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# Addressing the Opioid Epidemic in Minnesota: Improving Health Outcomes by Expanding Harm Reduction Strategies A Prospective Policy Analysis

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# Improving Health Outcomes by Expanding Harm Reduction Strategies

## A Prospective Policy Analysis

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**ABSTRACT**

**Background**: Morbidity and mortality from opioid misuse is worsening in Minnesota, and synthetic opioids have exacerbated the public health problem for vulnerable communities. People who inject drugs (PWID) due to social, health, economic and environmental factors are experiencing increased fatal overdoses. Minnesota has a broad approach to tackling the opioid crisis, but policies are needed, using new harm reduction strategies, to address the existing gaps.

**Methods**: A prospective policy analysis was conducted using a public health and trauma informed approach using an extensive literature review to understand ways to improve health outcomes in PWID. A Center for Disease Control policy analysis framework was used comparing two policy options: safe consumption sites (SCS) and expansion of Narcan utilizing public health vending machines (PHVM).

**Results:** Both policy options were found to be beneficial, feasible, and cost-effective approaches which would increase enrollment in addiction treatment services and decrease healthcare costs to society. Implementation of a SCS pilot study and PHVM, into areas most affected by the epidemic, would reduce overdose deaths by increasing access and availability of life saving treatments. Three repeating themes appeared in the analysis: language, stigma, and research.

**Conclusion**: A multi-pronged approach can improve MDH opioid epidemic response. Innovative harm reduction policy inclusion and expansion is critical to reduce overdose deaths and must be on Minnesota lawmakers' policy agenda. Inclusion of affected populations in policy development is vital. Properly framing the issue and use of first-person language is important. Further education and health communication programs are needed to reduce stigma among all stakeholders. Evaluation research of utilization patterns will strengthen evidence for the further expansion of new policy solutions.

*Key words*: opioid epidemic, harm reduction strategies, safe consumption sites, Narcan expansion, PWID, stigma, policy analysis

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## Scope of the Problem

The opioid epidemic is a worldwide problem. The United States is amid a third phase and overdose deaths (OD) are worsening (Bedene, Dahan, Rosendaal & vanDorp, 2022). What began as a misuse of prescription medication due to over prescribing for pain management has morphed into a major crisis with over 1,000,000 overdose deaths since 1999 (Gupta, Levine, Cepeda &Oltgrave, 2022). There are 136 individuals dying daily of opioid overdose and seventy-five percent of all OD's involve an opioid. The overdose deaths rose 17% from 2020 to 2021 (CDC, 2023). Fentanyl is an illicit synthetic opioid drug trafficked worldwide which when mixed with other drugs of abuse, is often ingested unknowingly. Fentanyl has resulted in accelerated overdose rates seen in the United States, especially during and after the COVID-19 pandemic (Barry et. al., 2019; Gupta et al., 2022; Nusslock et al., 2021, Weiland &Sanger-Katz, 2022). The National Survey on Drug Use and Health showed 2.7 million Americans, ages 12 and older, suffered from opioid use disorder (OUD) in 2020 (Wakeman, 2022). Overdose related morbidity and mortality has an immense impact on healthcare expenses and loss of human life. Overdose deaths now rank higher than accidental deaths due to car accidents and gun deaths combined (Saloner et al., 2018) and is responsible for a decrease in life expectancy in the U.S. over the past two years to levels not seen since the 1920's (CDC 2023; Lopez, 2023).

## Historical Context

In the United States, the opioid epidemic can be traced to the 1970's and the war on drugs which led to criminalization and stigmatization, disproportionately affecting minority populations (Saloner et al.,2018). Three phases outline the current epidemic (Palombi, 2023).

The first phase began with overprescribing of opioid narcotics in the 1990's to address pain control which led to tolerance and addiction with the diversion of narcotic supplies, affecting Whites more than

minority populations. The U.S. drug policy began monitoring prescriptions and the second wave began due to a diminished legal supply creating the opioid paradox: overdose rates increased despite policy enacted to decrease supply. People who inject drugs (PWID) switched to readily available and cheaper illicit drugs, like heroin. However, over 30% of heroin users initiated illicit drug use with heroin instead of oxycontin (Wakeman, 2022) and more intravenous heroin users were from minority groups (Singer, 2018). Beginning around 2013, due to the introduction and infiltration of cheaper synthetic opioids, namely fentanyl, into the manufacturing of illicit drugs, a third wave of the epidemic developed. All populations are affected, young and old, rural, and urban. Racial disparities have existed since the 1970's when the heroin use greatly affected minority populations. Since the crisis really expanded in the 2000's, overdose mortality has been higher among Blacks, Native Americans (Saloner et al., 2018) and Latinx or Latina communities (Wakeman, 2022). There is evidence of a fourth phase emerging since 2020, due to combinations of non-medical substance use, most commonly the combination of opioids, including fentanyl, and methamphetamines further worsening overdose morbidity and deaths (Bedene et al., 2022; Christensen, 2023). The epidemic is commonly referred to as the overdose epidemic due to the expansion of heroin, fentanyl and other drugs of abuse creating fatal outcomes (Weiland& Sanger-Katz, 2022).

