the tool's use to promote safer prescribing (Lin et al., 2017). The OSI aims to reduce overprescribing of opioid analgesics for pain management and promote the safe and effective use of opioid treatment when clinically indicated. Comprehensive OSI strategies include education of providers and expanded access to non-pharmacological treatment options, particularly behavioral and complementary integrative health modalities. The OSI Dashboard makes the totality of opioid use visible within VHA and provides feedback to stakeholders at VA facilities regarding key parameters of opioid prescribing, as previously discussed (Lin et al., 2017).

Similarly, opioid prescribing trends followed a downward trend in the VHA and non-VHA settings that saw veterans, peaking around 2012 and declining since. However, changes in long-term opioid prescribing practices were responsible for most of the decline in the VHA. Recent VA opioid initiatives may be preventing patients from initiating long-term use (Hadlandsmyth et al., 2018).

The PDMP is another tool to aid in implementing safe practices at the VA. Hospitals located in areas with high rates of opioid prescribing are less likely to have PDMPs integrated

into the EHR, limiting the impact of PDMPs in these vital areas of the country (Dowell et al., 2016). A CDC evaluation found that most fatal overdoses occurred when patients received opioids from multiple prescribers or received high total daily opioid dosages (Dowell et al., 2016). Similarly, the VA OIG (2017) found that VA and non-VA providers did not always access the state PDMP databases and use the information to coordinate and manage their patients' care. The use of PDMP databases is essential to the VA's ongoing efforts to combat veteran opioid abuse, overmedication, and death; the OIG conducted their audit to determine whether VA clinicians effectively used state operated PDMPs. Database information is used to manage and coordinate the care of patients prescribed opioids but findings revealed that the PDMP was not always used (VA OIG, 2017).

Implication for Practice

First, the improvement of opioid safety for high-risk veterans should include a VHA Opioid Therapy Risk Report. This report can determine whether a provider has prescribed opioids to a veteran who is receiving long-term opioid therapy. The OTRR is available to providers through the veteran's EHR. This tool provides information on any opioid and concurrent benzodiazepine prescriptions a veteran is receiving, the veteran's current and prior health conditions, recent and upcoming appointments, and whether any opioid risk mitigation strategies have been employed, such as urine drug screening or PDMP query.

Second, further research is needed on the PDMP regarding why some providers chose not to use this tool. The PDMP can be used when the patient's medication history is not otherwise available, such as with a new patient or a visiting patient from another provider. In the case of missing medication history, regardless of the PDMP results, the provider is must contact the patient's primary care provider to obtain more detailed patient information. The PDMP allows the provider and pharmacist to become aware of other prescribers involved in the patient's care and

become informed about the patient's information and history. The results from a PDMP search should then be used to clarify to the prescriber and pharmacist which opioids and other Scheduled II-V medications have been dispensed to the patient. The list of medications should be confirmed with the patient. The importance of providers' use of the PDMP cannot be stressed enough to prevent a patient from obtaining prescription opioids from multiple providers, potentially leading to overdose or death.

Third, the VHA recognizes the clinical challenges to successfully managing pain and prescribing safely for veterans while implementing the OSI Directive. The National Pain Management Program Office convened a national task force comprised of multidisciplinary pain experts to create the OSI Toolkit (evidence-based to the extent possible) to guide the field. The resulting Toolkit contains documents and presentations that aid clinical decisions about starting, continuing, or tapering opioid therapy and other challenges related to safe opioid prescribing. Providers who comply with the OSI will have positive outcomes; those who do not competently use the OSI run the risk of harming the patients by facilitating overdosing or not recognizing the individuals at risk for opioid overdose deaths. Therefore, the OSI, including the PDMP, must be thoroughly implemented by all providers treating veterans.

Dissemination Plan

Participating in research introduces the prospect of improving individuals' health in daily practice and affecting on patients' lives across the country and globally when the research is translated into clinical practice. However, practice change cannot occur if researchers, clinicians, and providers are unaware of the research that has been performed. It should be highlighted that researchers have a moral duty to disseminate their research findings (Edwards, 2015). Nurses who provide direct care to patients fall short of engaging in research mainly because there is no institutional support to facilitate and encourage nurse research participation or formalize nurses'

continuous professional development. Professional development could change nurses' attitudes toward research and contribute to improving health care, as it would increase the nurse's role as an agent for evidence-based clinical practice (Isaac et al., 2018).

Various approaches are available for disseminating research findings, but the most common are publications in quality improvement journals and presentations at professional meetings. Presentations may take the form of either oral or poster presentations. Presenting clinical practice or research at a professional meeting offers the opportunity to disseminate research findings quickly to those who have the potential to translate the evidence into practice. Conferences are often attended by leaders in the field, who are more likely to be initiators of translating research into practice. The poster format offers the additional advantage of simplifying the personal interaction between researcher and practitioner. Researchers can explain their project in detail and receive feedback that may be helpful for additional studies (Edwards, 2015).

