Reducing Opioid Overdose-Related Deaths in Michigan: A Policy Analysis

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Executive Summary

Currently, the opioid epidemic is spreading across the United States (U.S.) leaving individuals, families, and communities fractured. According to the Centers for Disease Control and Prevention (CDC) (2020) opioid overdose is the leading cause of mortality and disability among people with opioid use disorder in the United States and in 2020 the CDC reports that 500,000 people died of opioid overdose in the last two decades. The state of Michigan is no exception to this epidemic, as opioid related overdose deaths continue to rise every year. Recent available literature highlights the alarming death rates related to drug overdoses in Michigan with; 19,365 deaths from suicide, 8,790 deaths from alcohol related liver failure and 21,778 deaths from drug overdoses, out of 1,399,714 total deaths (Larsona & Bergmans, 2022). The availability of naloxone, a medication used to reverse opioid overdoses, is lacking throughout the state of Michigan and has further contributed to the rise of opioid related overdoses.

In recent years the state of Michigan has positioned itself to reverse current trends of the opioid epidemic by passing key legislation focusing on harm reduction strategies. Current House Bill 5166 of Michigan legislation increases the availability of naloxone in the community by allowing community organizations to distribute naloxone directly to individuals from a standing order signed by Michigan's chief medical officer. Increase availability of naloxone in the community has potential to reduce opioid related overdoses, decrease healthcare costs, and decrease health disparities. Even with key legislation in place, roadblocks for implementation remain in place hindering the effectiveness of HB 5166 and similar legislation.

This paper explores the potential impact of HB 5166 and increasing naloxone within communities of Michigan through a thematic health policy analysis. This policy analysis follows the framework of Bardach's Eight-Fold Path. A literature review was conducted along with

interviews from key stakeholders within the community. Feedback from stakeholders created themes that were derived from a thematic analysis. The themes from stakeholders' feedback were compared with current evidence and alternatives. As a result of the policy analysis, this paper recommends the standing order created by HB 5166 to be signed immediately by the chief medical officer and to further allocate resources to support the implementation of HB 5166 and naloxone within Michigan's communities.

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Reducing Opioid Overdose-Related Deaths in Michigan: A Policy Analysis

According to the CDC (2020) opioid overdose is the leading cause of mortality and disability among people with opioid use disorder in the United States. It has negatively impacted many American families and communities and has become a public health concern as well as a threat to national security in the United States (U.S.) and globally. The CDC (2020) reports that over 500,000 people died from an overdose involving opioids, including prescription or illicit opioids, in the past two decades. Opioid-related deaths have increased since 2020 with nearly 91,799 deaths involving the use of synthetic opioids such as the illicit drug fentanyl (CDC, 2022d). Data from CDC (2020) shows that synthetic opioids are the main drivers of drug overdose deaths with 85 percent of deaths involving illicitly manufactured fentanyl, heroin, and cocaine.

The State of Michigan faces similar public health concerns related to opioid overdoses as the rest of the U.S. The epidemic is not only impacting people with opioid use disorder, but also extends to families, friends, and communities, and has exacerbated health disparities across vulnerable communities (Community Foundation for Southeast Michigan [CFSEM], 2022). The opioid epidemic is real and continues to grow disproportionately more in minority races across Michigan. Many black Michigan residents are dying at a disproportionate rate from opioid overdoses, as evidenced by data released by Michigan.gov (2018) showing a 19.9 percent mortality rate increase among black residents and a 5.1percent decline among white Michigan residents between 2017 and 2018. In 2020, Michigan drug overdose deaths rose by 16 percent at a record high of 2,743 deaths (CDC, 2021).

As stated above, the opioid epidemic is a real threat to the public health of all communities across the state of Michigan. Part of the solution to reducing opioid-related deaths

in Michigan is expanded distribution of naloxone, a life-saving overdose medication that can reverse the toxic effects of an opioid overdose (Michigan.gov, 2021b). Currently, the standing order allows for naloxone to be dispensed from a pharmacist and restricts community-based organizations from accessing naloxone, however, changing the current legislation to expand Michigan's naloxone standing order to allow community organizations to access naloxone will make a tremendous difference in saving a life (Michigan.gov, 2021b).

Problem Statement/Issue

The opioid overdose epidemic has continued to worsen in the United States, including in the state of Michigan where rates of opioid overdose has multiplied by 18 times since 1999 (Michigan.gov, 2022). Michigan's current legislation limits the distribution of naloxone, a lifesaving medication that can reverse opioid overdoses despite evidence that this medication is effective and offers little risk to the user (National Institute on Drug Abuse [NIDA], 2022). A change in current legislation to allow standing orders for targeted local organizations to distribute naloxone is needed to save residents lives from this epidemic.

Significance to Practice and/or Population Health

The opioid epidemic has spread throughout the country leaving families and communities fractured. In 2019, 70% of overdose deaths involved an opioid agent (CDC, 2021). Additionally, the number of opioid-overdose related deaths has more than doubled in the last 10 years (CDC, 2021). This recent increase has been attributed to the new wave of synthetic opioids, particularly fentanyl. Although typically unknown to the user these synthetic opioids are often mixed with other drugs such as heroin, which increases their potency leaving users at increased risk of an opioid overdose (CDC. 2021). Michigan is no exception to the opioid crisis with estimates

showing a record high of 2,036 opioid-overdose related deaths in 2018 (Michigan.gov, 2022). With the increased potential of fatal overdoses from higher potency drugs the need of increased availability of reversing agents such as naloxone is critical.

The opioid epidemic does not discriminate among those it affects. However, individuals without insurance, history of incarceration, living in poverty, and homeless are at the greatest risk of an opioid overdose (Altekruse et al., 2020). It is estimated that at least 10 percent of the United States' population will experience a drug use disorder at one point in their life, which leaves these families and individuals vulnerable (National Institutes of Health [NIH], 2015). Although challenging to predict when and which communities will be impacted by opioid overdose, the social determinants of health within a community can help identify communities greatest at risk. Sederer (2016) states factors of education, employment, housing, safety, and healthcare availability can dictate individuals or communities' risks for mental health disorders including substance abuse. According to Jenkins et al. (2020), the COVID-19 pandemic has further exacerbated the opioid crisis by stripping communities and individuals of accessible resources and treatment. Due to an absence of resources and determinants, communities may need a greater distribution of naloxone to help prevent opioid-overdose related deaths.

In 2017, the United States spent an estimated $471 billion due to the consequences of opioid use disorder and $550 billion on opioid overdoses (Luo et al., 2021). The state of Michigan alone spent $41,396 million on opioid use disorder and overdoses in 2017 (Luo et al., 2021). The total amount spent was derived from healthcare costs, substance abuse treatment, criminal justice, loss of productivity and quality of life. Decreased quality of life had the greatest impact on cost for opioid use disorders and overdoses in 2017. (Luo et al., 2021) The economic

burden of the opioid epidemic has sent federal and state budgets spiraling (Lou et al., 2021; Florence et al. 2021). Finding solutions is pivotal to reduce harm and healthcare costs.

The CDC (2022b) supports increased naloxone availability through targeted distribution as one key intervention for harm reduction. Naloxone can prevent and reverse overdoses which may decrease hospital costs from a reduction of emergency department visits or decreased inpatient stays.

Gap Analysis

In recent years the state of Michigan has enacted several policies to increase availability and distribution of naloxone. In 2016, HB 5326 allowed pharmacists to dispense naloxone to residents from a standing order (H.B. 5326, 2016) In 2019, the enactment of the Administration of Opioid Antagonists Act allowed agencies such as law enforcement, education institutions, and state municipal agencies the ability to dispense naloxone to trained employees for administration (H.B. 4367, 2019). This act also further expanded upon Good Smartian Laws (GSLs) to protect users from civil or criminal liability when administering naloxone in good faith (H.B. 4367, 2019). Even with current legislation, the number of opioid-overdose related deaths in Michigan continue to climb (Michigan.gov, 2022). As the CDC (2022b) highlights, a more targeted approach to the distribution of naloxone is needed. The ability to dispense naloxone at the community level through public health departments, substance abuse treatment programs, homeless shelters and many more allows for a greater reach and protection of Michigan's residents.

Project Aim

In response to the ongoing opioid crisis the Michigan Legislature recently passed House Bill 5166 (HB 5166) on July 21st, 2022 (H.B. 5166, 2021). HB 5166 gives the chief medical executive the ability to create a standing order to allow pharmacists to dispense naloxone to community-based organizations for dissemination (H.B. 5166, 2021). This Doctor of Nursing Practice Project seeks to understand the public understanding and support for increasing naloxone access to Michigan residents by facilitating interviews with stakeholders to create a recommendation for or against HB 5166.

Background

There are several reasons why people start taking opioids. In most cases, opioids are prescribed to treat pain caused by health conditions which can include acute pain from an injury or post-surgical procedures, chronic conditions such cancer, palliative care, and end-of-life care (American Psychiatric Association [APA], 2022). Opioids are safe when taken on a short-term basis and as prescribed for medicinal reasons, but they are extremely dangerous when misused. According to the APA some risk factors associated with the misuse of prescription opioids include history of childhood maltreatment, sexual, physical, or emotional abuse, severe pain, and mental health disorders (APA, 2022).

A vast number of Americans suffer from a pain related condition every day whether disease related, or from previous injuries. Many of which are often prescribed opioids to treat their conditions. Consequently, the prevalence of uncontrolled pain has led to an increase in the use of opioids, whether prescription or illicit opioids (Rose, 2017). The number of opioid overdose deaths has increasingly ranked among the leading causes of accidental deaths in the

United States. According to the CDC (2019), report, 247,000 Americans lost their lives to overdoses involving prescription opioids from 1999-2019. The number of national deaths from opioids has quadrupled since 2000 with over 70 percent of deaths in 2019 involving an opioid overdose (CDC, 2019).

Description of Opioids

The (World Health Organization [WHO], 2019) defines the term "opioids" as compounds that are extracted from the poppy seeds as well as semisynthetic and synthetic compounds with comparable properties that can interact with opioid receptors in the brain. Opioids produce both analgesic and sedative effects to the human body, however, the overuse and misuse of these opioids can cause difficulties in breathing and opioid overdose which can potentially lead to death. Examples of opioids include morphine, methadone, codeine, fentanyl, and heroin.

Nearly a one third of all opioid-overdose deaths reported in the United States are caused by heroin use. A CDC report in 2019 showed that a rate of more than four deaths for every 100,000 American was from heroin overdose (CDC, 2021). Heroin is an illegal and highly addictive opioid processed from morphine. NIDA (2018) explains that an overdose of heroin may lead to devastating health complications including respiratory depression and lower heart rate. Additionally, in recent years the CDC (2020) cites that most overdose deaths involve illicitly manufactured fentanyl. This is increasingly problematic as Fentanyl is highly potent and often added to other illicit drugs without the user's knowledge increasing their risk for opioid overdose (NIDA, 2021). Because of the dramatic increase in opioid overdose related deaths, the use of an opioid receptor antagonist medication such as Naloxone can be used to reverse an opioid overdose (NIDA, 2022).