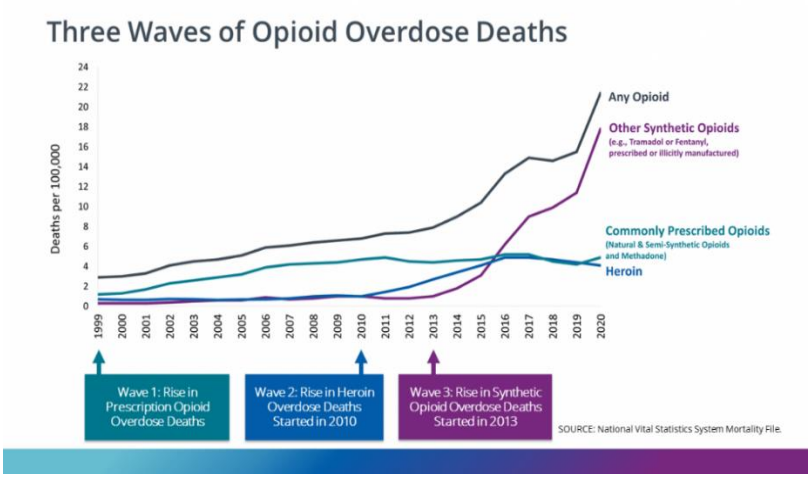



**Figure 1. Three waves of Opioid Overdose Deaths CDC; Palombi, 2023).**

**Current United States Policy**

Current Biden-Harris Federal Drug Policy outlines two priorities to tackle the opioid epidemic: untreated addiction and drug trafficking; now with more spending allocated to treatment and prevention than law enforcement (ONDCP, 2021; Gupta et.al., 2022). Decreasing the illicit drug supply is critical, but policy makers, public health, scientific and medical experts are pivoting toward treatment instead of solely prevention; maintenance instead of demanding abstinence (Mirzaei, Yazdi-Feyzabadi, Mehrolhassani, Nakhaee&Oroomiei, 2022). Understanding addiction as a biological disease and a chronic medical condition which requires management and treatment is imperative to curbing morbidity and mortality, decreasing stigma associated with opioid misuse and the development of trust in accessing care for PWID (Wakeman, 2022; Dopp, Thorton, Kozhimannil, Jones, & Greenfield, 2020). A shift in the paradigm from criminalization and stigmatization to harm reduction is needed; shifting from one solely focused on limiting the supply of opioids to one embedded in harm reduction and restoring dignity, autonomy and empowering individuals dealing with addiction (Dopp et al., 2020; Nusslock et al., 2021; Wakeman, 2022; Kerber, Donnelly & dela Cruz, 2020).

Harm reduction strategies (HRS) or harm reduction practices (HRP) have multiple applications and are not strictly attached to illicit substance misuse (Kerber et al., 2020). Harm reduction works by decreasing the physical and legal consequences, not abolishing the problem of addiction. HRS were commonly used with tobacco or alcohol cessation efforts (Klein, 2020) and came into clearer focus and applicability to illicit substance use with the HIV epidemic in 1980's. HRS were utilized to curb transmission of blood borne diseases among PWID by supplying clean needles and promoting syringe exchange. HRS work to encourage safer practices for people who may require additional support (Kerber et al., 2020). One HRS, syringe service program (SSP) or [needle exchange programs, (NEP), or syringe exchange programs, (SEP)], helped address the poor disposal of needles and syringes by users. By decreasing litter, public support improved, and community stigma decreased (Behrends, 2019). Now, HRS are becoming a vital component to address adverse health outcomes and overdose deaths associated with opioid use and PWID

(Kerber et al., 2020). Harm reduction strategies target untreated addiction, meeting the addicted where they are, using a trauma informed approach (Bowen & Irish, 2022). Great strides in decreasing morbidity and mortality associated with addiction for PWID have occurred. These include nonfatal and fatal overdoses, overuse of hospitals and emergency rooms, chronic disease development of HIV and Hepatitis C due to shared needles and wound infections which all contribute to economic, health systems and societal strain (Marshall, Dechman, Mnichiello, Alcock &Harris, 2015; Mirzaei et al., 2022).

Legal barriers exist affecting the implementation of HRS and demand the attention of policy makers. Federal and state laws, from the DATA waiver, commonly called the X-waiver (Volpe, 2023), regulations on buprenorphine (MAT) prescribing, and drug paraphernalia laws curtail harm reduction strategies by limiting access to medications, provider's ability to treat, and access to safe and clean needles and syringes through SEP's. (Gupta et al., 2022; Davis & Carr, 2022; Saloner et al., 2018). Recent FDA approval of over-the-counter access to Narcan is a positive development to improving access, but it does not address the cost barrier (Christensen, 2023).

**Minnesota's Opioid Disease Burden and Response to the Epidemic**

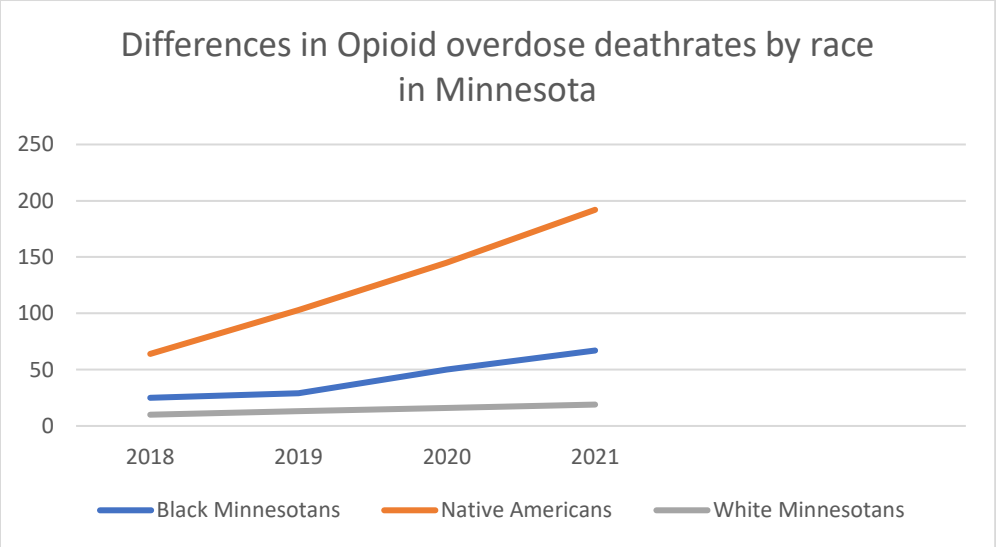
In Minnesota, the opioid epidemic and its effects on PWID are multifaceted problems experiencing dynamic change, which require a public health response using harm reduction strategies. Opioid involved overdose deaths increased 43% from 2020-2021 alone, with the majority related to fentanyl (MDH, 2023). For every overdose death there are many nonfatal overdoses. Opportunities to intervene in the overdoses were present in over two-thirds of the cases, yet fatalities occurred (CDC 2022; MDH, 2023; Wakeman, 2022). No PWID who misuses substances are immune to the harm, from the older people with chronic pain to youth experimenting with illicit substances; all ages, gender, ethnicity, or locations show vulnerabilities (Kerber et al., 2020).

Homelessness in Minnesota is a strong risk factor. Overdose deaths from substance use were ten times higher when dealing with housing insecurity than in the general population (Seres, 2023). Healthcare

utilization and cost, including emergency response and ambulance care, emergency room visits to hospitalizations and residential addiction treatment facilities are enormous. When combined, this multi-level utilization creates a large burden on the healthcare system. HRS can reduce healthcare usage strain, lessen the financial burden, and decrease overdoses and overdose fatalities of PWID (MDH, 2023).

Racial disparities exist and the intersectionality between race and opioid overdose is evident in Minnesota. While more Whites are dying of opioid related OD's per capita, Black people are three times as likely and Native Americans ten times more likely to die of overdose as White Minnesotans (MDH, 2023). (See Figure 2).