Conclusion

Barriers to the implementation and enforcement of the PDMP identified in the literature included which prescribers (Physicians or NPs), which patients and prescriptions they prescribed. For instance, exemptions in Massachusetts's opioid prescribing cap law excludes patients with chronic noncancer pain and other debilitating conditions from the seven-day prescription limit. This confused prescribers, impeding their ability to quickly determine whether prescribing an opioid for a given patient was legal. Insufficient information technology infrastructure, particularly about the utilization of the PDMP, was another barrier described in the study by (Stone et al., 2020); PDMP data were also essential for prescription auditing, described as an enforcement strategy. Lack of integration of the PDMP with EHRs or delegate access capabilities was flagged as a barrier to implementation, mainly due to its disruption to clinicians' workflow (Stone et al., 2020).

Over the last several years, Congress has implemented purchased care programs to enable veterans to access medical care in a health care facility near their home when feasible. The Mission Act addresses VA care and non-VA health care issues, veterans' homes, access to walk-in VA care, prescription drug procedures, and much more. This VA improvement affects a wide range of areas, and the official name of this law says a lot about its focus. Informally known as the VA Mission Act, the legislation's formal name is the VA Maintaining Systems and Strengthening Integrated Outside Networks Act. The VA has worked in partnership with medical professionals and support staff in the community who are not VA employees and do not work in VA facilities to provide timely, accessible, high-quality care. What has commonly been referred to as "community care" is now referred to as "non-VA care," "fee basis care," or "purchased care." Congress has authorized the VA to use various community care programs to provide care to veterans when a VA facility cannot provide clinical services (U.S. Department of Veterans Affairs, 2017).

All VA providers must review and reconcile, with their patients, the list of medications in the patient's current EHR with the medications the patient is taking. The OIG found that 41%, or 58 of 141 VA medical facilities reported that out-of-state licensed providers had no access to PDMPs. Of the 58 facilities that employed staff who were unable to access PDMPs, 71% (41 of 58) reported having alternative processes allowing a review of PDMP data, such as having a licensed state pharmacist or other appropriate provider review the PDMP and document the findings in the EHR. Reconciling medications does not require the provider to use PDMP; however, it is a safety initiative that tells how many prescriptions of opioids the veteran has received (VA OIG, 2018).

The OSI initiative was designed to mitigate unsafe and ineffective opioid prescribing practices of non-VA providers who treat veterans. This integrative review established that the OSI

initiative has been effective in improving the opioid prescribing practices of providers because of the real-time data seen on the OSI dashboard. However, there are still challenges, as all providers are not using the PDMP, and some do not follow the steps of the OSI.

Steps of the risk-mitigating strategies of the OSI upon initiation of acute and long-term opioid therapy include beginning with an informed consent conversation covering the risks and benefits of opioid therapy and alternative therapies. The safety strategies and their frequency should be equal with risk factors and include:

- Ongoing, random urine drug testing (including positive or negative results)
- Checking state PDMPs
- Monitoring for overdose potential and suicidality
- Providing overdose education
- Prescribing naloxone rescue and accompanying education (U.S. Department of Veterans Affairs, 2017)

State PDMP database inquiries for the discovery of multi-sourcing of controlled substances are used throughout the country. Data comparing states with implemented state PDMPs to states without one showed 1.55 fewer deaths per 100,000 people in states with an implemented PDMP. The CDC currently recommends at least quarterly checks of the state database system (Dowell et al., 2016).

Not only is the OSI intended to mitigate the unsafe opioid prescribing practices, but in the process, the OSI toolkit improves communication between clinicians and patients. With communication the risks and benefits of opioid therapy for acute and chronic pain, improve the safety and effectiveness of pain treatment, and reduce the risks associated with long-term opioid therapy, including opioid use disorder, overdose, and death should be discussed. The VHA is

dedicated to assessing guidelines to identify the effects on clinicians and patient outcomes intended and unintended. The VHA will revisit the OSI guidelines to monitor gaps that must be sufficiently addressed to warrant an update of the guideline and study recommendations for future updates when necessary.

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- Vivolo-Kantor A. M., Seth, P., Gladden, R. M., Mattson, C. L., Baldwin, G. T., & Kite-Powell, A. (2018). Vital signs: Trends in emergency department visits for suspected opioid overdoses—United States, July 2016–September 2017. *Morbidity Mortality Weekly Report*, 67(9), 279–285.
- Whittemore, R. & Knafl, K. (2005). Methodological issues in nursing research: The integrative review—updated methodology. *Journal of Advanced Nursing*, 52(5), 546–553.