Naloxone

Naloxone works by blocking the effects of opioids, which results in the reversal of opioid effects (CDC, 2022c). With use of naloxone the return of normal breathing can occur in 2 to 3 minutes. This medication can easily be administered via nasal spray and is effective against a variety of opioid agents (CDC, 2022c). Although an effective solution to combat opioid overdoses, access to naloxone remains a challenge. Weiner et al. (2019) suggest that the formation of overdose education and naloxone distribution programs (OEND) into communities is vital to increase access of naloxone. OEND programs provide education regarding signs of overdoses and instruction on how to use naloxone, while providing at risk citizens with naloxone. These programs can be operated out of a variety of community organizations including homeless shelters, syringe exchange programs, emergency services, social services, and libraries (Weiner et al., 2019). The effectiveness of these programs has shown a decrease in overall opioid overdoses in communities that implemented OEND (Walley et al., 2013).

Opioid Overdose in the State of Michigan

As mentioned previously, the number of deaths due to drug overdose has increased all over the country, with Michigan ranking 23rd among the 50 states at a rate of 28.6 persons per 100,000 population in 2020 (CDC, 2022a). These numbers are concerning in the sense that more lives are being lost from the use of medications. Recent data from Michigan.gov (2019) shows a continued rise in opioid deaths since 2019, indicating more deaths from drug overdoses than there were in car crashes. Opioid related overdose deaths increased by 16.1 percent from 2019 to 2021.

Provisional opioid overdose deaths data by race from January 2021 to December 2021 shows 50.1 persons per 100,000 population death rates in the African American community, 28.0

in Hispanics, 27.8 in non-Hispanics, 24.4 in whites, 17.2 in American Indian or Alaska Native and 4.9 in Asian or Pacific Islander communities (Michigan.gov, 2022). Given that more than 50 percent of Michigan residents are being treated for a pain related condition with the use of opioids, drug overdoses are prevalent in Michigan's population.

Policy Model

For this policy analysis, *Bardach's Eight-Fold Path* will be used (2020) as the guiding model. This is a well-accepted practical model and is used frequently in public policy. Using this model, the policy problem of opioid overdose-related deaths will be defined and evidence supporting the implementation of HB 5166 will be compiled. Alternatives will be considered using carefully selected criteria. Projected outcomes will be presented, and trade-offs will be appraised. In the end, a final policy recommendation will be concluded to create a recommendation for or against HB 5166.

Define the Problem

Arguably the most important step in *Bardach's Eight-Fold Path* (2020) is to "define the problem." This step is key to identifying a problem that needs to be addressed, but also provides a guide for the rest of the analysis. When defining the problem, it is often helpful to think in terms of deficit and excess such as: "There are too many people dying from opioid overdoses in Michigan," or "There are not enough substance abuse treatment centers in Michigan." Additionally, quantifying the problem is helpful to find another way to describe the nature of the problem. As well as ensuring problems are distinguished from symptoms. By doing this the root cause of the problem can be identified.

Assemble Some Evidence

Bardach and Patashnik (2020) suggest that during a policy analysis, most of the time is spent thinking about the policy analysis and assembling evidence. Thinking before collecting evidence helps give direction to evidence collection and reduces time spent finding unhelpful data. Data may be further classified into primary data, that of which you collect yourself, or secondary data, data collected by others. Often primary data is collected by the analyst through surveys, and interviews and secondary data is often obtained through literature reviews and surveying best practice standers.

Construct the Alternatives

Constructing policy alternatives are crucial to help identify different solutions to the problem as well as navigating compromises. When constructing alternatives, it is best to start with the most comprehensive approach and end with the least comprehensive solution to the defined problem (Bardach & Patashnik, 2020). Different policy options may include providing direct services through new governmental programs or a new project under an existing program. Developing a plan to address the necessary program needed to the defined problem. Partnering with programs that are already working with the defined problem or doing nothing is preferable to further policy interventions.

Select the Criteria

There are multiple criteria that may be used and can change depending on the policy analysis. Some of the most common criteria are efficiency, justice, equality, political feasibility, and sustainability (Bardach & Patashnik, 2020). By identifying the criteria alternatives can be judged to project the efficacy of the solution to the identified problem. For this policy analysis we will be using effectiveness, benefits, political feasibility, justice, and equity.

Project the Outcomes

According to Bardach and Patashnik (2020) projecting the outcomes is the most difficult step in the eight-fold path, but the most necessary. Projections should be based on models, and the analyst should take a realistic approach versus an optimistic approach. Additional tips to successfully project the outcomes of alternatives are to look to the evidence and experts, assume the political, administrative, and environmental context as it is, and be confident in what is known and modest in what is expected.

Confront the Trade-Offs

Once the alternatives have been constructed, criteria have been selected, and projections have been made the policy analysts need to confront the trade-offs or make compromises (Bardach & Patashnik, 2020). Making concessions and compromises should be based on the above criteria and the policy analyst should seek to maximize each criteria selected to make the best decision regarding the alternatives being considered.

Step, Focus, Narrow, Deepen, Decide!

Once the trade-offs have been considered the most favorable approach may be decided. However, before implementation, it may be helpful to implement the "20-dollar test" (Bardach & Patashnik, 2020). Essentially, this test is to make the analyst consider, "If this solution is the best option, why has it not been picked up yet?" Failing this test is not imperative but does make the analyst take one more thought before moving forward.

Tell Your Story

Lastly, getting the message out about a new policy in a thoughtful way is imperative to achieve maximum impact (Bardach & Patashnik, 2020). In order to maximize the effectiveness of sharing a new policy the audience must be considered, the messaging must be accessible, the

vehicle by which the message will be shared should be carefully considered, and to know whether the audience must be persuaded or simply informed.

SWOT Analysis for Increasing Access to Naloxone in Michigan

Strengths

The current political climate is favorable for the passing of laws to increase naloxone access to Michigan residents. This is demonstrated by the passing of the opioid antagonist act of 2019 as well as the creation of the MOTF (H.B. 4367, 2019). Both initiatives were a direct response to help aid in the response to the opioid epidemic. Additionally, HB 5166 was introduced into the house of representatives to further expand community access to naloxone. As of 7/21/22 HB 5166 was passed in both houses and presented to the governor with recommendations to be signed into law immediately. The bill received overwhelming support in both houses with only 4 members of the Michigan congress voting against the bill.

HB 5166 includes language that protects the chief medical executive issuing standing orders for naloxone, dispensing pharmacist, and community organizations distributing naloxone (H.B. 5166, 2021). This specific language protects community members from any litigation in the event of harm to someone receiving naloxone to reverse an opioid overdose. This protection is designed to remove perceived barriers to incentivize prescribers to participate in prescribing naloxone to community programs. Further, HB 5166 will increase naloxone availability by generalizing who may distribute naloxone. HB 5166 will allow community-based organizations or their staff as well as pharmacists to dispense naloxone to the community. “Community-based organizations,” refers to any public or private organization that provides health or human services to meet the needs of a community (H.B. 5166, 2021)

Weaknesses

Although the current language of HB 5166 provides a description of who can dispense naloxone, which expands upon pharmacists to also include community organizations or a staff member within the organization, it does not provide a detailed plan that addresses the actual distribution of naloxone (H.B. 5166, 2021). Factors such as logistics, cost, and training are not discussed, which can hinder the distribution of naloxone. In 2020, Michigan Department of Health and Human Services (MDHHS) provided a memo to community organizations outlining solutions and possible locations that may facilitate naloxone distribution to high-risk populations, but still there was no clear language detailing the cost, shipping, storage, and distribution of naloxone (Michigan Opioid Task Force [MOTF], 2021). The MDHHS' current plan also lacks standardized training for educating individuals on the proper use of naloxone. The MDHHS suggests training should take less than five minutes to limit time constraint barriers (MOTF, 2021). Due to limited time for training and a lack of standardized training, individuals are at greater risk of misinformation. A detailed strategic vision is needed to promote participation from community organizations. Estimation shows only 54% of pharmacies participated in the naloxone standing orders program from HB 5326 passed in 2016 (Dahlem et al., 2022). The distribution of naloxone through community organizations is needed to provide better protection for Michigan (Weiner et al., 2019).

The lack of transparency in laws regarding possession and distribution of drug paraphernalia often leaves citizens unaware of what is considered illegal. Variations of the law to each city ordinances further add confusion for citizens (Legislative Analysis and Public Policy Association [LAPPA], 2022). Drug paraphernalia laws make procession of equipment used in the distribution of illicit drugs illegal (Davis et al., 2019). Naloxone is often distributed in conjunction with clean syringes through SSPs (MOTF, 2021). Due to the criminalization of

paraphernalia such as syringes, individuals may avoid SSPs in fear of arrest. This may further prevent the distribution of naloxone to high-risk individuals (Davis et al., 2019).

Opportunities

Michigan, like other states across the United States, has been adopting legislation that promotes increased access to naloxone (LAPPA, 2020). HB 5166 is the latest step that Michigan has taken to combat against the opioid epidemic (H.B. 5166, 2021). Recently, other states such as Arizona, Oregon, and Washington have passed legislation that further increases access to naloxone (LAPPA, 2020). These states require co-prescribing of naloxone if a medication puts an individual at increased risk of an overdose, insurance companies to provide coverage for naloxone or not require a prior authorization for naloxone and require school districts to have naloxone policies (LAPPA, 2020). In addition, decriminalization of drug paraphilia laws to promote the safety of citizens at risk can also increase the utilization of naloxone (Davis et al., 2019). To meet MOTF's goal of reducing opioid related deaths by 50% further opportunities in expanding NALs and other harm reduction strategies will be needed (MOTF, 2021).

The expansion of NALs offers numerous opportunities to help the state of Michigan reduce opioid-related overdoses, hospitalizations, and healthcare costs (Florence et al., 2021). But more importantly, it offers citizens protection. Naloxone is a lifesaving medication that can prevent premature death and offer individuals suffering from OUD an opportunity to change (CDC, 2022c). With legislation that promotes harm reduction strategies such as increased access to naloxone there will be a greater need for substance abuse treatment (Skolnick, 2018). The impact of the opioid crisis has negatively affected families and their quality of life (Lipari & van Horn, 2019). The opportunity to increase access for treatment programs can change the current trajectory of the opioid crisis and finally provide a sustainable solution (Skolnick, 2018).

Threats

Stigma is a major threat to overcoming the challenges of opioid overdoses within local communities in Michigan as well as nationally. Stigma means labeling, stereotyping, and discrimination against people with a substance use disorder/opioid use disorder (John Hopkins Medical, 2022). Recognizing the enormous challenge that stigma poses to the people in the local communities across Michigan is a vital part of tackling the opioid overdose crisis**.** Literature indicates that there are effective tools including medications for opioid use disorder that could prevent many of these deaths, but they are not being utilized, and many people who could benefit do not even seek them out because of the stigma that surrounds people with opioid addiction **(**John Hopkins Medical, 2022). Stigma is a problem that can lead to health conditions ranging from mental health illness such as depression and anxiety.

The stigmatization of people with substance use disorder became more problematic during the COVID-19 crisis, the legitimate fear around contagion caused many people or bystanders and even first responders to be reluctant to administer naloxone to people who have overdosed (Volkow, 2020). It is vitally important that health care team members continue to advocate for the patients dealing with substance abuse/opioid overuses disorders and combat the stigma surrounding patients with opioid use disorder (Volkow, 2020). There is effective treatment available, but the patients do not have access to it, or are not willing to access it because of fear of negative experiences, and the fear of stigma from requesting naloxone repeatedly (Volkow, 2020).