**Figure 2.** Overdose deaths by race in Minnesota (MDH, 2023)




Promising HRS such as safe consumption sites (SCS), provide monitored use with onsite overdose prevention, access to treatment and safe and clean supplies. Federal law limits SCS in the United States. Although a few cities have implemented them including Seattle, (Hood et al., 2019) and New York City (Behrends, 2019; New York Post, 2022), there are none in Minnesota. In other countries like Germany, The Netherlands (Mehrolhassani, Yazdi-Feyzabadi, Hajebi &Mirzaei, 2019) and Canada (Young &Fairbaim, 2018),SCS have been standard of treatment for many years and have been shown to be cost

effective in preventing overdoses in a monitored and accepting environment while providing connections to treatment and peer support (Cohen, Brahinsky, Coll & Dotson, 2022; Finke & Chan, 2022).

Medication assisted treatment (MAT), using buprenorphine or methadone, is cost effective and improves outcomes. However, Black people receive referral to treatment at a lesser rate than Whites and BIPOC communities have decreased access to full treatment regimen. A study by New York University uncovered that BIPOC communities were often unaware that buprenorphine *was* an addiction treatment (Baumgaertner, 2022). MAT has been incorporated into SCS models in other countries (Mehrolhassani et al., 2019. Behrends, 2019). Access to MAT in rural areas and within vulnerable populations in the U.S. and Minnesota is limited (Fairly et al., 2021).

Narcan (naloxone) is highly effective and improved availability has accomplished a decrease in overdoses (CDC, 2018; MDH, 2023), but access barriers remain. Grassroots efforts, like Rural AIDS Action Network (RAAN), are a catalyst for the expansion of naloxone and syringe/needle exchange programs in Minnesota. Communities are demanding action to meet the needs of constituents, especially youth and young adults, ages 15-34; the greatest demographic currently affected in Minnesota with nonfatal and fatal overdoses (Klein, 2020; K. Gustavson, personal communication, February 21, 2023). Statewide, opioid involved overdose deaths increased in Greater Minnesota by 34% in 2020-2021, a higher percentage increase than in the seven county Metropolitan area (MDH, 2023).

Minnesota has effective syringe service programs (SSP), mobile distribution and care providing entities. They are funded primarily by Minnesota state grants through the MDH. SSP follows the principles of harm reduction providing care in supportive, non-judgmental ways to vulnerable population facing stigma in other healthcare settings. These programs provide community focused care, provided by staff who are members of the community, to PWID offering drug use supplies at no cost with exchange and safe disposal of used supplies available. Naloxone kits, overdose prevention training and referrals to mental and physical healthcare and addiction treatment are impacts of SSP (MDH, 2023).

However, despite multiple SSP sites in Minnesota, HIV rates in Ramsey and Hennepin County increased from 2019 to 2021. An HIV outbreak was declared on February 20, 2023, among PWID, in which two-thirds of new cases were in communities of color (MDH, 2023). Policy to address this increase is needed to impact health disparities, decrease the disease burden, and address the needs of BIPOC communities locally.

While telemedicine and complementary electronic medical records helped to improve service access, as was noted during the COVID-19 epidemic, a large gap in services, healthcare providers and HRS still exists in underserved rural areas, and stigma associated with substance use may be more prominent (Des Jarlais, 2017; Kerber et al., 2020). Meeting the needs of all Minnesotans remains a challenge.

**Social Determinants of Health for Opioid Use Disorder**

Several factors impact addiction. Environmental, social, cultural, and psychological factors related to social determinants of health (SDH) affect PWID, including housing insecurity, poverty, work instability, historical trauma, and barriers to treatment access (Opioid Response Network, OPN). Treatment is often not covered by federal or state healthcare options. Lack of access to health insurance is a major barrier (Medicaid, 2023; Editorial Board, 2023). Despite multiple encounters with the healthcare system, only about 20% of people affected by OUD receive treatment. This results in greater rates of opioid related morbidity and mortality (CDC, 2022; Baumgaertner, 2022; Wakeman, 2022). A history of mental health, economic insecurity, stigma, and bias are factors affecting substance misuse creating immediate, short term and long-term consequences at the individual, family, community, and societal level (Klein, 2020).

**Purpose and Research Statement**

A prospective policy analysis was done to address the gaps in Minnesota's current harm reduction strategy response to the opioid epidemic. This analysis provides recommendations to expand access to affordable and appropriate treatments, including harm reduction strategies (HRS) not yet utilized in Minnesota. Expanding the scope of HRS will decrease health care system cost and overuse, decrease

blood borne disease rates, wound infections and reduce morbidity and overdose mortality for vulnerable populations of People who inject drugs (PWID) affected by Opioid Use Disorder (OUD).

## METHODOLOGY

A prospective policy analysis was conducted to examine The Minnesota Department of Health (MDH) policy and HRS response to the opioid epidemic for PWID in Minnesota, to correlate the effectiveness of current policy with limitations or implementation gaps and find strategies to address those gaps.

### Data Analysis Framework

Center for Disease Control (CDC) Health Policy Analysis framework was used (CDC, 2022). Input from Collins (2005) and Kraft and Furlong (Leckrone, 2017) analysis frameworks helped define the steps. CDC framework utilized three steps and two tables as shown in Table 1. ***STEP 1*** included background and historical context and defined the health problem. ***STEP 2a, Evaluation of Policy Options.*** The key and criteria analysis questions from the CDC framework were used to promote an inclusive and complete process to rate the Public Health impact, feasibility, and economic and budgetary impact constructs of the HRS**.**