Appendix A

Evidence Table

Article	Background	Study Purpose	Design	Results	Level of Evidence	Source	Database or library source
Beaudoin, F. L., Banerjee, G. N., & Mello, M. J. (2016). State-level and system-level opioid prescribing policies: The impact on provider practices and overdose deaths, a systematic review. <i>Journal of Opioid Management</i> , 12(2), 109–118. https://doi.org/10.5055/jom.2016.0322	In response to persistent public health concerns regarding prescription opioids, many states and healthcare systems have implemented legislation and policies intended to regulate or guide opioid prescribing. The overall impact of these policies is still uncertain	This systematic review examined the existing evidence of provider-level and patient-level outcomes reimplementation and postimplementation of policies and legislation constructed to impact provider prescribing practices around opioid analgesics.	Systematic review	These policies may impact the number of overdoses, but there is no clear evidence to suggest that it reduces opioid misuse.	Level II	Primary	PubMed

Article	Background	Study Purpose	Design	Results	Level of Evidence	Source	Database or library source
Boyle, J., Clement, C., Atherton, A., Stock, C. (2017). A retrospective chart review of opioid re-prescribing following a non-fatal overdose at a Veterans Affairs hospital. <i>Mental Health Clinic</i> , 7(6), 276–281. https://doi.org/10.9740/MHC.2017.11.276 PMID: PMC6007726.	Patients with mental illness are more likely to be prescribed opioids and have higher rates of overdose. This retrospective chart review sought to determine if opioid re-prescribing occurred after patients were treated for a non-fatal opioid overdose (NFO) at a Veterans Affairs hospital	To determine if opioid re-prescribing occurred after the patients were treated for a non-fatal opioid overdose (NFO) at a Veterans Affairs hospital.	Retrospective review	Fifty-six veterans met the inclusion criteria. A new opioid prescription was issued to 82% of Patients within three months following the index NFO date. The average daily morphine equivalent dose prescribed before (122 mg) and after (120 mg) NFO did not differ. A subsequent opioid overdose event occurred in 25% of patients, and there was one fatal event. Only one patient had medication overdose on the problem list of their EMR.	Level III	Primary	PubMed
Carlson, K. F., Gilbert, T. A., Morasco, B. J., Wright, D., Otterloo, J. V., Herrndorf, A., & Cook, L. J. (2018). Linkage of VA and state prescription drug monitoring program data to examine concurrent opioid and sedative-hypnotic prescriptions among veterans. <i>Health</i>	The State prescription Monitoring Program is an excellent way for providers to prevent Veterans from receiving multiple opioid prescriptions. However, having this tool is not	To examine the proportion of the Veteran population who receive VA and non-VA prescriptions for opioids and sedative-hypnotic medications among post-9/11	Multivariate trend analysis	Of the 19,959 post - 9/11 Veterans, Results revealed that 5,882 Veterans who filled opioid or sedative-hypnotic prescriptions at VA pharmacies, 1,036 (17.6 percent), filled concurrent prescriptions non-VA pharmacies. 4.6 percent of Veterans received	Level I	Primary	PubMed

Article	Background	Study Purpose	Design	Results	Level of Evidence	Source	Database or library source
<p><i>Services Research</i>, 53(Suppl. 3), 5285–5308. https://doi.org/10.1111/1475-6773.13025</p>	<p>being used as it should be by providers or providers who do not have the technology to access the program.</p>	<p>veterans in Oregon at the same time.</p>		<p>concurrent VA and non-VA opioids, benzodiazepines. There was a lack of generalization of trends observed in Oregon to other states. Oregon had among the highest rates of nonmedical use of prescription analgesics in the country</p>			
<p>Chui, P. W., Bastian, L. A., DeRycke, E., Brandt, C. A., Becker, W. C., & Goulet, J. L. (2018). Dual use of the Department of Veterans Affairs and Medicare benefits on high-risk opioid prescriptions in veterans aged 65 years and older: Insights from the VA musculoskeletal disorders cohort. <i>Health Services Research</i>, 53, 5402–5418. https://doi.org/10.1111/1475-6773.13060</p>	<p>Among Veterans aged 65 years or older, dual use of both VHA and Medicare was associated with higher odds of long-term opioid therapy. Our findings suggest there may be a benefit to combining VHA and non-VHA electronic health record data to minimize exposure to high-risk opioid prescribing</p>	<p>To examine the association of Veterans Health Administration (VHA) and Medicare benefits with high-risk opioid prescriptions among Veterans aged 65 years and older with a musculoskeletal disorder diagnosis (MSD)</p>	<p>Retrospective review</p>	<p>The study revealed that when patients use both the VA and Medicare benefits, they are more likely to be prescribed opioid therapy. Only Veterans who used the VA were included in this study. The study data are based on VA and Medicare data subject to clerical and coding errors.</p>	<p>Level III</p>	<p>Primary</p>	<p>PubMed</p>