Another threat to HB 5166 includes moral and ethical issues. Optimal implementation of this law relies on the support of prescribers and willingness of community members seeking the ability to dispense naloxone. Pharmacists are on the frontline caring for patients at risk of an

opioid overdose and opioid use disorders. A pharmacist's willingness to dispense naloxone is key in improving access to care for patients with OUD. Perceptions about moral and ethical issues about using naloxone as a lifesaving medication for opioid overuse may cause other pharmacists to not dispense naloxone and limit its optimal use within the community (Bessen et al., 2019). Furthermore, Bessen et al., (2019), states pharmacists in other states such as New Hampshire, expressed discomfort with providing naloxone and even having any conversations with patients with the fear of potentially offending them. Without prescriptions or community partner involvement this bill will not have the intended impact.

HB 5166 did not pass unanimously the first time the Bill was presented in October 2021, there were 100 yeas and 4 nays (H.B. 5166, 2021). The bill passed unanimously the second time on June 30, 2022; with 38 yeas and 0-member voting nay (H.B. 5166, 2021). Additionally, H.B. 5166 is not codified into state law creating the potential that future lawmakers could overturn the passing of this law.

Review of Literature

This literature review utilized the National Library of Medicine's PubMed database for the retrieval of studies. Inclusion criteria was set to include articles written in English and published from 2014 and 2022. Articles included in the review range from expert opinion, descriptive studies, observational studies, systematic reviews, and meta-analysis. There was a total of three searches used to complete the review. The first search included the terms "opioid epidemic" AND "economic". The search resulted in 450 articles. After an appraisal of 50 articles, three were selected that focused on the economic burden of the opioid crisis. The second search used the terms "illicit drug" AND "opioid" AND "law", which resulted in 87 articles. After an appraisal of 80 articles, three were selected that focused on current paraphernalia and

Good Samaritan laws (GSLs). A third search was performed using terms “naloxone OR Narcan” AND “harm reduction” AND “opioid overdose”, which results in 179 articles. After selecting articles that focused on programs to reduce opioid overdose deaths 6 were selected.

Economic Burden

The opioid crisis has resulted in a large economic burden for the United States with reduced quality of life and life lost having the greatest economic impact (Florence et al., 2021; Lou et al., 2021). In 2017, Florence et al. (2021) estimated total cost of opioid use disorder (OUD) and fatal overdoses was $1.02 trillion nationally with nearly half being due to reduced quality of life. Estimations suggest reduced quality of life and life lost from OUD accounts for $870.7 billion of the total economic burden which is nearly 85% of total impact (Florence et al., 2021). Lou et al. (2021) incurred similar findings with state level data that estimates Michigan allocated nearly $41,396 million for OUD with 85.4% spent on reduced quality of life and life lost. Both studies analyzed other societal costs such as healthcare, substance abuse treatment, criminal justice, and loss of productivity but no cost had the same magnitude of burden as reduced quality of life and life lost (Florence et al., 2021; Lou et al., 2021). To combat against the rising cost and lives effected by the opioid crisis both authors warrant the need for effective harm reduction solutions (Florence et al., 2021; Lou et al., 2021)

Targeted naloxone distribution

Current literature supports increasing naloxone in communities to decrease the incidence of an opioid-related overdose. Walley et al. (2013) conducted a hallmark study in Massachusetts and found that a state-supported overdose education and nasal naloxone distribution (OEND) program reduced rates of an opioid-related overdose in communities the OEND program was implemented. The OENDs aim was to provide education to people at risk for overdose and

bystanders in how to prevent, recognize, and adequately respond to an overdose. From 2002- to 2009 the Massachusetts OEND program trained 2912 bystanders who reported 327 rescues. Additionally, this study found that communities with higher enrollments, greater than 100, in the OEND program experienced a lower incidence of opioid overdose as compared to communities with 1-100 enrolled. The results of this study are further supported by a study by Nauman et al. (2019) in North Carolina. This study sought to analyze the effects of a community-based naloxone distribution program in 38 counties in North Carolina. Like the study out of Massachusetts communities with naloxone distribution programs had a lower incidence of opioid-related overdose deaths as compared to counties without these programs. Furthermore, this study also found that counties with greater naloxone kit distribution had a lower incidence of opioid-related overdose deaths as compared to counties with lower rates of naloxone distribution. While both studies are not randomized control trials, the evidence offered by both studies supports that increasing access to naloxone through community-based programs decreases the incidence of opioid-related overdoses.

Deaths and Disability

The rapid rise of deaths from opioid overdoses has a profound impact on an individual's psychological well-being. The risk of morbidity and mortality of mental disorders increases with opioid use disorders. Recent available literature highlights the alarming death rates related to drug overdoses in Michigan with; 19,365 deaths from suicide, 8,790 deaths from alcohol related liver failure and 21,778 deaths from drug overdoses, out of 1,399,714 total deaths (Larsona & Bergmans, 2022). Few physical disabilities have been reported thus far, most literature reviews point towards mental health disorders/disabilities.

Impact of Covid-19

The nature of the COVID-19 pandemic which resulted in the widespread stay at home orders and isolation restrictions, caused a considerable amount of psychological distress in many people in general, but worse off, in individuals with preexisting mental health disorders, and those with opioid use disorders. For individuals who were out of treatment and actively using illicit opioids, social distancing increased the chances of those individual's will to use opioids alone, more often, with no one to intervene in the event of an overdose (Slavova et al., 2020). Due to the strict isolation restrictions, individuals could not get free access to mental health programs or rehabilitation programs. These challenges exacerbated the already deadly drug overdose epidemic leading to individuals finding other unhealthy methods of coping with stress or emotions such as self-medicating in a variety of ways including overuse of opioids, (MDHHS, 2020).

Literature findings indicates that the number of deaths among opioid overdose patients in Michigan increased to 44.5 percent in 2020 between April and August compared to 29.2 in the same period of 2019, and it also showed an increase in Emergency Room (ER) visits related to opioid overdoses by 4.1 percent during the COVID -19 pandemic (Rockhill & Stroh-Steiner, 2020). Data obtained from April 2019 through August 2020 also showed another rise in the use of Emergency Medical Services (EMS) for overdose responses by 22.4 percent while the numbers of opioid overdose patients refusing transportation to seek care at the nearest emergency room increased by 71.4 percent in the same period (Rockhill & Stroh-Steiner, 2020).

National data indicates that the COVID-19 pandemic has disproportionately impacted the Black communities more severely than White communities, compounding already growing racial disparities in Michigan with all the cases reported showing; 18 percent of deaths from overdoses in Black communities (Rockhill & Stroh-Steiner, 2020). Additionally, provisional data on

overdose deaths from January 2021 to December 2021 showed that more males die from OUD compared to females with 38.6 persons per 100,000 population death rates compared to 18.1 persons per 100,000 population death rates in women. Death rates are higher in male's aged 35-44 years old at 62.5 persons per 100.000 population death rate (Michigan.gov, 2022).

Loss of opportunities

Impact on Family life

The overreaching effects of opioid use extend beyond the individuals struggling with the addiction and cause serious harm to families, children, and communities as well (National Alliance for Drug Endangered Children [National DEC], 2021). In 2017, approximately 2.2 million children in the United States were directly affected by parental opioid use, they were either living with a parent with opioid use disorder (OUD) or had lost a parent to an opioid related death (United Hospital Fund [UHF], 2019). Additionally, children may have caregivers who are compromised by drug use and cannot provide a safe and or naturing environment, which can lead to the need for other services such as domestic violence and mental health services (National DEC, 2019). Another study reports that parents or guardians with OUD are three times more likely to physically or sexually abuse their child and four times more likely to neglect them (Romanowicz, et al., 2019). An expert report states that the number of children affected by the opioid crisis will continue to grow and possibly double by 2030 to 4.3 million (UHF, 2019).

Job impact

The opioid epidemic continues to pose a threat to communities across the country and the people of Michigan. It has been a driving force behind the many lost opportunities for many people. Families struggling with opioid addiction often have severe poverty, legal issues, and

domestic violence (Lipari & van Horn, 2019). Opioid use makes people irresponsible which potentially leads to loss of employment and later causes a financial strain on the family, as well as the employer, as they must find their replacement. It can be hard for the individual to meet obligations at work and they may find it difficult to keep employment because of the amount of time spent trying to recover from the effects of using opioids.

Barriers

The lack of transparency in legislation regarding drug paraphernalia and GSLs has created a barrier that has further contributed to opioid related deaths (Davis et al., 2019; Moallef & Hayashi, 2021). Paraphernalia laws make it illegal to possess or distribute equipment used in association with illicit drugs, even though several items such as sterile syringes and fentanyl testing strips can be a protective barrier for people injecting with drugs (Davis et al., 2019). Increase availability of sterile syringes can prevent diseases attributed to blood borne transmission and the use of testing strips is needed to prevent overdoses from the unpredictable potency of illicit fentanyl (Davis et al., 2019). Currently, in the state of Michigan syringes and testing equipment are recognized as drug paraphernalia but possession of equipment is not illegal. However, the sale of drug paraphernalia is illegal in the state of Michigan (LAPPA, 2022). To further add to the confusion laws enacted within city ordinances may have even stricter policies regarding drug paraphernalia (LAPPA, 2022). Similarly, Moallef and Hayashi (2021) found lack of awareness regarding states' GSLs also resulted in no evidence to support the decrease of opioid related deaths. GSLs are designed to provide immunity from criminalization to those calling for emergency assistance, but individuals remain unaware of current legislation regarding GSLs hindering its effectiveness to provide emergency services to prevent an opioid overdose (Moallef & Hayashi, 2021). This lack of transparency and

incongruence among legislation is preventing individuals from receiving the protection they need (Davis et al., 2019; Moallef & Hayashi, 2021).

In contrast, a study performed by Hamilton et al. (2021) found an overall reduction in overdose related deaths in states with GSLs that protected against arrest compared to states with less protective GSLs. Furthermore, Hamilton et al. (2021) evaluated states that offered GSLs against arrest in conjunction with naloxone access laws (NALs) and found a 10% reduction in opioid overdose related deaths and 7% of all overdose deaths. Adoption of expanded laws regarding paraphernalia and GSLs that promote the safety of citizens at risk is needed to fully address the current opioid epidemic (Davis et al., 2019; Moallef & Hayashi, 2021; Hamilton et al., 2021).

Cost Benefit Analysis

While House Bill 5166 (H.B. 5166, 2021) was being deliberated, a cost-benefit analysis was prepared by a nonpartisan House Fiscal Agency. This agency determined that HB 5166 would have an "indeterminate but likely negligibly fiscal impact on the state and local units of government" (House Fiscal Agency, 2021). Similarly, this senate conducted its own cost-benefit analysis and determined, "the bill would have an indeterminate, but likely minor fiscal impact on the Department of Licensing and Regulatory Affairs, and local units of government" (Ackerman et al., 2022). However, Ackerman et al., (2022) discuss that HB 5166 would likely increase cost to the state as naloxone is covered by Michigan's Medicaid program. However, if increased access to naloxone results in a reduction in hospital visits for treatment of opioid overdose, the state would experience a reduction in costs associated with the treatment of opioid overdose. HB 5166 has the potential to reduce opioid overdoses while reducing health care costs, which is drastically needed as opioid overdose rates and costs continue to climb (CDC, 2019). Lou et al.

(2021) estimated in 2017 the state of Michigan spent 41,396 million on OUD and opioid overdoses.