**Table 1**. Policy analysis framework (CDC; Collins, 2005; Leckrone, 2017)

| **STEPS** | **Procedure of each Step** | **Inputs and Key Questions for Analysis for each Step** |
|---|---|---|
| STEP 1 | • Identify and state the problem or issue.<br>• Include context. | • Outline background; include the economic, political, social influences.<br>• Define the health problem-situation, conditions, issue having adverse effects on population/vulnerable population health.<br>• Why does it exist? Who is affected? How are they affected? How did it develop? Causes? Are causes affected by policy/political action? |
| STEP 2a | • Identify and describe and evaluate policy options.<br>• Consider how problems might be solved or mitigated.<br>• Consider different policy options.<br>• Develop evaluation criteria.<br>• Search for evidence with literature review.<br>• Environmental review | • Literature search from primary or secondary data collection methods<br>• Evaluate the options available to address the health problem. Consult target population for input if able.<br>• Apply framing questions to aid describing. CDC guide Table 1(See appendix) Weigh alternative options using criteria to rate options on effectiveness, feasibility, and public acceptability.<br>• Is option socially equitable? Ethical? Acceptable?<br>• What are the unintended effects/consequences?<br>• What are the strengths and limitations of options?<br>• Link options to contextual factors<br>• SCS, Narcan expansion constructs analyzed.<br>• What are other states/countries doing? |
| STEP 2b | • Assess policy options.<br>• Project outcome | • Rate policy options using *Step 2a* answers assessing each option independently. See Table 2 rating guide.<br>• What outcomes may be achieved with each option?<br>• Are there concerns on amount or quality of data? |

| | | |
|---|---|---|
| STEP 2c | • Prioritize policy options and weigh outcomes.<br>• Draw conclusions. | • Evaluate option alternatives against each other using chart. Compare projected outcomes. Which options are most desirable?<br>• Can action be made more acceptable? |
| STEP 3 | • Develop strategy for further adoption of policy solution (s) | • Sharing information with key stakeholders, including legislators, policy makers, community-based advocacy groups, target population<br>• Conduct additional background work if needed |

Next, ***STEP 2b, Assessment of Policy Options****,* Table 2, was used to record the rating of the policy options based on measures outlined in Table 3. Using the information and answers found in *STEP 2a*, (Review Table 1, CDC policy analysis: key questions), construct criteria were rated either *low, medium, or high* for each policy option independently. Whether adequate and quality data or evidence was available was noted.

**Table 2**. Policy Analysis Table (CDC.org). Rating Policy Options.

| **CRITERIA** | **Public Health Impact (Effectiveness)** | **Feasibility (Political and Operational)** | **Economic and Budgetary Impact** |
|---|---|---|---|
| Scoring Definition | **Low**-small reach, effect size and impact on population<br>**Medium**-small reach with large effect size or large reach with small effect size<br>**High**-large reach, effect size, impact | L**ow**-no/small likelihood of enacted<br>**Medium**-moderate likelihood of being enacted.<br>**High**-high likelihood of being enacted | **Less favored:** less favorable by public, high costs per benefit<br>**Favorable:** favored with public; benefits justify costs<br>**More favorable:** favored by public; benefits outweigh costs |
| Policy option 1 | **Low**<br>**Medium**<br>**High**<br>**Concern about data? y/n** | **Low**<br>**Medium**<br>**High**<br>**Concern about data? y/n** | **Less favored**<br>**Favorable**<br>**More favorable**<br>**Concern about data? y/n** |
| Policy option 2 | **Low**<br>**Medium**<br>**High**<br>**Concern about data/evidence? y/n** | **Low**<br>**Medium**<br>**High**<br>**Concern about data/evidence? y/n** | **Less favored**<br>**Favorable**<br>**More favorable**<br>**Concern about data/evidence? y/n** |

**Table 3**. Assessment Measures for Constructs

| **CONSTRUCT** | **MEASURES EVALUATED** |
|---|---|
| Public Health Impact | Effectiveness<br>Health outcomes-morbidity and mortality<br>Quality of life, impact on health<br>disparities, SDH and equity |
| Feasibility<br>*Political and operational* | Facilitators and barriers to implementation: cultural perspectives; Current and pending legislation; stigma<br><br>Stakeholder attitudes and beliefs: community, those with lived experience, law enforcement, policymakers, healthcare providers<br><br>Perceived acceptability.<br>Current services and gaps in service |
| Economic and budgetary Impact | Costs diverted and cost savings.<br>Cost involved in implementation.<br>Cost-Benefit when available |

Assessment on how these HRS gained acceptance and implementation transferability to a response in Minnesota was done. Cost-benefit analysis was beyond the scope of this project, but simple measures of economic burden or cost benefit were used where outlined in the literature review. (See Table 3).

***STEP 2c, Prioritizing Policy Options*** was done using the chart ratings. A narrative was done for each HRS policy option to document the data and data interpretation to maintain validity and minimize subjectivity bias to scoring and prioritizing policy options (CDC, 2022). Limitations for each criterion and policy options were analyzed and outlined in the narratives. As indicated in Table 1, ***STEP 3, Strategy Development for Policy Adoption*** involves sharing policy analysis information. Further research agenda needs were outlined. Multiple strategies were recommended for expansion opportunities and calls to action utilizing the analysis. The results served to educate, inform, and function as an advocacy tool for the Minnesota Harm Reduction Task Force. They are responsible for the final policy recommendations (MDH, 2023).

**Data Collection**

Databases from National Institute of Health (NIH), CDC, MDH, were sourced to provide demographic and epidemiological data of the issue. An evidence based, peer reviewed, literature review was done, which spanned from 1970-2023. This included only articles written in English. The search utilized PubMed, Google Scholar, and PAIS data. Data was collected on HR options currently used in Minnesota and on promising or emerging practices used in other states or countries. Key word searches included: (health policy), (addiction), (equity), (health literacy), (policy analysis), (opioid dependence), (social determinants of health), (treatment), (harm reduction), (naloxone), (Narcan), (medication assisted treatment), (strategy), (stigma), (national policy), (syringe exchange program), (safe injection sites), (safe consumption sites), (overdose prevention sites), (fentanyl), (fentanyl test strips), (opioid overdose), (opioid epidemic), (opioids), (illicit drug), (legislation), (drug policy). Information on the contextual background of vulnerable and minority populations affected by opioid use disorder (OUD) in Minnesota was reviewed. OUD harm reduction policy options were linked to available implementation approaches.

Current laws affecting these strategies were reviewed. A gray literature search, including WHO, World Bank, newspaper and magazine articles, editorials, and other sources, found using the same key words was included in data collection.