Article	Background	Study Purpose	Design	Results	Level of Evidence	Source	Database or library source
Declan, B. W., Gordone, A., Crystal, S., Kernsad, R. D., Gaithera, J. R., Gordon, K. S., Justice, A. C., Fiellin, D. A., & Edelman, J. E. (2018). Duration of opioid prescriptions incident nonmedical use of prescription opioids. <i>Drug and Alcohol Dependence, 191</i> (1), 348–354.	Nonmedical use of prescription opioids has limited studies related to the Veteran clinical population. Providers need to monitor their patients on Long-term opioids as this is a risk factor for overdose and death.	In this narrative review of overdose prevention and the role of prescribers and pharmacists in distributing naloxone we address these priority areas and present a clinical scenario within the review	Prospective cohort study	Prescribing naloxone rescue kits should be a collaborative effort between prescribers and pharmacists. Both must recognize and mitigate overdose risk.	Level IV	Primary	PubMed
Dietrich, E. J., Leroux, T., Santiago, C. F., Helgeson, M. D., Richard, P., & Koehlmoos, T. P. (2018). Assessing practice pattern differences in the treatment of acute low back pain in the united states military health system. <i>BMC Health Services Research, 18</i> (1), Article 720. https://doi.org/10.1186/s12913-018-3525-8	Acute low back pain is one of the most common reasons individuals seek medical care in the United States Military Health System. It provides medical care to approximately 9.4 million beneficiaries annually.	Evaluate variation in care delivery, adherence to clinical guidelines, and differences within the Military Health System among a complex mix of provider types.	Retrospective, cross-sectional quantitative analysis	Like NPs, there was a significant decrease, by a factor of .58 for ordering CTs and a marginal decrease for prescribing opiates and ordering MRIs. The absence of more detailed provider characteristics includes years of experience, academic institution, medical residency training, and additional education or certifications. This information would	Level I	Primary	PubMed

Article	Background	Study Purpose	Design	Results	Level of Evidence	Source	Database or library source
				support the human capital hypothesis.			
Driscoll, M. A., Knobf, M. T., Higgins, D. M., Heapy, A., Lee, A., & Haskell, S. (2018). Patient experiences navigating chronic pain management in an integrated health care system: A qualitative investigation of women and men. <i>Pain Medicine</i> , 19(Suppl. 1), S19–S29. https://doi.org/10.1093/pm/pny139	Rates of pain among veterans are as high as 60%; rates approach 80% in women seeking Department of Veterans Affairs (VA) care. Prior studies examined experiences managing pain in community samples, with gender disparities observed, as the country's most extensive national integrated health care system.	A purposive sample of chronic pain patients was recruited to qualitatively describe perceptions of managing pain in an integrated health care system (VA) and to explore gender differences	Comparative approach with sequential analysis	The focus groups of men revealed the theme that reflected pain as a constant struggle, To medicate or not to medicate is reflected by women 1. The data is old; the policy changes may have occurred that address many of the concerns. 2. There may be variation in the various pain treatment and pain management approaches	Level V	Primary	PubMed
Dwyer, K., Walley, A. Y., Langlois, B. K., Mitchell, P. M., Nelson, K. P., Cromwell, J., & Bernstein, E. (2015). Opioid education and nasal naloxone rescue kits in the emergency department. <i>The Western Journal of Emergency Medicine</i> , 16(3), 381–384.	Program participants were surveyed by telephone after their ED visit about their substance use, overdose risk knowledge, history of witnessed and personal overdoses, and actions in a witnessed	To determine the feasibility of an ED-based overdose prevention program that included nasal naloxone kits.	Cohort study	There were no statistically significant differences between OEN and OE-only groups in opioid use, overdose, or response to a witnessed overdose.	Level II	Primary	PubMed