Stakeholder Identification

There are many stakeholders invested in increasing the distribution of naloxone through targeted community level organizations to help reduce the effects caused by the current opioid crisis. The state of Michigan is a critical stakeholder and tasked the MOTF and MDHSS with creating a strategic plan to help reduce incidence of OUD and opioid related overdoses (MOTF, 2021). As mentioned earlier, the MOTF (2021) highlights harm reduction as an essential pillar in addressing solutions for the opioid crisis. The MOTF's plan to reduce harm aims at distributing naloxone kits to high-risk areas and populations (MOFT, 2021). The ability to provide naloxone kits in local community organizations such as homeless shelters, public health departments, and social services allows individuals most at risk to receive the lifesaving medication of naloxone (Weiner et al., 2019). Expanding legislation regarding the distribution of naloxone is integral to MOTF and MDHSS's strategic plan to reduce the effects of the opioid crisis in Michigan.

Health care administration and healthcare organizations also serve as stakeholders. In 2019 there were 1,515 Opioid-Related Hospitalizations consuming healthcare resources (MDHHS, n.d). Additionally, in 2021 Michigan's Emergency Departments saw 30,920 patients for Non-Fatal Overdoses (Michigan.gov, 2021a). Many of these opioid overdoses can be reversed and prevented with the use of naloxone, but unfortunately the cost to the consumer can prevent users access to naloxone (Cockerham et al., 2017). Due to this insurance providers are pivotal stakeholders in increasing access to naloxone by helping cover costs. Currently in Michigan, Medicaid Health Plans cover the cost of naloxone spray and syringes without prior authorization (Kaiser Family Foundation, 2018). Healthcare and health insurance are both finite

resources in the state of Michigan and increasing the number of people who have access to these resources is key to controlling the opioid epidemic.

Law enforcement officials are often the first to arrive at emergencies including opioid overdoses, which makes them vital stakeholders in distributing and using naloxone (Davis et al., 2015). In 2019, Michigan's legislation passed the Administration of Opioid Antagonists Act to allow law enforcement to administer naloxone without liability falling onto the officer or department (H.B. 4367, 2019). Arming more law enforcement officials with naloxone can reduce more opioid overdoses and prevent mortality (Davis et al., 2015). Furthermore, educating law enforcement officers on risk factors that can lead to opioid addiction and overdoses can better serve the community in preventing fatal opioid overdoses (Davis et al., 2015).

Citizens of Michigan and especially those suffering from OUD are key stakeholders in policy changes that promote their safety. Citizens play a major role in supporting this policy change as they are tasked with administrating naloxone as bystanders. McClellan et al. (2018) states that incorporated NALs and encourage bystanders' engagement in overdoses had a 14 percent reduction in all overdose related deaths. Public health departments and community organizations such as shelters, food banks, and social services are also integral stakeholders as they are tasked with educating and distributing naloxone kits. Access to naloxone through local organizations can provide greater reach and safety for Michigan's citizens (Weiner et al., 2019). Finally, advanced practice providers (APPs) such as nurse practitioners (NPs) play a pivotal role in identifying individuals at risk for OUD and directing them towards proper resources (Grant et al., 2017). The role of the NP can further assist community organizations in advocating and educating the public on signs of overdoses, proper techniques for naloxone administration, and expansion of NALs to further meet the needs of the community (Grant et al., 2017).

Methods

Project Site and Population

Due to the nature of the opioid epidemic, multiple stakeholders' inputs will be needed. The implementation of this policy analysis occurred within Ingham and Kent counties. A literature review helped identify stakeholders who are interested in issues related to increasing naloxone access. The opioid epidemic is a widespread issue and subsequently stakeholders are located at different sites throughout Ingham and Kent counties. During the Michigan State University's Internal Review Board (IRB) application process it was determined the following stakeholders will include: 1-2 members of MOTF, 2-4 healthcare providers, 1-2 healthcare organization administrators, 1-2 Michigan citizens who are 18-50 and 1-2 Michigan citizens who are 50 years or older, and 1 state legislator.

Ethical Considerations and Protection of Human Subjects

Protecting the privacy of stakeholders is imperative during all phases of this project. Before implementation, the Michigan State University Internal Review Board (IRB) determined that this project involves human subjects. As a result, the human subjects research protection program (HRPP) protocol has been followed while applying for IRB's study approval and will continued to be followed through the entirety of this project. Human interaction will involve interacting with stakeholders through interviews.

As well as a full IRB application and review, the IRB required that consent is obtained from all human subjects participating in this project. A standardized consent form obtained from the HRPP was drafted and customized to describe this project's characteristics. Key information includes that all subjects must be at least 18 years to participate in the project, and there is no cost compensation, or extra credit involved with participation. Before the interaction with

stakeholders, consent forms will be provided. By doing so, the participant voluntarily consents to participate in the project. Contact information for the HRPP and principal investigator (PI) is provided on the consent form, which allows participants to contact each party if there are concerns about their role and rights as a participant. To further address privacy concerns, stakeholders' information will be deidentified and their names will not be used in this project. Interviews will be recorded either with pen and paper or electronically typed on a laptop. Written interviews will be stored in a locked safe box, and typed interviews will be stored in the same locked safe box on an encrypted thumb drive. All interviews will be kept with one singular interviewer for the entirety of this project. The locked safe box will be transported to and from in person interviews to ensure security during transport.

Setting Facilitators and Barriers

Significant barriers to implementing this project are coordinating meetings and contacting the multiple stakeholders. As ongoing COVID-19 pandemic mitigation strategies it is possible that meetings with stakeholders will be limited as well. To remove these barriers the option to meet virtually will be available to increase flexibility of meeting times and decrease time to travel to and from meetings.

Michigan legislators offer public meeting hours as well as individual appointments to better serve their communities. This will be a significant facilitator in implementing this project. Meeting with legislators is key to the success of this project as they have voted HB 5166 into law. Additionally, meetings with the MOTF will be facilitated by contacting leaders within the organization to schedule interview times. Many healthcare organizations and administrators offer community outreach and additional options for discussion with stakeholders within the organization.

This project will involve interviews with various stakeholders. Before interviewing stakeholders, the Michigan State University IRB and HRPP required that the questionnaire to be reviewed and approved by the IRB. Questions will be standardized based on stakeholder category to ensure consistency, protection of participants, and quality of data collection.

During stakeholder interviews, responses will be recorded in writing or electronically by typing in a word processor. Commonalities based on answers from each stakeholder will be grouped together, which will allow for organized analysis during the final phase of this project.

Intervention and Data Collection Procedure, Measurement Instrument/Tools

This project seeks the understanding of the public's knowledge about HB 5166 and will subsequently require data collection through interviews with stakeholders. Please see *Appendix E, for questionnaires used for this project.* During the consent development for this project, the Michigan State University IRB and HRPP required that questions for stakeholders are reviewed and approved by the IRB, before they can be provided to stakeholders.

During stakeholder interviews responses will be recorded in writing or typed. Commonalities across stakeholders will be developed and answers to interviews will be grouped according to commonalities. All information will deidentified and stakeholders will only be referred to by stakeholder category.

Timeline

Implementation of this project will occur between May 2022 and May 2023. Following IRB approval, stakeholders will be contacted to arrange meetings. For a full timeline, please see *Appendix C.*

Data Analysis

Thematic Analysis

A thematic analysis is used to help summarize large quantities of data into patterns and themes. While identifying themes, authors explore common central ideas from the data and discover the relationship between answers among participants (Lochmiller, 2021). This application will help identify and form recurring viewpoints into themes from stakeholders affected by HB 5166 and the opioid epidemic. Themes derived from stakeholders' responses can illustrate the sustainability and potential barriers for application of HB 5166.

Data was collected from stakeholders located in Ingram and Kent counties in Michigan. 14 stakeholders were contacted, and 14 stakeholders participated in this policy analysis. Stakeholders involved include members of MOTF, healthcare providers, healthcare organization administrators, law enforcement, Michigan citizens, community organization, pharmacist, and a state legislator. These stakeholders represent populations associated with HB 5166 and the opioid epidemic.

Every stakeholder was asked the same standardized questions (See Appendix E) related to HB 5166 and the opioid epidemic. All stakeholder responses were stored on a secured document. This document was first reviewed for familiarity and then stakeholders' answers were formed into short descriptors to act as codes. Code from each stakeholders' answer was reviewed to identify a pattern or relationship among the answers. Recurrent codes among stakeholders' answers were used to derive common themes of the data. After review there was a total of 11 common themes among stakeholders' responses. Please see Appendix G for dot plot graph of common themes identified.

Theme 1- Reduction of Opioid Deaths

Among all stakeholders there was a consensus of support for HB 5166 and that it will benefit their community. Eight stakeholders had strong support for HB 5166 because it will help reduce deaths related to opioid overdoses. Three stakeholders felt that the bill will help provide naloxone as a rescue measure to prevent opioid overdoses within the community and one stakeholder further insisted that naloxone should be used within conjunction with first aid kits. A stakeholder believed that the availability of naloxone will help prevent overdoses and increase survival rates because the medication can be administered quickly and safely during emergencies. Another further imagined that an availability of naloxone through HB 5166 can act as a preventative measure to reduce opioid overdose deaths not in just one single community but entire county or state. None of these stakeholders voiced concerns for using naloxone in reducing opioid overdoses. Two of the stakeholders interviewed felt naloxone is a proven safe and effective measure in reducing deaths related to opioid overdoses. The opinions of these stakeholders are consistent with those expressed by the CDC (2022c) as justification of naloxone as a harm reduction strategy to reduce opioid overdoses and deaths.

Theme 2 – Increasing Access

Seven stakeholders all expressed that HB 5166 would benefit Michigan residents as it would increase access to naloxone. One stakeholder discussed that increasing access to lifesaving medications benefits the community. They went on to further explain, that preventing overdoses can lead to a reduction in healthcare spending and the savings can be passed on to the community in the form of substance use treatment programs, affordable housing, or childcare programs. Another stakeholder strongly felt that HB 5166 will be the most helpful to distributing naloxone to their community, as HB 5166 has the strongest legal protection for the program to exist, such as protections against distributors, and those administering naloxone. Further, they

explain that this standing order will allow more community-based organizations to increase their distribution efforts as it eliminates the need for a collaborating physician. Additionally, because the funding for naloxone distribution comes from the state and county levels, community organizations can provide naloxone free to their communities. Stakeholder 12 echoes this as their organization distributes naloxone to their community for free through government funding that is currently in place.

Theme 3 - Program implementation

At this time, even though HB 5166 has been passed, nine stakeholders expressed concern relating to how HB 5166 will be implemented. HB 5166 was passed without any formal plan for the implementation of the bill and many stakeholders have concerns regarding this. Four of the interviewed stakeholders were concerned that without any community educational programs individuals may be unsure of what naloxone is, who should have it, and where to obtain it. Concern regarding the lack of formal administration training was expressed by one stakeholder. Four of the stakeholders were all concerned that HB 5166 does not include any plan or model for community implementation. Concern for who would provide the proper education to the community organizations who want to begin distributing naloxone was expressed by one stakeholder. Additional concerns that HB 5166 does not provide a plan for who community organizations will need to comply with, what form of naloxone will be available, and who they will be ordering the naloxone from were expressed by another stakeholder. These stakeholders' responses are consistent with a weakness identified for HB 5166 in the SWOT analysis mentioned earlier, which was that the state of Michigan lacked an overall encompassing strategic plan or vision for community organizations to distribute naloxone.