## Results

### Framing Minnesota's Current Opioid Epidemic Response Policy

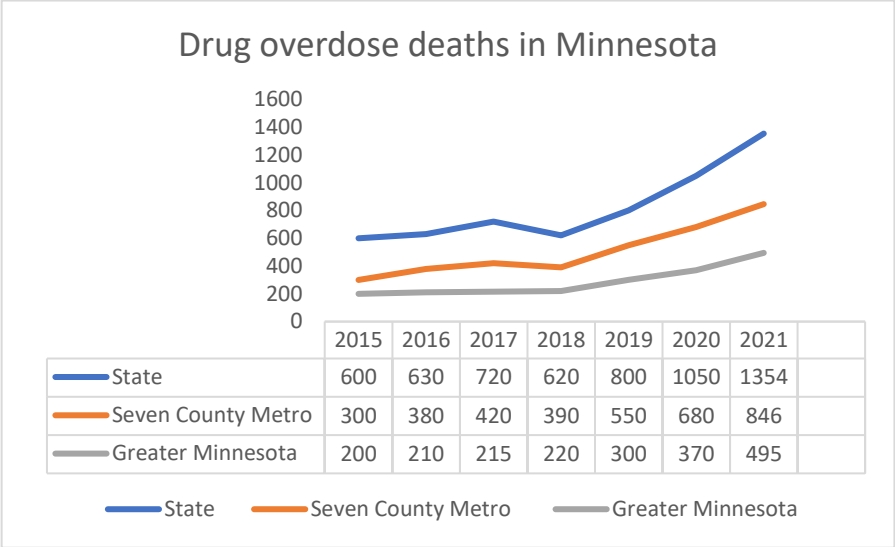
Minnesota has a strong response with programs that are effective in decreasing morbidity and mortality from opioid misuse, however, it contains policies and legislation which continue to criminalize and create barriers for PWID to improve health outcomes (Palombi, 2023; MDH, 2023; Dopp et al.,2020). According to the MDH (2023), their response includes SSP, naloxone distribution using innovative methods and concept development which involved input from those with lived experience. There are many community partners who collaborate and provide services in rural areas but there are unmet needs and racial disparities rurally, and overdose deaths are worsening. (See Table 4).

**Table 4**. Overdose deaths in Minnesota 2015-2021(MDH, 2022)

| Minnesota\year | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|---|---|
| Total deaths | 306 | 317 | 336 | 395 | 421 | 342 | 427 | 678 | 978 |

Opioid involved overdose deaths increased 43% in Minnesota from 2020-2021 and deaths have doubled since 2019 (Minnesota death certificates, MDH, 2023). Rural areas, despite community partnerships, have seen a higher increase in overdose deaths than the metro area (Figure 3). (MDH opioid dashboard, 2023).

**Figure 3.** Drug overdose deaths in Minnesota regional comparison (MDH, 2023).




In 2021, 25-34 -year-olds had the most nonfatal emergency room visits for nonfatal opioid related overdoses and the number of visits continues to rise. In Minnesota, the ages 15-34 are the most affected by the current epidemic (MDH opioid dashboard). The increase in nonfatal cases involved opioids other than heroin, implicating fentanyl (See Table 5, Table 6, and Figure 4).

**Table 5.** Non-fatal Emergency Room visits for opioid related overdoses in Minnesota by age in 2021. (MDH, 2023)

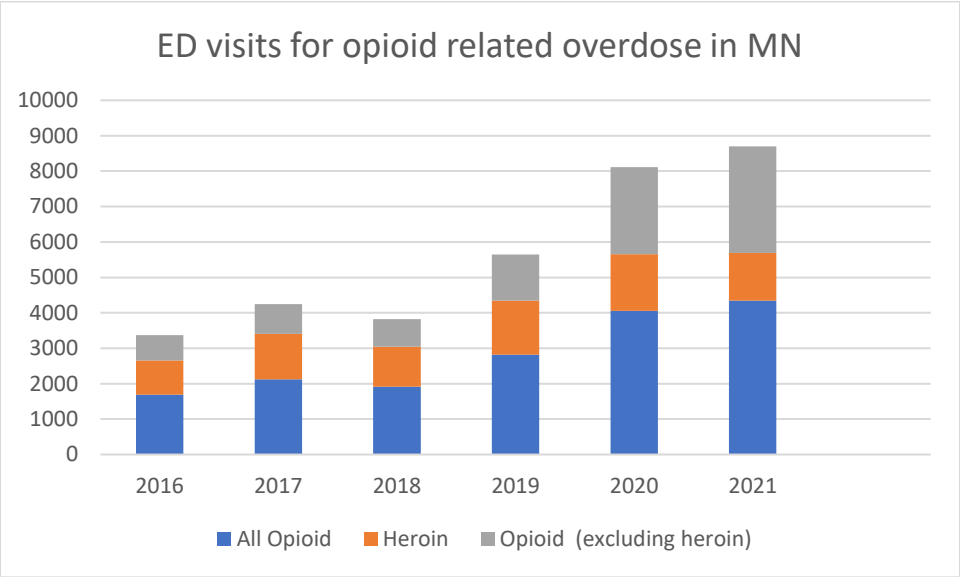
| Age(yrs.) | Total | 1-14 | 15-24 | 25-34 | 35-44 | 45-54 | 55-64 | 65+ |
|---|---|---|---|---|---|---|---|---|
| # visits | 4,349 | 27 | 888 | 1710 | 849 | 436 | 314 | 125 |

**Table 6.** Opioid involved nonfatal overdoses in Minnesota. (MDH, 2023)

| Year | Opioid (excluding heroin) | Heroin | All opioids |
|---|---|---|---|
| 2016 | 719 | 967 | 1686 |
| 2017 | 840 | 1285 | 2125 |
| 2018 | 782 | 1131 | 1913 |
| 2019 | 1292 | 1529 | 2821 |
| 2020 | 2454 | 1602 | 4056 |
| 2021 | 3003 | 1346 | 4349 |

DeLaquil, M., Giesel, S., & Wright, N. (2023) Statewide Trends in Drug Overdose: Final 2021 Update, Data Brief. Minnesota Department of Health.

**Figure 4.** Nonfatal emergency department (ED) visits for opioid-involved overdose in Minnesota. (MDH; MN discharge data, 2023)




Policy makers must prioritize legislation and programs which support vulnerable communities while not adversely affecting society. State and local governments, in continued collaboration and dialog with community partnerships, can implement these programs. Approaches must be regulatory but not punitive and grounded in a public health approach to address the needs of the affected population (Kameg, 2021; Armowitz et al., 2021).

A public health approach is needed to address the social and racial inequities which contribute to the problem. Minnesota has culturally specific teams who work to address racial disparities and outline targeted population recommendations, yet disparities are worsening (MDH, 2023). In Minnesota, the most recent data shows Black people are three times as likely and Native Americans are 10 times as likely to die of opioid overdose than Whites (See Table 7). If program changes are to affect outcomes, policy makers must understand the context of drug use, the structural issues which drive addiction and what factors are contributing to increased overdoses in Minnesota. Addressing addiction and opioid misuse with this approach may change attitudes, reduce stigma, and promote acceptance of treatment which will improve health outcomes for PWID and affect the safety and wellbeing of all members of society (Saloner et al., 2018).