Article	Background	Study Purpose	Design	Results	Level of Evidence	Source	Database or library source
https://doi.org/10.5811/westjem.2015.2.24909	overdose, including naloxone.						
Gibson, C., Grasso, J., Li, Y., Purcell, N., Tighe, J., Zamora, K., Nicosia, F., Seal, K. (2020). An integrated pain team model: Impact on pain-related outcomes and opioid misuse in patients with chronic pain. <i>Pain Medicine</i> , 21(9), 1977–1984. https://doi.org/10.1093/pm/pnaa003	Integrated pain team (IPT) care models are being implemented in Veterans Health Administration (VA) and other health care systems to address chronic pain and reduce risks related to long-term opioid therapy, with little evaluation of effectiveness to date.	To determine if IPT improves self-reported pain-related outcomes and opioid misuse.	Single-group quality improvement study	After an average (SD) of 14.3 (9) weeks engaged in IPT, patients reported improvement in pain interference (mean [SD] = 46.0 [15.9] vs 40.5 [16.2], $P < 0.001$), pain catastrophizing (mean [SD] = 22.9 [13.0] vs 19.3 [14.1], $P = 0.01$), treatment satisfaction (i.e., “very satisfied” = 13.1% at baseline vs 25.3% at follow-up, $P = 0.01$), and reduced opioid misuse (mean [SD] = 11.0 [7.5] vs 8.2 [6.1], $P = 0.01$).	Level IV	Primary	PubMed
Hadlandsmayth, K., Mosher, H., M., Vander Weg, M. W., & Lund, B. C. (2018). Decline in prescription opioids attributable to decreases in long-term use: A retrospective study in the Veterans Health Administration 2010–2016. <i>Journal of General</i>	Improved understanding of temporal trends in short- and long-term opioid prescribing may inform efforts to curb the opioid epidemic.	To characterize the prevalence of short- and long-term opioid prescribing in the Veterans Health Administration (VHA) from 2010 to 2016.	Observational cohort study using VHA databases	The prevalence of opioid prescribing was 20.8% in 2010, peaked at 21.2% in 2012, and declined annually to 16.1% in 2016. Between 2010 and 2016, reductions in long-term opioid prescribing accounted for 83% of the overall	Level III	Primary	PubMed

Article	Background	Study Purpose	Design	Results	Level of Evidence	Source	Database or library source
<i>Internal Medicine</i> , 33, 818–824. https://doi.org/10.1007/s11606-017-4283-8				decline in opioid prescription fills.			
Im, J. J., Shachter, R. D., Oliva, E. M., Henderson, P. T., Paik, M. C., & Trafton, J. A. (2015). Association of care practices with suicide attempts in US veterans prescribed opioid medications for chronic pain management. <i>Journal of General Internal Medicine</i> , 30(7), 979–991. https://doi.org/10.1007/s11606-015-3220-y	Patients receiving opioid therapy are at elevated risk of attempting suicide. Guidelines recommend practices to mitigate risk, but it is not known whether these are effective.	To examine associations between the receipt of recommended care for opioid therapy and the risk of a suicide attempt.	Retrospective analysis	Veterans outside the hospital with mood disorders had a more serious attempt at it. Inpatient Veterans on opioids had a decreased risk of Suicide 1. This study relies on the administrative coding of diagnoses and adverse events in the electronic medical record. 2. VA may not be notified of all suicide attempts or deaths.	Level III	Primary	PubMed
Kim, B., Nolan, S., Beaulieu, T., Shalansky, S., & Ti, L. (2019). Inappropriate opioid prescribing practices: A narrative review. <i>AJHP: Official Journal of the American Society of Health-System Pharmacists</i> , 76(16), 1231–1237. https://doi.org/10.1093/ajhp/zxz092	While prescription opioids can effectively treat acute pain, inappropriate prescribing practices can increase the risk of opioid-related harms, including overdose and mortality. To date, little research has	Results of a literature review to identify indicators of inappropriate opioid prescribing are presented.	Literature review	A literature review identified various indicators of inappropriate opioid prescribing, including prescribing high daily doses of opioids, concurrent benzodiazepine administration, and geriatric-related indicators.	Level V	Secondary	PubMed