The state of Michigan does offer naloxone training resources on their website, but it was clear through responses that these resources have not been communicated to key stakeholders (Michigan.gov, 2023). Dahlem et al. (2019) analyzed the train-the-trainee method to increase opioid education with naloxone distribution (OEND) among organizations. In this method a master trainer teaches students proper skills and how to train future users. Dahlem et al. (2019) found that only an hour and half course regarding OEND helped participants feel more confident and competent in their ability to use and teach naloxone use. The authors further conclude that necessary training for OEND will be a staple in combating against the current opioid epidemic (Dahlem et al., 2019).

Theme 4 - Stigma associated with naloxone use

The stigma associated with opioid use can be a hindrance to obtaining a life-saving intervention such as naloxone and brings about shame to the person seeking helpful information (Fomiattia et al., 2022). Feedback from stakeholders is consistent with the view shared by Fomiattia et al. (2022); these stakeholders expressed concerns about people being reluctant to seek treatment due to the stigma surrounding the use of naloxone. Two of the stakeholders interviewed believe that people will be more willing to seek help if there is a provision to remove the criminal stigma from people struggling with opioid addiction. Stakeholder 6 aired concerns relating to provider stigma surrounding naloxone prescribing. This stakeholder notes that some physicians worry so much about how other patients will perceive their clinic, that they distance themselves from the stigma of treating those with opioid addictions.

Reducing stigmatization is a critical part of helping people with OUD. Patients feel discouraged from asking for information about naloxone for fear of being labeled as “drug users or druggies” when they reach out for help, (Fomiattia et al., 2022). Two stakeholders referred to

these patients with an OUD as “those that are in need of naloxone just like a person with an allergic reaction needs an epi-pen”. Stakeholder 7 emphasized the stigma surrounding harm reduction strategies such as naloxone as being terrible even though it’s proven safe. One stakeholder 12 believes that increasing access to naloxone and making it free will help reduce stigma.

Theme 5 - Fear of litigation

After someone administers naloxone to an individual experiencing and overdose, it is imperative emergency medical services are called as well. When emergency medical services are called, often law enforcement will respond as well. For this reason, several stakeholders are concerned that while this bill has good intentions it may be futile and underutilized out of fear of litigation. One of these stakeholders also suggested that individuals and prescribers may be hesitant to administer or prescribe naloxone out of fear of litigation if the victim experiencing an overdose suffers an adverse effect from the naloxone administration. It is important to note that Michigan does have Good Samaritan Laws that protect victims and witnesses from legal litigation if they are seeking help for themselves or a bystander (MDHHS, 2023). These laws are specifically created to encourage people to call if themselves or someone they witness needs emergency medical care. Additionally, HB 5166 was passed with protections against individuals who administer, prescribe, or distribute naloxone in the event harm comes to a victim experiencing an overdose as a result of naloxone administration (H.B. 5166, 2021).

Theme 6 - Funding concerns

Funding concerns were another common theme expressed by many stakeholders. One specifically discussed that while there is currently funding for naloxone distribution. HB 5166 does not outline how front-line workers distributing and providing community education would

be compensated. Another concern expressed by stakeholders was that HB 5166 would not be supported by Michigan residents if the funding included taxpayer dollars. Currently, there are already community organizations distributing naloxone to the community through government funded programs, but one stakeholder was concerned that with the change in the law would the additional distribution come at a cost to the community-based organizations. Since naloxone is already paid for by federal, state, and local governments another stakeholder discussed that bills intended to increase access to naloxone are vulnerable as any new administration may cut the funding to these programs.

Theme 7 - Enabling substance overuse

Concerns that HB 5166 will enable people to use more drugs and increase the total number of substance abusers was expressed by three of the stakeholders. Belief that Michigan residents might not be aware that they are at risk of overdosing and be reluctant to seek help knowing that they have free access to naloxone was expressed by one stakeholder. Two stakeholders expressed concern about the lack of responsibility on the part of opioid users. Stakeholder 8 urges that the bill could increase the potential abuse of opioids if there are no repercussions for repeat users or offenders.

Another concern expressed by three of the stakeholders is that patients will be careless with overmedicating knowing that safety measures will be in place. A few stakeholders stated that people will have no fear of overdosing because they will have no ramifications for their actions. Two stakeholders also expressed concern regarding older people that live alone and are taking multiple pain medications, stating that they may not be able to administer naloxone appropriately when needed.

In a study completed by Hanson et al., (2020), there were concerns about potential substance abuse and moral concerns similar to five of the stakeholders. Hansen et., (2020), state the primary concern of a moral hazard, is that people using drugs may seek to use greater amounts or stronger types, knowing that overdose reversal is possible. However, studies examining naloxone distribution have demonstrated mixed findings regarding these concerns. The same study suggests that naloxone distribution may decrease use among users by as much as fifty-three percent and increase treatment utilization by as much as twenty-five percent, however, other qualitative inquiries had reported an increased use among some due to the thought that there is a "safety net" (Hansen et., 2020).

Theme 8 - Program Awareness

Some stakeholders felt that lack of awareness regarding naloxone and community programs for naloxone distribution could act as a potential barrier for program's uptake and success. Two of the interviewed stakeholders were both unfamiliar with how naloxone worked and how to utilize it within the community. Similarly, an individual stakeholder was unaware of distribution center locations within their community. One stakeholder specifically feared that lack of public knowledge regarding availability of naloxone and distribution centers in the community will lead to decrease program engagement and utilization from the public. Overall, the goals of HB 5166 are to reduce opioid related overdoses and deaths by increasing the availability of naloxone in the community, but if the community is unaware of the program, then public engagement with HB 5166 is in jeopardy. For a reduction of opioid related deaths to occur residents need to participate in these community programs to allow for actual availability of naloxone into their communities. The authors Gicquelais et al. (2020) emphasized that increasing

awareness for naloxone distribution starts with educating the community and highlights targeting education towards high-risk populations such as individuals in pain clinics or addiction centers.

Theme 9 - Lack of Alternatives

Uncertainty of alternatives other than HB 5166 to reduce opioid related deaths in their community was expressed by 4 stakeholders. The opioid epidemic continues to progress and as a result opioid related deaths continue to rise (CDC, 2021). Treatment to combat against the opioid epidemic requires a multifactual approach. Increasing availability and access to naloxone may be one step towards resolving the issue but other alternatives and interventions will be necessary. Finding solutions to correct the opioid epidemic and prevent deaths is difficult as evident by many stakeholders being unaware of next steps or direction needed to address this rampaging epidemic. Stakeholders 1 and 3 were completely unaware of any possible alternatives or solutions. Stakeholder 7 was also unaware of alternatives but felt HB 5166 was a good first step and could hopefully act as a potential steppingstone for future legislation or inventions in solving the opioid epidemic. Similarly, one stakeholder felt HB 5166 was a good first step but emphasized that further education regarding the bill itself, naloxone, and the opioid epidemic will be needed to find and implement other alternatives.

Theme 10 - Increasing Mental Health Services

One alternative discussed by stakeholders was increasing the variety of mental services in conjunction with increased accessibility of naloxone. Two of these felt that increasing counseling could provide benefits for individuals with OUD and suggested creating more support groups similar to Narcotics Anonymous (NA) to help with OUD. These stakeholders also remarked that treating the problem first may even eliminate the need for naloxone or other harm reduction interventions. Another stakeholder also suggested increasing mental health services with not just

psychological services but also with substance abuse treatment centers. This same stakeholder additionally recommended mandating recovery programs or substance abuse treatment for repeated users that got caught using opioids illegally and proposed expunging criminal record if an individual completes a recovery program. Stakeholder 13 felt that communities need to eliminate barriers preventing individuals with OUD from seeking substance abuse treatment and that communities need to look at their own structure or determinants to address OUD. Similarly, stakeholder 2 echos to not only increase mental health services and substance abuse treatment in the community but to also address housing, financial aid, and employment opportunities within the community. Increasing mental health services and addressing neglected community social determinates may help reduce OUD and prevent opioid related deaths.

Theme 11 - Making naloxone OTC and free

Three stakeholders suggested making naloxone free of charge to the general public by making it available as an over the counter (OTC) medication. Stakeholder 10 believes that OTC naloxone will help decrease the barriers to accessing lifesaving medication. This stakeholder further notes that placing naloxone in vending machines would greatly benefit Michigan residents especially if these vending machines are stationed in high traffic areas such as convenience stores and supermarkets. This stakeholder noted that there are a total of four vending machines that were recently placed in Grand Rapids and Muskegon areas, that allows for 24/7 accessibility of Narcan for free to the public. Stakeholder 12 aligned with stakeholder 10 and suggested that naloxone needs to be widely made available as an OTC drug even at the federal level.

Alternatives

Pharmacist Standing Order

Currently in the state of Michigan, pharmacists can distribute naloxone to the public without a prescription through a standing order written by the chief medical executive. HB 5326 was overwhelmingly passed by legislatures in 2016 and was enacted into legislation as Public Act 383 (H.B. 5326, 2016). The goal of HB 5326 was to ensure that individuals and families at risk for an opioid overdose would have access to naloxone (Michigan.gov, 2021). Prior to dispensing naloxone, pharmacies must first complete and sign a naloxone Standing Order agreement form issued by the MDHSS. Along with the standing order, the MDHSS provides a packet form that instructs pharmacies/pharmacists must have proper training and provide training to individuals who receive naloxone. MDHSS also recommends pharmacies to provide educational resources to individuals when obtaining naloxone (Michigan.gov, 2021).

Discussion

This alternative has provided greater accessibility to naloxone, but barriers remain. Dahlem et al. (2022) performed a study analyzing pharmacies' utilization of standing orders in the state of Michigan and found that from a select sample only 54% of pharmacies utilization the standing order. Even more troubling Dahlem et al. (2022) found that 18% of pharmacies that were actively participating in the standing order didn't even have naloxone supplied to distribute. Another barrier Dahlem et al. (2022) noted that pharmacies still charge the consumers for naloxone, which could cost the consumer an estimated-out pocket cost of $127. These barriers have reduced the success of HB 5326 and proves that alternatives options such as HB 5166 will be needed to further combat against the opioid epidemic. Although HB 5166 was passed on July 21st, 2022, the chief medical executive has yet to sign the standing order.

Decriminalizing Paraphernalia

One potential alternative is to decriminalize possession of drug paraphernalia. As discussed previously, drug paraphernalia laws are present throughout the United States and they make it illegal to possess and distribute equipment associated with illicit drug use (Davis et al., 2019). Most of the drug paraphernalia laws were enacted during the War on Drugs era, which was designed to reduce illicit drug use such as opioids by incarcerating individuals who possess or distribute illicit drugs (Rieder, 2021). Even though drug paraphernalia laws are in place, opioid use and overdoses continued to increase as evident imprisonment, especially for more impoverished communities. Rieder (2021) continues to state that War on Drugs never addressed the root causes of substance or opioid use disorders.

Discussion

As the opioid epidemic continues to rise, the alternative of decriminalizing drug paraphernalia needs to be considered. These laws act as barriers to protective harm reduction strategies such as availability of sterile syringes to reduce transmission of blood borne diseases and fentanyl testing strips to reduce opioid overdoses (Davis et al., 2019). According to Earp et al. (2021) the legalization and full repealing of paraphernalia laws will help ensure a safe supply of opioids are available on the street and help destigmatizing opioid use, which may further promote the utilization of substance abuse treatment. Determining the extent of full or partial repealing of drug paraphernalia laws is beyond the scope of this paper but rising deaths from opioid overdoses proves change needs to occur.