**Table 7.** Rates of overdose deaths among ethnic groups in Minnesota per 100,000 (MDH, 2023)

| Year | Black Minnesotans | American Indian Minnesotans | White Minnesotans |
|---|---|---|---|
| 2018 | 25 | 64 | 10 |
| 2019 | 29 | 103 | 13 |
| 2020 | 50 | 145 | 16 |
| 2021 | 67 | 192 | 19 |

Minnesota opioid policy response recognizes the value of HRS, but worsening health outcomes epidemic require additional programs. Literature review argues for implementation and expansion of HRS to decrease morbidity and mortality of the opioid epidemic (Barry et al., 2019; Etchen, 2022; MDH, 2023; Volpe, 2023). Two HRS policy options are explored independently using the constructs of public health impact, feasibility (political and operational) and economic and budgetary impact (see Methodology section) to understand their potential role in Minnesota opioid response. Current federal and state law, and pending legislation pertaining to the policy options, are reviewed.

**Policy Option A: Safe Consumption Sites (SCS)**

***Public health impact***

SCS, [or supervised injection facilities (SIF), or overdose prevention sites (OPS), or supervised injection sites (SIS), or drug consumption sites (DCS) or safe injection sites (SIS)] are designed for PWID to use already procured illicit substances in a safe environment with overdose prevention available by trained staff. There are only unsanctioned SCS in the United States and studies done in unsanctioned sites show that SCS decrease adverse health outcomes and mitigate serious health risks by decreasing risky behavior and social consequences (Kennedy-Hendricks, Bluestein, Kral, Barry & Sherman, 2019; Lambdin et al., 2021; McGinty et al., 2018). Similar studies done internationally demonstrate that SCS are effective and evidence-based interventions to reduce mortality (Kerr, Mitra, Kennedy & McNeil, 2017; Barry et al., 2019; Harris, Albers & Swan, 2015). SCS staff promote an accepting environment and

provide non-judgmental and non-coercive care by building trusting relationships. The staff understands the social and environmental issues which contribute to addiction (Kerman, Manoni-Miller, Cormier, Cahill, &Sylvestre, 2020; McGinty et al., 2018; Bowen & Irish, 2022). In a study in Vancouver, British Columbia, Gostin, Hodge & Gulison, (2019),it shows that decreased OD fatalities and improved access to addiction treatment for individuals and others in their surrounding communities are benefits of SCS and they found that 42% of users of the SCS entered addiction treatment.

The SCS models in the studies are either basic or multi-service. A basic pilot SCS in Canada that only provided naloxone gained local political and public support when no overdose deaths occurred at the site (Lambdin et al., 2021). Multi-dimensional SCS's, provided counseling, access to primary healthcare, and substance treatment referrals. These are important links for PWID experiencing homelessness (Kerman et al., 2020). Other SCS models included a SSP within the SCS and provides clean supplies, disposal of used needles and syringes, testing for HIV, Hepatitis C, other STD's, routine healthcare with abscess or infection treatment available, and drug testing capabilities with fentanyl test strips used to monitor fentanyl presence in illicit drug supply (Lambdin et al., 2021).Peer support or peer recovery coaching availability can enhance care at HRS and adherence to treatment (Marshall et al., 2015). MAT onsite promotes equity of access to care and long-term recovery (Volpe, 2023).

Other positive health outcomes of SCS include decreased nonfatal overdoses, decreased blood borne infections, prevention, and early detection of soft tissue infections from inappropriate technique, facilitated referrals for either MAT or detoxification programs and opportunities to reconnect with treatment if relapsed (Kendell-Hendricks et al., 2019; Gostin et al., 2019). SCS effectiveness included positive impact on treatment retention and modifying behavior (Wakeman, 2022). Lambdin et al., (2021), showed a reduced burden on healthcare systems with a 24% decrease in fatal OD, 27% less likely to visit ER, 54% fewer ER visits and 32% of patients were less likely to require hospitalization. This evaluation of an unsanctioned SCS in the United States also demonstrates a nine percent reduction in HIV infections

over a five-year period. However, due to limited number of SCS sites in the U.S., there are gaps in evidence-based data.

The analysis explores the effects of SCS usage on social determinants of health and shows several positive outcomes. Healthcare and stable housing access support is fundamental for SCS users. Trauma informed staff who asked general health questions instead of targeting drug use provide relief for PWID. This approach results in increased trust, promotes increased self-esteem, and influences willingness to engage in primary care services and maintenance of harm reduction practices (Bowen & Irish, 2022). PWID who frequented the SCS feel safe from criminalization, accessing a place to use without fear of discovery or interactions with law enforcement. However, some women and Trans populations experience judgment and abuse from other clients at the SCS (Kerman et al., 2020). The access to clean and free supplies is important. According to PWID, the experience of care is just as important as the care they received (Biancarelili et al, 2019). PWID note benefits utilizing an SCS which include feelings of connectedness and a sense of community with others. SCS diminishes the environmental risk of using substances by oneself (Foreman-Mackey, Bayoumi, Miskovic, Kolla & Strike, 2019; Cohen et al., 2022).

***Feasibility: political***

Despite opioid use affecting all socio-economic groups, geographical locations, and ages, the biggest barriers were related to diverse political and social opposition (Etchen, 2022). McGinty et al., (2018), examined national attitudes and acceptability of SCS and SSP and found persistent stigma and negative attitudes towards PWID. Historically, there has been low general population support for SCS. Cultural perspectives of SCS were analyzed by Barry et al., (2019). They note that only 29% of U.S. adults supported SCS. Over 55% of study participants who are against SCS have beliefs and argue that: 1. public funding for SCS should instead be used for expansion of addiction treatment, 2. drugs are illegal, or 3. They believe SCS encourage drug use. Indeed, this same study shows that the least convincing arguments in favor of SCS were the reliance on international data and other countries' success in decreasing

overdoses (34%), and that SCS allow for safe drug use creating a respectful and dignified environment for PWID (27%).

Barry et al., (2019), found that the public in both rural and urban areas did not know that SCS was an entry point for OUD treatment. McGinty et al. (2018), found that the three most common arguments in support of SCS are: 1).the criminalization of drug use-SCS is better than arrest and incarceration for PWID, 2). the decrease in utilization of ER and hospitalization costs, and 3). the decrease in transmission of blood borne disease. Language used to describe HRS can decrease stigma by highlighting prevention instead of assisting drug use (Barry & McGinty, 2018).