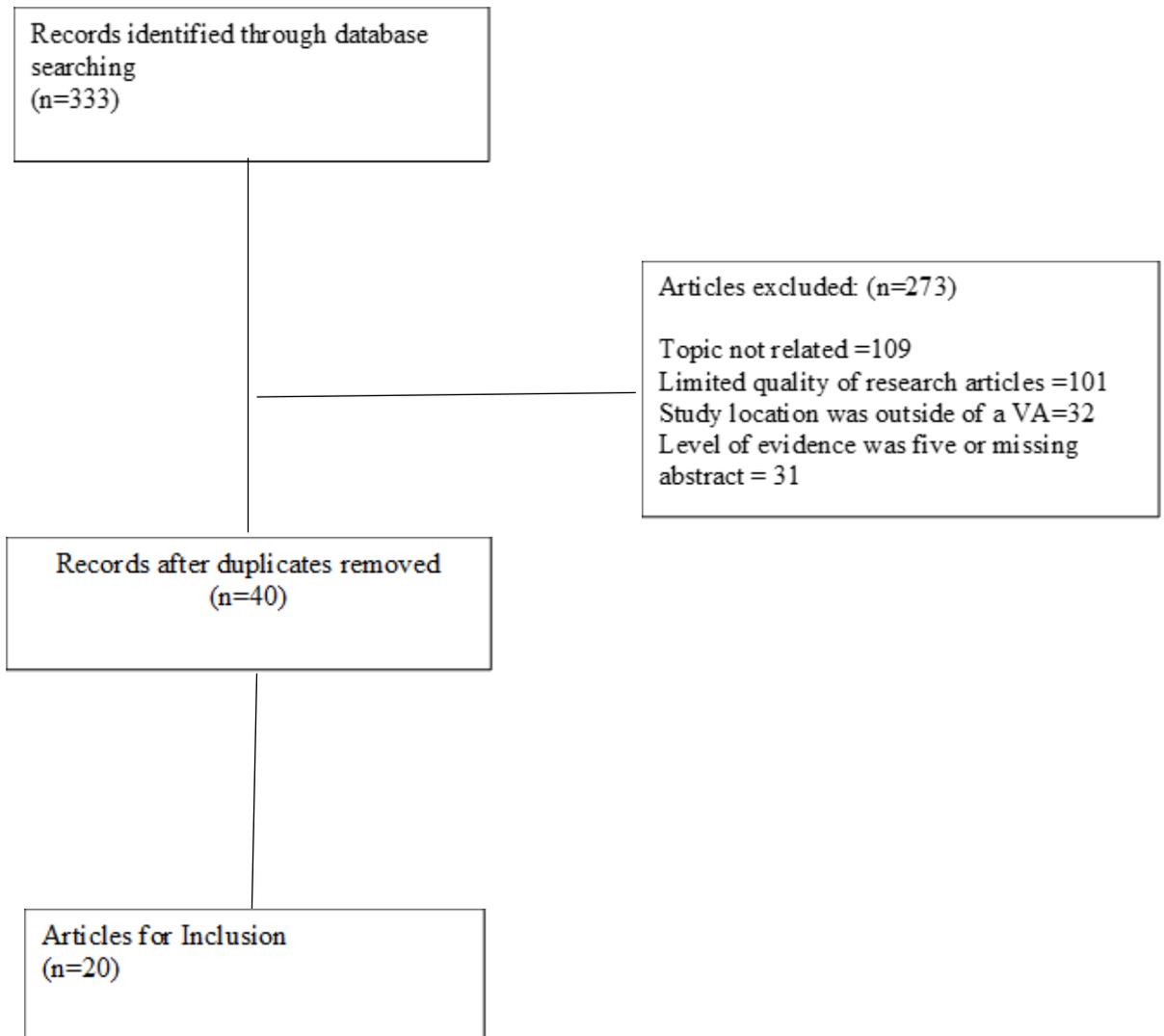
Article	Background	Study Purpose	Design	Results	Level of Evidence	Source	Database or library source
	been conducted to determine how best to define inappropriate opioid prescribing.						
Lin, L., Bohnert, A. B., Ilgen, M. A., Pfeiffer, P. N., Ganoczy, D., & Blow, F. C. (2015). Outpatient provider contact prior to unintentional opioid overdose among VHA service users. <i>Psychiatric Services</i> , 66(11), 1149–1154. https://doi.org/10.1176/appi.ps.201400194	The Veterans Health Administration (VHA) designed the Opioid Safety Initiative (OSI) to help decrease opioid prescribing practices associated with adverse outcomes.	Used an interrupted time series design to examine the impact of the Opioid Sharepoint Initiative implementation nationally on the number and percent of patients receiving high dosage opioids and concurrent benzodiazepine regimens	Retrospective review	The implementation of the Opioid Safety Initiative found that the reduction was associated with both opioids and benzos. The results may not generalize to a different health care system, though the integrated nature of the VA system and electronic medical records	Level III	Primary	PubMed
Lin, L. A., Bohnert, A. S. B., Kerns, R. D., Clay, M. A., Ganoczy, D., & Ilgen, M. A. (2017). Impact of the opioid safety initiative on opioid-related prescribing in veterans. <i>Pain</i> , 158(5), 833–839.	Prescription opioid medications are the most commonly implicated substances in unintentional overdoses. Outpatient health care encounters represent a	To examine all adult patients nationally in the Veterans Health Administration (VHA) who died from unintentional prescription opioid overdose	Retrospective cohort study	It is suggested that Veterans who die from an overdose of prescription opioids are likely to have recently engaged in treatment; consequently, there is the potential in the outpatient context for targeting interventions	Level I	Primary	Medline