Over the counter (OTC) naloxone

As of March 28th, 2023, the U.S. Food and Drug Administration (FDA) has approved the use of a brand name version of naloxone, Narcan, to be provided OTC (Office of the

commissioner, 2023). Envoy et al., (2021) suggests that making naloxone available OTC would help increase access by further removing barriers and reducing stigma to access. Currently, in all 50 states, anyone may go to a pharmacy and request naloxone from a pharmacist without a physician's order, but this practice introduces multiple barriers such as perceived stigma associated with opioid or naloxone use among individuals, inconsistent stocking of naloxone, lower availability in independent pharmacies than in large chains, lower availability in rural pharmacies than rural ones, misconceptions and lack of understanding of current naloxone access laws, amongst others. The availability for OTC naloxone is projected to take several months before it is available nationwide, but Michigan needs to be on the leading edge of this development.

Co-prescribing - Academic detailing

According to the CDC (2022) on average clinicians only prescribe 1 naloxone prescription for every 70 high-dose opioid prescriptions. As a result, the CDC is calling on clinicians to help close this disparity through co-prescribing. Co-prescribing is a practice where providers will prescribe naloxone with opioids for patients determined to be at high risk for an opioid overdose. naloxone can be offered to patients who are taking more than 50 morphine milligram equivalents (MMEs) per day, have underlying medical conditions that put them at an increased risk for overdose, take benzos concurrently with opioids, receiving medications for OUD, have a history of overdose, using drugs purchased “on the street,” that may contain synthetic opioids, are 65 years and older and report a non-opioid substance use disorder, or have a history of opioid use and were recently incarcerated. Michigan does not have any co-prescribing laws, but currently, 22 states have some form of a co-prescribing requirement written into their health code (Legislative Analysis and Public Policy Association, 2022).

Discussion

One study found that state mandates requiring co-prescribing opioids and naloxone is associated with an increase in the number of prescriptions of naloxone filled (Sohn et al., 2019). While this study does not draw conclusions that an increase in naloxone prescriptions is associated with a decrease in ORD, another study did conclude that laws enacted to increase use of opioid-reversal agents was associated with reduced opioid-overdose mortality (McClellan et al., 2018). Sohn et al., (2019) was able to conclude that within their study population co-prescribing was responsible for a 16% reduction in ORDs related to prescription opioid analgesics. However, they determined that co-prescribing did not impact deaths related to illicit or synthetic opioids. While illicit, synthetic, and prescription opioids all contribute to the opioid epidemic, co-prescribing only significantly reduces ORDs from prescription opioids.

Targeted naloxone Distribution

According to the CDC (2018), targeted distribution programs seek to train and equip people who are most likely to encounter or witness an overdose, as well as those individuals that use drugs. Even though HB 5166 was passed into law, there is still a lack of awareness of the standing order in the communities which has led to uneven distribution of naloxone. MDHSS data indicates that only 25 percent of the people who inject drugs had naloxone access despite the standing order (MDHSS, 2020). It is important to note that for these targeted distributions to work, proper training must be completed. Effective approaches would include training of the community organizations, first responders and individuals likely to encounter or witness an overdose encounter (CDC, 2018).

Discussion

Targeted naloxone distribution programs would be a suitable alternative to Michigan's current opioids crisis, it would help decrease the incidences of opioid related deaths/overdoses. Available data from CDC (2018) shows support for increasing naloxone in communities to decrease the incidences of opioid-related overdose. Walley et al. (2013) conducted a hallmark study in Massachusetts and found that a state-supported overdose education and nasal naloxone distribution (OEND) program reduced rates of an opioid-related overdose in communities the OEND program was implemented. The OENDs aim was to provide education to people at risk for overdose and bystanders in how to prevent, recognize, and adequately respond to an overdose. From 2002- to 2009 the Massachusetts OEND program trained 2912 bystanders who reported 327 rescues. Additionally, this study found that communities with higher enrollments, greater than 100, in the OEND program experienced a lower incidence of opioid overdose as compared to communities with less than 100 enrollees.

Another observational study of a naloxone distribution program in British Columbia recorded the distribution of 836 naloxone kits to people who use drugs and 85 reported overdose reversals from among those trained and equipped with naloxone by the program, showing that at least 1 in every 10 kits distributed had saved a life, (CDC, 2018). Based on the results from both studies mentioned above, naloxone distribution programs favor all Michigan residents and family members dealing with opioid use disorders. The evidence offered by both studies shows that the support in increasing access to naloxone through community-based programs decreases the incidence of opioid-related overdoses.

Syringe Services Programs

Syringe services programs (SSPs) provide access to clean and sterile equipment used for the preparation and consumption of drugs as well as tools for the prevention and reversal of opioid overdose (CDC, 2018). The free distribution of clean injections equipment lowers the frequency of syringe sharing which is a major preventative measure in the spread of infection. The same study also reports a decrease in syringe sharing and reuse in regions that have implemented syringe access and disposal services in pharmacies (CDC, 2018).

Even though SSPs are associated with a reduction in HIV and HCV incidences, there is no specific data disclosing the reduction in the rate of opioid overdoses, (CDC, 2019). The study also highlighted the benefits of SSPs in relation to the safety and protection they provide to the first responders and the public. In the State of Michigan, the vulnerability index assessment from 2018, indicated an estimated 93 percent of vulnerable counties did not have a SSP (MDHHS, 2018).

Discussion

Available data from the Michigan SSP utilization platform (SUP) compiled some data from October 2018 through December 2022 and reported that there was a total of 121,885 participants that had access to an SSPs (MDHHS, 2023). Of the total number of participants, 85,616 accessed the syringes indirectly through a friend, family member, or a close contact. A total of 9.8 million syringes were distributed during this period (MDHHS, 2023). A study from the CDC (2018) shows that people who participate in SSPs are 5 times more likely to start drug treatment and 3.5 times more likely to stop injecting, compared to those who don't utilize these programs. These SSPs also provide a non-judgmental environment for people using drugs, provides relief from shame and stigma associated with drug use.

Even though there are over 400 SSPs in the U.S, there are still many communities that don't have access. It is evident from this discussion that SSPs provide a benefit of safety and chance of survival to people, therefore, there is need for more access to SSPs to improve the health of Michigan residents that use drugs (National Harm Reduction Coalition, 2020).

Naloxone Distribution in Treatment Centers and Criminal Justice Settings

Incidences of having an opioid overdose are high among people who have a history of being incarcerated often occur immediately after release from jail or prison (MDHHS, 2020). A report by CDC (2018), states that a person is 25 times more likely to overdose in the first weeks following the cessation of treatment than during treatment (MDHHS, 2020). MDHHs offers naloxone to people using opioids and those at the highest risk of overuse. For individuals leaving prisons, the Michigan Department of Correction offers free naloxone to the individual as well as providing extra naloxone in the offender's success housing, and for individuals leaving jails, MDHHS offers all jails free naloxone kits and provides access to an online enrollment portal for future kit requests (MDHHS, 2020).

Discussion

Gicquelais et al. (2019) conducted a study in a residential justice diversion addiction treatment program in Michigan where they looked at the history of overdose experiences and witnessed overdose, and naloxone knowledge among males and females who use opioids, sample size of 514 (363 male and 151 women). During 2014-2016 the prevalence of experiencing and witnessing an overdose among people who use opioids in justice diversion treatment was high across both genders (Gicquelais et al., 2019).

In the same study the study also wanted to find out the correlation of overdose and naloxone knowledge men and women in the same sample. Results showed that individuals

experiencing and witnessing an overdose were both positively associated with naloxone knowledge among men and women (Gicquelais et al., 2019). Only 26.0 percent of men who had never experienced an overdose were knowledgeable of naloxone, whereas 65.7 percent of men with lifetime overdose experience had naloxone knowledge. Among women, 35.1percent of women who had not overdosed had naloxone knowledge verses. 77.3 percent who overdosed had naloxone knowledge (Gicquelais et al., 2019). There was lower naloxone knowledge among men in bivariate analyses.

The implementation of naloxone programs operated within treatment and correctional settings is a desirable alternative and should be routinely incorporated into the justice settings and treatment centers. The programs provide all individuals leaving the criminal justice setting or treatment centers with an opportunity to be trained and equipped on the use of naloxone, as well as provides an opportunity for their family members or friends to get the training needed in naloxone administration and overdose response (CDC, 2018).

Sustainability Plan

As Bardach and Patashnik (2020) outline policy sustainability is imperative to their success to achieve desired outcomes. However, the elected officials that enact public policy do not remain in office forever, leaving enacted public policies vulnerable to their opposition. For this reason, frequent evaluation of public policy is key to its longevity. Once the standing order is signed by the chief medical executive and the intended impacts of HB 5166 are enacted naloxone distribution, lives saved, and healthcare spending will need to be evaluated to determine the net benefit of HB 5166. The evaluation allows stakeholders to continue to advocate for the continued support of HB 5166 and demonstrate to proponents the benefit of HB 5166. Further evaluation of

public policy allows stakeholders to further expand public policy or make changes as needed to ensure the long-term success of the program.

Discussion and Implications for Nursing

Stakeholder interviews helped identify alternatives as well as compare current data with themes identified during the interview process. Unanimously, stakeholders feel strongly that HB 5166 will help increase access to naloxone as well as reduce opioid overdose deaths. This feedback is consistent with current data regarding the relationship between naloxone availability policies, opioid overdose deaths and increasing access to naloxone. The consistency of this feedback and available data supports HB 5166.

This project did not review data regarding program implementation of naloxone access laws, and many stakeholders were concerned that this was not addressed in HB 5166. While the same stakeholders were in support of the bill, they expressed that the bill as proposed lacks detailing as to how the MDHHS would support community organizations and engage with HB 5166. Michigan does offer naloxone training resources online, but due to lack of public awareness, stakeholders are unaware of the available training. Despite the lack of information regarding the role out of the proposed standing order, stakeholders are still in support of HB 5166.

Stakeholder feedback highlighted concerns over who would fund the increase in naloxone distribution. Stakeholders that expressed this concern wondered if this would lead to an increase in taxes to Michigan citizens. During the literature review for this project, funding concerns were often cited as a concern of opponents of naloxone access laws. However, the funding for free naloxone to Michigan citizens comes from state and federal grants, and the funding is already secured for the expansion of naloxone distribution (Michigan.gov, 2020).

Stakeholder concerns are consistent with current data, and if taxes to Michigan citizens remain the same stakeholders are in support of HB 5166.

Additionally, stakeholders expressed concerns that increasing availability of naloxone would enable further opioid use. These concerns expressed by stakeholders are in opposition to known data between the relationship of increasing naloxone access and opioid use. Results from the literature review proved increasing naloxone availability is associated with a decrease in opioid use (Walley et al., 2013). Although stakeholder opinions are in opposition to HB 5166 the current data directly conflicts stakeholder feedback and supports the implementation of HB 5166.

With opioid related overdoses spiking in 2020, due to the COVID-19 pandemic, nurses need to play an important role in helping push public policy forward regarding naloxone access (Jenkins et al., 2020). NPs and registered nurses can advocate for practices that help reduce barriers such as normalizing stigma surrounding opioid use disorder in hopes to increasing access to naloxone. As well as understand what community resources are available for individuals that may be seeking naloxone. Further it is imperative that NPs understand the importance of prescribing naloxone to patients who are at an increased risk for opioid overdose.