Politically identified Democrats are more likely to support SCS than Republicans. However, the stigma surrounding PWID is evident in policy debates on SCS but not on naloxone in all major political parties (McGinty et al., 2018). Rural areas, disproportionately affected by the opioid epidemic, have stronger stigmatized attitudes and beliefs towards PWID than expressed in urban areas, hampering HRS availability and access (North American syringe exchange network, NASEN; Kerber et al., 2020). Persistent stigmatizing attitudes, such as SCS promote drug use or the lack of public knowledge that SCS is a bridge to addiction treatment, decrease acceptance of this policy option (Barry et al., 2019).

SCS utilizers value the privacy and public support for SCS improves with less visible public drug use Therefore, SCS improve the quality of life for PWID and the public (Kerman et al, 2020; Kerber et al., 2020; Foreman-Mackey et al., 2019). Public support improves with lower rates of inappropriate syringe disposal. In neighborhoods where an SCS is located, no increased levels of crime or drug use occur (Gostin et al., 2019). Business owners and other community members are ambivalent to SCS because, while they understand the improved health outcomes from the use of SCS, they do not want it in their neighborhood (NIMBY). Attitudes arise from stigma and discrimination towards PWID and HRS. The same study notes that community members would more likely support SCS if the community is involved in a strong evaluation plan and has a voice in decision making on sustainability. Increased support hinges on incorporation of the SCS into a comprehensive program to include referral for healthcare, addiction

services, and housing opportunities (Strike et al., 2014). The study conducted by Taylor, Ober, Kilmer and Caulkins, (2021), focused on rural and inland urban areas of Midwestern state with high OD death to understand acceptability. Some community members support SCS as a safe place to use, providing drug testing of illicit supplies, which is safe from law enforcement. However, due to gaps in harm reduction services, community stakeholders do not believe SCS was a priority. Distance from drug purchase is a barrier to SCS use for study participants and a medical provider strongly stated an SCS would encourage more drug use (Taylor; p.5, p.7). In both studies, participants suggest that education to decrease stigma, and evidence of effectiveness would improve acceptability of SCS (Strike, p.4, Taylor, p.7)

Law enforcement attitudes are influenced by age and experience since older police with lived experience demonstrate increased support for PWID and OUD. They recognize addiction as a disease, but, paradoxically, have less tolerance of drug use. Increased access to naloxone decreases overdose deaths (MDH, 2023), but compassion fatigue and stigma influence attitudes among law enforcement (Murphy & Russell, 2021). Strike, Watson, Kolla, Penn & Bayoumi, (2015), found all law enforcement participants oppose SCS, due to concerns about increased crime near the SCS.

SCS service users are motivated by the ease of access, cost effectiveness, a sense of belonging, the availability of health and social service options which could positively impact employment and a potential decreased risk of using illicit substances outdoors or alone (Wakeman, 2022; Foreman-Mackey et al., 2019).

The American Medical Association (AMA) (Harris& Mukkalama, 2020) and other health provider organizations, nursing, and pharmacy associations all support of HRS, and especially SCS, due to the reduced usage and healthcare cost benefits noted (Lambdin et al., 2021; Kennedy-Hendricks et al., 2019; Kameg, 2021). Some sites have utilized trained volunteers and peer recovery specialists, proven to be integral members of the recovery team (Singer &Heimowitz, 2022; Marshall et al., 2015).

***Feasibility: operational***

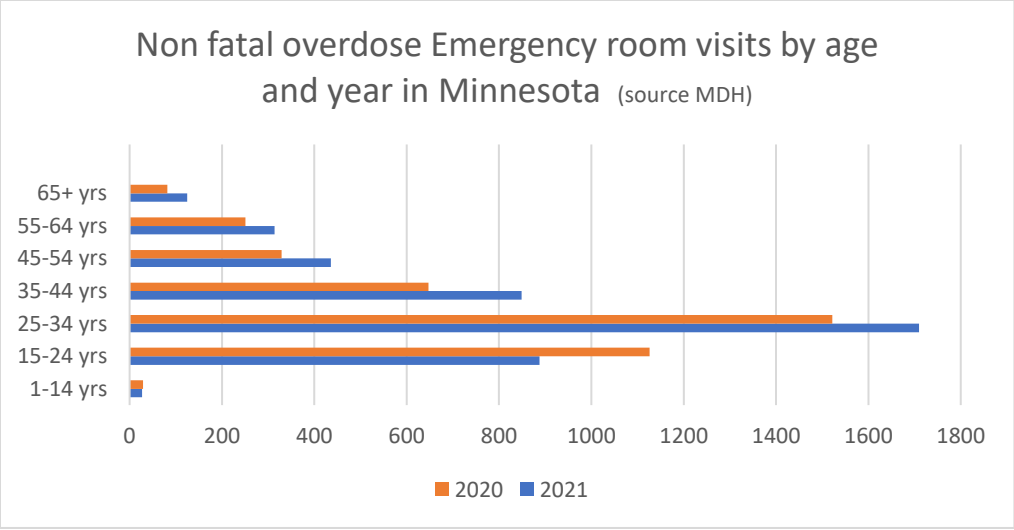
Barriers to implementation include NIMBY attitudes (Strike et al., 2014). Cities restrict zoning to prevent SCS, and public uncertainty makes finding a suitable implementation site difficult. However, some U.S. cities continue exploring ways to implement a SCS (Gostin et al., 2019; Kennedy-Hendricks et al., 2019). The sustainability and/or economic impact of SCS is reviewed in the literature. Placement of SCS near food distribution sites, job training sites, emergency or homeless shelters helps address the other needs of PWID (Kerman et al., 2020). Basic SCS are cost effective; a limited scope of services is less expensive. SCS run by the local community and volunteers limits overhead costs (Foreman-Mackey et al., 2019).

Telemedicine outreach to Greater Minnesota under continued guidelines established during the COVID-19 pandemic continues providing improved access to treatment. SCS, which includes MAT, increases access to treatment.

***Economic and budgetary impact***

In Minnesota, comparing the number of Emergency Room visits, from years 2020 and 2021, shows that healthcare systems utilization is increasing. (See Figure 4).

**Figure 5.** Emergency room visits in Minnesota (source: MDH)



SCS positively affects economic impact due to increased health care cost savings. Kaiser Permanente Health Systems and a Seattle pilot study shows a cost-benefit ratio of a four-dollar savings for every one dollar invested in SCS. These savings exceed the operational costs of the SCS. SCS significantly influence overdose deaths and morbidity, with lives saved cost benefit of over 3.5 million per year. The potential to prevent OD deaths and value of lives saved estimates at 3.5 million annually (Hood et al., 2019). Barry et al., (2019), uses long term outcomes of decreased health care dollars spent on Hepatitis C and HIV treatment to define cost benefit of SCS. A cost-benefit analysis done in San Franscisco and Baltimore shows a substantial healthcare cost savings by catching soft tissue and skin infections complications caused by unsafe consumption/poor technique (Kennedy-Hendricks et al., 2019). Local and community costs for supplies, infectious disease testing with State supported funding would be required.