Article	Background	Study Purpose	Design	Results	Level of Evidence	Source	Database or library source
<p>https://doi.org/10.1097/j.pain.0000000000000837</p>	<p>potential opportunity to intervene to reduce opioid overdose risk. This study assessed the timing and type of outpatient provider contacts before death from an unintentional prescription opioid overdose.</p>	<p>in fiscal years 2004-2007 and used VHA services anytime within two years of the death.</p>		<p>to prevent prescription opioid overdoses. This was a study of patients actively receiving care in the VHA; the results may not generalize to different healthcare systems. Predictors of time to overdose death were not examined.</p>			
<p>Lisi, A. J., Corcoran, K. L., DeRycke, E. C., Bastian, L. A., Becker, W. C., Edmond, S. N., Goertz, C. M., Goulet, J. L., Haskell, S. G., Higgins, D. M., Kawecki, T., Kerns, R. D., Mattocks, K., Ramsey, C., Ruser, C. B., & Brandt, C. A. (2018). Opioid use among veterans of recent wars receiving Veteran’s Affairs chiropractic care. <i>Pain Medicine, 19</i>(Suppl. 1), S54–S60. https://doi.org/10.1093/pm/pny114</p>	<p>VHA commissioned a task force to develop and organize an opioid observation system that provides information about opioid prescribing to all VHA facilities. The goals were to develop tools to provide information and support facilities and their providers to improve safety for patients receiving opioids.</p>	<p>To explore the clinical characteristics associated with opioid use among Veterans of Operation Enduring Freedom/Iraqi Freedom/New Dawn and received and received chiropractic care, explore the timing of the chiropractic care and receipt of opioid prescription.</p>	<p>Cross-sectional analysis</p>	<p>Veterans from recent wars included for analysis had to have at least one visit to both VA primary care and Chiropractic services The dose and duration of Veterans from recent wars included for analysis had to have at least one visit to both VA primary care and Chiropractic services The dose and duration of opioid use and should be included in subsequent studies</p>	<p>Level III</p>	<p>Primary</p>	<p>PubMed</p>

Article	Background	Study Purpose	Design	Results	Level of Evidence	Source	Database or library source
Park, T. W., Saitz, R., Ganoczy, D., Ilgen, M. A., & Bohnert, A. B. (2015). Benzodiazepine prescribing patterns and deaths from drug overdose among us veterans receiving opioid analgesics: Case-cohort study. <i>BMJ</i> , 350, h2698–h2698. https://doi.org/10.1136/bmj.h2698	Death from a drug overdose is defined as any intentional, unintentional, or indeterminate death from poisoning caused by any drug, determined by information on the cause of death from the National Death Index.	To find the association between benzodiazepine prescribing patterns and the risk of death from drug overdose among US veterans receiving opioid analgesics.	Case-cohort study.	n=112 069 of veterans who received opioid analgesics also received benzodiazepines. About half of the deaths from drug overdose (n=1185) occurred when veterans have concurrently prescribed benzodiazepines and opioids.	Level II	Primary	Google Scholar
Radomski, T. R., Bixler, F. R., Zickmund, S. L., Roman, K. M., Thorpe, C. T., Hale, J. A., Sileanu, F. E., Hausmann, L., Thorpe, J. M., Suda, K. J., Stroupe, K. T., Gordon, A. J., Good, C. B., Fine, M. J., & Gellad, W. F. (2018). Physicians' perspectives regarding prescription drug monitoring program use within the Department of Veterans Affairs: A multi-state qualitative study. <i>Journal of General Internal Medicine</i> , 33(8), 1253–1259.	(VA.) has implemented robust strategies to monitor prescription opioid dispensing, but these strategies have not accounted for opioids prescribed by non-VA providers. State-based prescription drug monitoring programs (PDMPs) are a potential tool to identify VA patients' receipt of opioids from non-VA prescribers.	To determine if the Prescription Drug Monitoring Programs (PDMP) have the potential to effectively alleviate Veterans' use of opioids from VA and non-VA prescribers which could potentially cause harm.	Qualitative study	Even though the VA has improved the safe prescribing practices, these efforts have not addressed the increased number of opioid prescriptions received by Veterans outside of the VA, and providers accept the PDMPs as a tool to monitor Veterans' receipt of opioids from non-VA sources despite identifying multiple barriers to optimal use. VA data in some states PDMP is still unavailable.	Level V	Primary	Medline