Recommendations

Since the start of this project in May of 2022, HB 5166 has been signed into law as of July 21st, 2022. However, as of April 8th, 2023, the standing order for naloxone distribution has not been signed by the chief medical executive. Based on stakeholder feedback it is recommended that the standing order be signed immediately. Community-based organizations are adept at distributing naloxone to their members. A signed standing order would allow for the expansion of new organizations to participate in naloxone distribution. Several stakeholders

expressed concerns that HB 5166 does not provide any guidance for new organizations desiring to begin distributing naloxone to their communities. Currently there are several large community-based organizations that provide education and partnerships with new organizations to help provide guidance. Once the standing order is signed this will be key in the interim, but it is recommended that the MDHSS provide further guidance for other community-based organizations who would like to start distributing naloxone.

With the expected expansion of community-based organizations distributing naloxone, more funding will need to be secured to support these programs. As most organizations that distribute naloxone to their community are funded through grants, support would need to come from private, state, and federal grants.

As of March 29th, 2023, Narcan, a brand name version of naloxone was approved by the FDA for OTC use (Office of the commissioner, 2023). It is recommended that Michigan pharmacies make Narcan available OTC immediately. With the FDA approval for Narcan to be sold OTC, Narcan will soon be available in drug stores, convenience stores, grocery stores, gas stations, and online. Subsequently this will help reduce stigma to obtaining naloxone, as well as help eliminate barriers to obtaining naloxone. Currently a Narcan kit costs $70, and it is unclear if Narcan will continue to be sold at that price once it is made available OTC (Folley, 2023). This creates a significant barrier for individuals desiring to access this life saving medication and should be made available at a reduced price or free.

Conclusions

Despite large bodies of evidence demonstrating naloxone's safe and effective use for reversing opioid overdoses and preventing opioid related overdoses, several barriers still exist to obtaining this lifesaving medication. To reduce barriers to obtaining naloxone the Michigan

Legislature passed HB 5166 on July 21st, 2022, which allows the chief medical executive to sign a standing order to allow community-based organizations to distribute naloxone to their communities without having a physician on staff. By doing so Michigan is positioned to help reduce healthcare costs and save countless lives. Although HB 5166 was passed and signed into law the chief medical executive has yet to sign the standing order as of April 8th, 2023.

Between evidence in the literature and stakeholder feedback it is recommended that the chief medical executive of Michigan signs the standing order to allow community organizations to dispense naloxone to their communities without having a physician on staff immediately. Furthermore, the MDHHS must create further guidance for community-based organizations to engage with the standing order, as well as secure additional funding for the expansion of community-based naloxone distribution programs. Additionally, the FDA recently approved a brand name version of naloxone, Narcan, for OTC counter use, and it is recommended that Michigan immediately begins providing OTC Narcan to its communities. By increasing access to naloxone Michigan stakeholders can be assured that lives and healthcare dollars will be saved.

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Appendix A: Evidence of Synthesis

Themes						
	Economic Burden	Targeted Naloxone Distribution	Alternatives	Death and disability	Loss of opportunities	Barriers
Studies						
Banjo et al., 2014		X	X			
Chimbar & Moleta, 2018		X	X			
Davis et al., 2019						X
Florence et al., 2021	X					
Hamilton et al., 2021						X
Larson & Bergmans, 2022				X		
Levengood et al., 2021			X			
Lipari & Van Horn, 2019					X	
Luo et al., 2021	X					
Moallef & Hayashi, 2021						X
Naumann et al., 2019		X				
Olding et al., 2020			X			
Rockhill & Stroh-Steiner, 2020				X		
Romanowicz et al,. 2019					X	

Slavova et al., 2020				X		
Walley et al., 2013		X				

Appendix B: Literature Table

Authors/ Title	Design/ Level of evidence/purpose	Sample	Intervention	Measurement: Variable and Instruments	Conclusion	Strengths/Limitations/Implications
Banjo et al., 2014	Cross-sectional study	40 client interviews in Vancouver; 12 individual interviews with service providers, police officers and parents of opioid users	British Columbia Take Home Naloxone (BCTHN)	**Quantitative component:** number of people trained, number of people receiving kit for first time and number of replacement kits provided **Qualitative:** 20 minute interview with parents and 1 hour interviews with service providers and police	Responsible for reversing 85 overdoses in its first 20 months of implementation	**Implications:** BCTHN is reducing harms and deaths from overdose, supported and easy to implement. **Strengths:** Includes a rural location **Limitations:** Only includes one rural location. Mainly urban location Reliant on retaining prescribers and costly. Likely overdoses are underreported
Chimbar & Moleta, 2018	Comprehensive literature review	N = 68	Naloxone (take home kits)		Data is from 2017 and earlier	**Implications:** Take home kits are supported to reduce OOD **Limitations:** Lower level of evidence studies (observational only). Need for better data collection following designated protocols **Strengths:** Comprehensive literature review
Davis et al., 2019	Expert opinion				Current paraphernalia laws across the nation act as a harmful barrier to the safety of people who inject drugs (PWID). Less restrictive paraphernalia laws that are designed	**Implications:** To assist policy makers in creating harm reduction programs that promote the safety of PWID. **Limitations:** Level of evidence **Strengths:** Peer Reviewed

					for the safety of PWID in combination with increased access to naloxone can lead to a plan that fully addresses the opioid crisis.	
Florence et al., 2021	Retrospective descriptive study	Incidence of overdose deaths and prevalence of opioid use disorder (OUD) in United States during 2017	none	Data from the National Vital Statistics Sytems provided incidence of opioid overdose deaths Prevalence of OUD in 2017 was obtained from the National Survey of Drug Use and Health Costs of reduced quality of life or death from opioid overdose was obtained from U.S. Department of Health and Human Services guidelines for determining value reduction from morbidity and mortality. Total cost was estimated from healthcare, loss productivity, and criminal justice.	Estimated total societal cost in 2017, from opioid use disorder and fatal overdoses was 1.02 trillion dollars. Total cost was derived from healthcare, criminal justice, substance abuse treatment, loss in productivity, and loss of quality in life. Decreased value of life and life loss had the greatest impact on cost.	**Implications:** Statistical analysis of the economic burden from the opioid crisis magnifies the current issue. This can warrant and assist policymakers in finding solutions. **Limitations:** Health care cost was estimated from public insurance and beneficiaries which may not represent the United States. Data was only obtained on individuals 12 years and older. Criminal Justice cost was estimated from government budgets which may represent all opioid related activities. Loss of productivity was derived from U.S. average salary and may not represent OUD population. Reductions in quality of life was only obtained from individual with OUD and did not attribute effects of OUD on family and friends. **Strengths:** Provided data for Societal Costs
Hamilton et al., 2021	Correlational Studt	3109 U.S. counties	Good Samaritan laws (GSL) that offer protection	Mortality data from 2013-2018	The expansion of GSL and naloxone access laws can be an effective solution to combat	**Implications:** Evidence can assist policy makers that expanding GSLs to protect against arrest can increase PUID to call for emergency services. Further expansion of GSL with

			against arrest and naloxone access laws (NAL).		against the opioid crisis. Findings found GSLs that protect against arrest and that were enacted with NAL resulted in a 7% reduction in all overdoses compared to counties with more restrictive GSL and/or NAL.	increased access to naloxone can be a safe and effective solution against the opioid crisis. **Limitations:** Nonexperimental Difficult to generalize to entire U.S, Lower level of evidence study. **Strengths:** Includes two interventions GSL and NAL
Larson & Bergmans, 2022	Retrospective study		Understanding the effects of Covid-19 pandemic on mental health related mortality	Death records from suicide, alcohol related liver failure and drug overdoses from 2006 to 2020	The onset of the pandemic was associated with high overdose deaths, more impact on the Balck community compared to other ethnicities	**Implications:** Mental health associated mortality including suicide, alcohol related liver failure and drug overdoses increased during the pandemic **Limitations:** Misclassification and recording Error on death certificates Incomplete death certificates. Racial biases in death reporting **Strengths** Provisional data on mortality rates consistent with study
Levengood et al., 2021	Systematic Review	N = 22	Supervised injection facilities (SIFs)		Supervised injection facilities associated with reductions in opioid overdose morbidity and mortality, significant improvements in injection behaviors and harm reduction, significant improvements in access to addiction	**Implications:** Support effectiveness of SIFs in reducing overdose mortality and increasing access to addiction treatment. May indicate decreases in crime **Limitations:** Reduced ability to generalize as sites were limited to Vancouver, Canada and Sydney, Australia. May include publication bias, as favored results are more likely to be published. **Strengths:** Sample size Consistent with other studies.

					treatment programs, and no increase or reductions in crime and public nuisance	
Lipari & Van Horn, 2019	Descriptive Research		Policymakers can use information on the number of children living with parents with an OUD for developing targeted prevention and outreach programs.	National Surveys on Drug Use and Health	An annual average of 8.7 million children in the US aged 17 or younger live in a household with at least one parent who had an OUD.	**Implications** Prevention and intervention efforts targeting older and younger with OUD may be beneficial for reducing the impact of parental use of opioid May decrease the negative impact on children living with OUD. **Limitations** No data on diverse family backgrounds **Strengths** The stability of the survey design, which allows for multiple years of data to be combined to examine substance use and mental health issues in the United States.
Luo et al., 2021	Retrospective descriptive study	Cases of OUD and opioid death from 38 states in the U.S.	none	Cases of OUD estimated from the National Survey on Drug Use and Health (NSDUH) which was administrated by SAMHSA Cases of Opioid death from overdose was obtained from CDC's WONDER Database	Estimated total cost varied state from state. Estimated cost was highest in the Ohio Valley and New England regions. Total cost was derived from healthcare, criminal justice, substance abuse	**Implications:** To assist decision makers at state and federal level in finding solutions to prevent further burden from the opioid crisis. **Limitations:** Cost of OUD was obtained from a single year, which does provide a relative cost effect on the lifetime of OUD. NSDUH did not incorporate homeless or incarcerated individuals, making prevalence underrepresented. **Strengths:**

					treatment, loss in productivity, and loss of quality in life.	Data in generalizable to U.S. Provided data for Societal Costs
Moallef & Hayashi, 2021	Literature Review	N=12 (9 observational studies and 3 qualitive studies)	Good Sarmatian Laws		Results suggests people using illicit drugs (PUID) have little knowledge on Good Sarmatians laws which lead to limited findings in the effectiveness of Good Sarmatians laws and PUID calling for emergency services.	**Implications:** To assist further researchers to further investigate GSLs effectiveness. Magnify the need for communities to advocate GSLs to citizens to increase awareness. **Limitations:** Small Sample Size Poor Generalizability Included lower-level evidence
Naumann et al., 2019	One-group pre-post design	38 Counties in North Carolina	Community based naloxone distribution	Mortality data from 2000-2016 County-level counts of naloxone kits distributed from 2013-2016	Community-based naloxone distribution is associated with lower OOD rates.	**Implications:** Community based naloxone distribution decreases OOD rates. Counties with >100 naloxone kits distributed per 100,000 population was associated with OOD rates .88x that of counties with no distribution Counties with 1-100 naloxone kits distributed per 100,000 population were associated with .90x those counties with no distribution **Strength:** First study to research cost-benefit of naloxone distribution programs. **Limitations:** Not an RCT or Meta analysis No county of death information only county of residence.