Article	Background	Study Purpose	Design	Results	Level of Evidence	Source	Database or library source
https://doi.org/10.1007/s11606-018-4374-1							
Rieselbach, R. E., Epperly, T., Nycz, G., & Shin, P. (2019). Community health centers could provide better outsourced primary care for veterans. <i>Journal of General Internal Medicine</i> , 34(1), 150–153. https://doi.org/10.1007/s11606-018-4691-4	The advantages of expanding CHC VA outsourced primary care. This policy would focus more on providing specialized care for veterans in the VA system while coordinating with CHCs for the necessary expanded outsourced, holistic primary care. We conclude that failure to develop an incremental, cost-effective alternative as described herein represents a potential threat to adequate future support of our VA hospital system	To describe features of the Benefits of the VA Mission Act relevant to outsourcing, the challenges of the Present Choice Program, and likely future obstacles with the new legislation, and the advantages of expanding Community Healthcare Centers VA outsourced primary care	No design	There is a \$55 Billion commitment for five years for the Mission Act to address shortcomings in the VA.	Level IV	Primary	PubMed
Rose, A. J., Bernson, D., Chui, K., Land, T., Walley, A. Y., LaRochelle, M. R., Stein, B. D., & Stopka, T. J. (2018). Potentially	Potentially inappropriate prescribing (PIP) may contribute to opioid overdose.	To examine the association between PIP and adverse events.	Cohort study	The PIP was associated with a higher adjusted hazard for all-cause mortality, four of six with non-fatal overdose, and five with	Level II	Primary	PubMed

Article	Background	Study Purpose	Design	Results	Level of Evidence	Source	Database or library source
<p>inappropriate opioid prescribing, overdose, and mortality in Massachusetts, 2011–2015. <i>Journal of General Internal Medicine</i>, 33(9), 1512–1519. https://doi.org/10.1007/s11606-018-4532-5</p>				<p>fatal overdose. Lacking a documented pain diagnosis was associated with non-fatal overdose (adjusted hazard ratio [AHR] 2.21, 95% confidence interval [CI] 2.02-2.41), as was high-dose opioids (AHR 1.68, 95% CI 1.59-1.76).</p>			
<p>Stone, E. M., Rutkow, L., Bicket, M. C., Barry, C. L., Alexander, G. C., & McGinty, E. E. (2020). Implementation and enforcement of state opioid prescribing laws. <i>Drug and Alcohol Dependence</i>, 213, Article 108107. https://doi.org/10.1016/j.drugalcdep.2020.108107</p>	<p>In response to the role overprescribing has played in the US opioid crisis, in the past decade, states have enacted four main types of laws to curb opioid prescribing: mandatory prescription drug monitoring program (PDMP) enrollment laws requiring clinicians to register with a Prescription Drug Monitoring Program.</p>	<p>To determine how research can yield insight into whether and how implementation and enforcement influence laws’ effects on outcomes.</p>	<p>Interviews</p>	<p>Despite differing approaches, our findings suggest similar barriers to implementation and enforcement across state opioid prescribing laws. Strategies are needed to ease the implementation and enforcement of laws that apply only to specific sub-sets of providers, patients, or prescriptions and address access and data utilization of the PDMP.</p>	<p>Level VI</p>	<p>Primary</p>	<p>PubMed</p>

Appendix B**PRISMA Flow Diagram**

Note. From “Preferred Reporting Items for Systematic Reviews and Meta-Analyses,” by D.

Moher, A. Liberati, J. Tetz Laf, & D. F. Altman, 2009, *PLOS Medicine*, 6(7), e000097.

<https://doi.org/10.1371/journal.pmed.1000097>

Appendix C

CITI Completion Certificate



Completion Date 12-Jan-2021
Expiration Date 11-Jan-2025
Record ID 40046303

This is to certify that:

Cheryl Landry

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

Biomedical Responsible Conduct of Research
(Curriculum Group)

Biomedical Responsible Conduct of Research
(Course Learner Group)

1 - RCR
(Stage)

Under requirements set by:

Liberty University



Verify at www.citiprogram.org/verify/?w4b174ef6-3635-4c9d-9778-fe05695b17ea-40046303

Appendix D**Institutional Review Board Letter of Approval**

March 9, 2021

Cheryl Landry
Cynthia Goodrich

Re: IRB Application - IRB-FY20-21-690 Mitigating the Risk of Opioid Overdose and Death of Veterans: An Integrative Review

Dear Cheryl Landry and Cynthia Goodrich,

The Liberty University Institutional Review Board (IRB) has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study does not classify as human subjects' research. This means you may begin your research with the data safeguarding methods mentioned in your IRB application.

Decision: No Human Subjects Research

Explanation: Your study is not considered human subjects research for the following reason: It will not involve the collection of identifiable, private information.

Please note that this decision only applies to your current research application, and any modifications to your protocol must be reported to the Liberty University IRB for verification of continued non-human subjects research status. You may report these changes by completing a modification submission through your Cayuse IRB account.

If you have any questions about this determination or need assistance in determining whether possible modifications to your protocol would change your application's status, please email us at irb@liberty.edu.

Sincerely,

G. Michele Baker, MA, CIP
Administrative Chair of Institutional Research
Research Ethics Office