						Data does not show availability of naloxone in communities from other sources such as EMS. Cost benefit only analyzed using a estimate of the value of a statistical life. Rural counties not included
Olding et al., 2020	Description of low-barrier, peer-staffed, supervised consumption site in Vancouver, Canada	N = 128,944	Molson Overdose Prevention Site and Learning Lab	**Qualitative:** interviews with people about their experiences using services. Interviews with peer staff regarding program operations and 200 hours of ethnographic observation. **Quantitative:** Overdose reversals, knowledge regarding drug use.	From 2017-2019 there were 128,944 visits to Molson OPS and 770 overdose reversals with no on-site deaths.	**Implications:** Overdose Prevention Site (OPSs) are promising sites for injectable opioid agonist treatment (iOAT), drug checking, and "Safe supply" programs **Strengths:** Sample size Supports support for safe **Limitations:** Observational studies. Difficulty to generalize Conducted in Canada vs. United States
Rockhill & Stroh-Steiner, 2020	Expert Opinion		Data monitoring during COVID-19 pandemic	Emergency Department (ED) Visits: Michigan Syndromic Surveillance System (MSSS) Emergency Medical Service (EMS)	Covid-19 has the potential to affect overdose death rates as evidenced by increase rates of opioid deaths: 7.7% in Aug 2019	**Implications** Opioid overdose poses a great public health problem to the people of Michigan **Limitations** Excluded women

				Responses: Michigan Emergency Medical Services Information System (MiEMSIS) Timeline: Monthly analysis	to 13.2% in Aug 2020 ER visits related to opioid overdose increased by 4.1% during the pandemic	Data collection only included males 24-45 years.
Romanowicz et al,. 2019	Systematic Review	304 studies	evaluated effects of parental opioid addiction on the parent–child relationship as the primary outcome and on children's outcomes, including behaviors and development	Several comprehensive databases from January 1980 to February 2018 Through observation of parent and child interaction with parent with an OUD	Evidence shows an association between parental opioid addiction and poorer parent–child attachment and risk of developmental and behavioral outcomes Further research and treatment targeting children and families with parental opioid use are needed to prevent difficulties later in life.	**Implication** Children whose parent struggle with OUD are at a higher risk for mental and behavioral disorders such as, depression, anxiety, and trauma-related symptoms, and have more academic, social, and family functioning difficulties than children whose parents do not struggle with OUD **Strengths** All cofounding factor well addressed **Limitations** Only 12 studies evaluated the effects of parental opioid effects The history of parental drug use was poorly recorded and often unclear, making it difficult to assess correlations among types of opioids used, dose, and length of use and the effects on the parent–child relationship and child behaviors.

Slavova et al., 2020	Evaluation research		Evaluate changes in daily numbers of EMS runs for opioid overdose during January 2020 to April 2020	Kentucky State Ambulance Reporting System Emergency Medical Service (EMS) Response records for opioid overdose	Study provided verifiable evidence of increased opioid overdoses during the COVID –19 pandemic	**Implications** Opioid overdoses are a real scare to society. Understanding the situation, proactive responses to overdose will prevent opioid overdose related overdose deaths. **Strengths** Provided rapid and timely information about change in risk for overdose and inform earlier interventions **Limitations** EMS records did not include clinical diagnosis for opioid overdose. Reporting is from only one state
Walley et al., 2013	Interrupted time series analysis	19 Massachusetts communities	Overdose education and nasal naloxone distribution (OEND)	Rates of opioid overdose were calculated by using in-state occurrent deaths from the electronic database maintained by the Massachusetts registry of Vital Records and Statistics, Massachusetts Department of Public Health.	lower opioid overdose deaths in counties with OEND implementation	**Strengths:** Research study design (time series analysis). The length of the study allowed research to analyze the effects of communities that implemented an OEND after the research began. **Limitations:** Observational approach cannot prove definitively that OEND caused a reduction in opioid related overdose death rates.

						True population of opioid users is unknown Opioid overdose fatalities may have been misclassified Opioid poisoning statistics were based on hospital coding and could be incorrect. Overdoses may have occurred in clusters, which could result in assumption. Results of rescues reported back may be underreported. **Implication:** OEND is an effective public health intervention OEND implementation seemed to have a dose related impact, higher the rate of OEND implementation resulted in greater reduction in overdose deaths. May reduce visits to ER and hospitalization but may also increase by encouraging people to engage in medical system. OEND targets overdose risk behaviors of trainee but empowers trainees to intervene in another person's overdose, making a bigger impact on community vs. Self.

Appendix C: Timeline

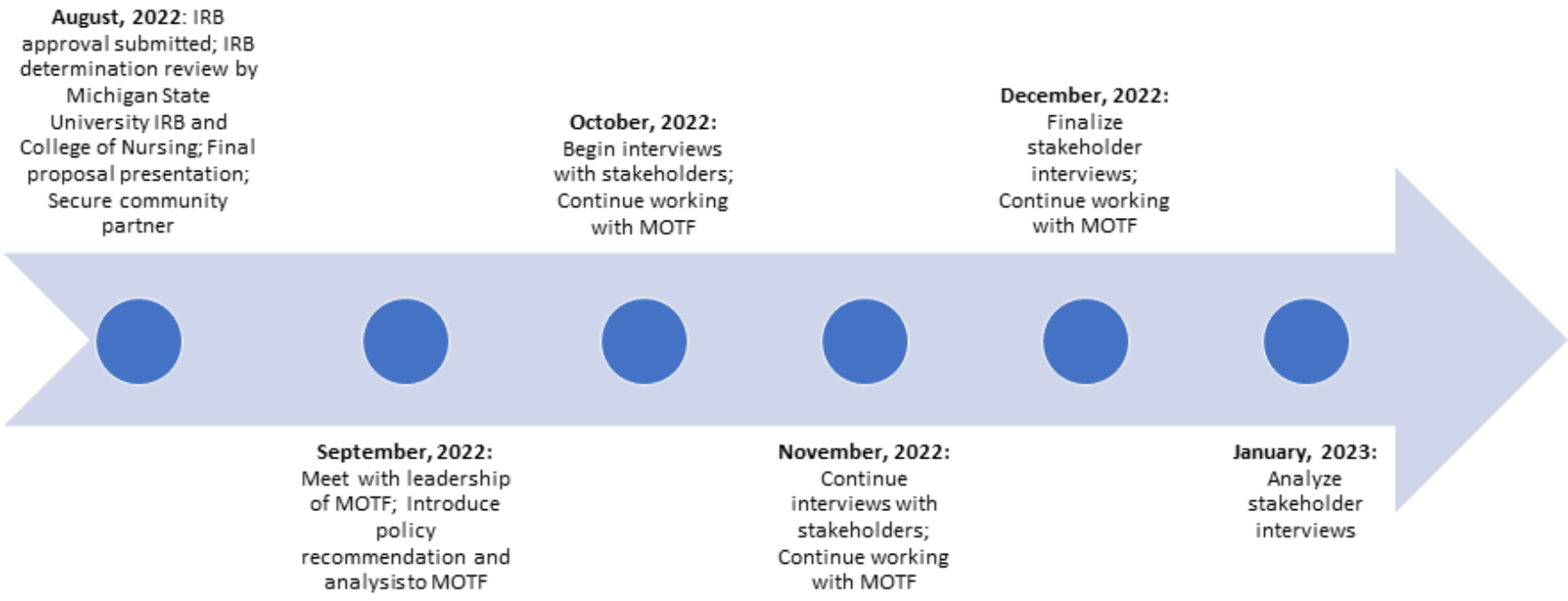

Figure 1. Timeline for Implementation Phase of Policy Recommendation: Increasing community access to naloxone

Appendix D: Budget

Michigan State University College of Nursing
NUR 996 DNP Project Implementation Budget
Policy Recommendation: Increasing Access to Naloxone
Henry Birchmeier, Trevor Gabel-Baird, Patience Nyambe
Fall Semester, 2022

Fall Semester 2022	Student 1 @ 60 hours	Student 2 @ 60 hours	Student 3 @ 60 hours	Transportation	Advisor Support @ 60 hours	Paper and ink	Total
	$2,724.00	$2,724.00	$2,724.00	$800.00	$2,923.00	$100.00	$ 11,995.00
Total	**$2,724.00**	**$2,724.00**	**$2,724.00**	**$800.00**	**$2,923**	**$100.00**	**$ 11,995.00**

Subtotal	$ 11,995.00
Total	$ 11,995.00

Appendix E : Stakeholder Questionnaires
Questionnaire

Explanation of HB 5166

In response to the ongoing opioid crisis the Michigan Legislature recently passed House Bill 5166 (HB 5166) on July 21st, 2022. HB 5166 gives the chief medical executive the ability to create a standing order to allow pharmacists to dispense naloxone to individuals or community-based organizations. Community-based organizations may include a public or private organization that provides health or human services including, but not limited to, a nonprofit organization, a social service provider, an organization providing substance use disorder prevention, treatment, recovery, or harm reduction. Once a pharmacist dispenses naloxone to a community-based organization, the staff members may then distribute naloxone to individuals. HB 5166 provides protection to the chief medical executive, pharmacist, community-based organization, or a staff member of the organization who distributed naloxone from being liable for damages resulting from dispensing naloxone. A community-based organization does not include an agency as defined in section 101 of the administration of opioid antagonist's act that includes:

- This state and its agencies, departments, commissions, courts, boards, and statutorily created task forces.
- A public Michigan university or college.
- A city, village, or township or any combination of them when acting jointly.
- A county, county road commission, school district, public library, port district, metropolitan district, or transportation authority; a combination of these entities acting jointly; a district or authority authorized by law or formed by one or more of these entities; or an agency, department, court, board, or council of any of these entities.

Questionnaire

1) What are your thoughts about HB 5166 increasing access to naloxone for Michigan Residents?
2) How do you think Michigan citizens will benefit from HB 5166 and what are the barriers to HB 5166?
3) What worries you about HB 5166?
4) What do you think are alternatives instead of HB 5166?

Appendix F: Stakeholder List

	Stakeholder Title
Stakeholder Number	
1	Michigan Citizens 55 years old
2	Michigan Citizens aged 70 and older
3	Michigan Citizens 50 years old
4	Michigan Citizens 70 years old
5	Healthcare Administrators
6	Pharmacists
7	Michigan State Senator
8	Law Enforcement
9	Healthcare provider
10	Community Organization-GR Red
11	Healthcare Providers - Psychologist
12	Michigan Department of Health and Human Services- MOTF
13	Michigan Citizens aged 18 to 50 and older

Appendix G: Stakeholder Interview Responses Inventory:

		Stakeholder										
Identified Themes	Reduction of opioid deaths	1	2	3	4	7	8	9	11			
	Increase access to naloxone	5	6	7	8	10	11	12				
	Program implementation	2	4	5	6	7	8	9	10	11		
	Stigma associated with naloxone use	2	3	4	6	7	9	11	12	13		
	Fear of litigation	2	4	6	8	13						
	Funding concerns	2	4	5	6	9						
	Enabling substance overuse	1	2	4	8	9						
	Program awareness	2	4	8	11							
	Lack of alternatives	1	2	3	4	6	7	8	11			
	Increasing mental health services	2	4	8	9	11	13					
	Making naloxone OTC and free	5	10	12								

Note: The number in each square represents a stakeholder listed in Appendix F.