**Policy Option B. Expansion of Naloxone (take home naloxone (THN), and Public Health Vending Machines (PHVM)**

***Public health impact***

Naloxone expansion works to increase access to life saving treatment. Respiratory depression causes overdose deaths. Naloxone is an opioid antagonist which works by displacing the illicit drug from the brain respiratory receptors resulting in the reversal of drug effects.

Multiple studies confirm that expanding Narcan through access and availability of opioid overdose education and take-home naloxone (THN), reduces the number of opioid overdose deaths. Narcan expansion is designated a public health priority to decrease morbidity and mortality of opioid misuse (Olives et al., 2020). Expanded access is mandatory to facilitate bystander use (Wagner et al., 2022). Public Health Vending Machines, (PHVM), or Vending Machines for Harm Reduction (VMHR), are mechanized devices set to deliver public health supplies like Narcan spray, syringes, needles, condoms, first aid kits, opioid overdose information, treatment referral information. These reduce the risks associated with illicit drug use due to shared needles (blood borne diseases) or condoms to prevent

unprotected sex. Vending machines have been part of the strategy for decades in Europe and Australia (Stewart et al., 2023). Placement of other health items in addition to Narcan decreases stigma felt by those accessing the supplies (Volpe, 2023; Palombi, 2023). Placement of needle disposal bins nearby decreases littering (Kerr et al., 2022).

Non-medical use of prescription opioids (NMUPO) is greater among ages 18-35 years. According to the MDH, (2022), Rural Community Action Guide provides educational programs which are community focused and target youth populations. Studies have shown that strategies which prioritized privacy are necessary to engage young adults in HRS (Wagner et al., 2022; Gostin et al., 2019). Young people are less likely to use HR programs than older adults, and therefore, less likely to obtain Narcan from distribution programs or clinics. PHVM reaches younger adults better (SAMSHA; 2022, p.5; Kerr et al., 2022).

All Minnesotans have the potential to be impacted by illicit drug use and rural areas persistently lack access to Narcan. Family and friends with access reach a person experiencing an adverse event more quickly than emergency medical services, who in some rural areas, don't carry Narcan (Des Jarlais, 2017; Klein, 2020). Barriers to Narcan access are poverty, less insurance coverage, members of the BIPOC community, and housing insecurity (Wagner et al., 2022). Overdose in the street is more likely to result in death due to response time to Narcan or emergency help (Durieux et al., 2022). Homeless individuals living in the street are the most compromised and vulnerable population in the United States and are saddled with high rates of substance abuse and overdoses (Durieux, p. 2). The life expectancy of a homeless person is 36% shorter than those housed (Seres, 2023). Interestingly, homeless camps are considered community to those that live there and a social network within is considered a positive resource which represents the means for providing first responders to overdoses (Durieux, p.3). This community effect and the inclusion of people with lived experience, as also noted in SCS research, provides an important protective measure to never use alone to avoid OD deaths. Expanded Narcan access to areas frequented by PWID allows for better response time and saved lives (Marshal et al., 2015; Durieux, p.3).

***Feasibility: political***

Public acceptance is positive for Narcan in Minnesota and The United States and knowledge of its purpose is strong (Wagner et al., 2022; Palombi, 2023). Expanded access of THN kits beyond the primary population of PWID to include bystanders/family/friends, with access in businesses, schools and in public places is vital for increased effectiveness (McDonald et al., 2021). Community advocates continue lobbying efforts to amend state law mandating Narcan placement and educational training in schools and that Narcan carriage be required for all first responders in Minnesota (National Association School Nurses, NASN; Mankato Free Press, Ed, March 3, 2023).

PHVM for the distribution of supplies has universal support and broad acceptance among PWID and health facility staff who work with PWID in a Philadelphia study (Stewart et al., 2023). PHVM utilization was positive among young adults if supplies were free, the machines are conveniently located, and accessible 24 hours a day (Wagner et al., 2022).

Studies show that increased contamination with fentanyl- the potency is 100 times that of morphine- called for new guidelines and the potential need for multiple Narcan doses or the increased availability of the eight-milligram dose (Gupta et al., 2022; Weiland &Sanger-Katz, 2022; FDA, 2021). Calling EMS with a reversed OD or taking the patient for evaluation to avoid relapse after Narcan administration is critical to improved survival rates (Murphy & Russell, 2021). Twenty-one percent of study participants using Narcan for a witnessed overdose, fear arrest, stigma, and criminalization- major barriers to accessing EMS or a police response utilization (Durieux et al., 2022).

Stigma, social and self, surrounding illicit drug use is major barrier to HRS (Stewart et al., 2023*).* Pending legislation to decriminalize drug supplies like needles and syringes is seen by some community members and legislators as legalizing drug use. (See Table 8).

**Table 8**. Debunking Harm Reduction Strategy Myths

| Myth | Evidence |
|---|---|
| Narcan is a controlled substance | Narcan has a safety profile, benefits, no harm to anyone to carry; FDA pending OTC dispensing. Side effects due to administration method-IM or nasal spray- not the medicine (Palombi, 2023) |
| Harm reduction promotes harm to community by assisting in illicit drug use | HR is cost effective way to slow down HIV infections.<br>HR is an important connection to social and support programs so PWID IS more likely to enter treatment.<br>No increased crime noted in surrounding area of SCS (Kennedy-Hendricks,2019; Lambdin,2021; Kerman, 2020) |
| Harm reduction increases and enables drug use | No connection between HRS and increased drug use (Binswanger, 2022; Taylor,2021) |
| Decriminalization of drugs means more drug use and more crime. | Decriminalization is not legalization. No increased crime noted at SCS site (Gostin et al., 2019). |
| SCS provide PWID with drugs to abuse/use | SCS do not provide any illicit drugs (Gostin et al., 2019) |
| Money should be spent on medication treatment, not enabling drug use | SCS can function as a gateway to treatment and recovery services (Barry et al., 2019) |

Stakeholders, including both PHVM designers and utilizers, recommend the inclusion of wound care, first aid and other supplies in the PHVM to reduce the risk of use for PWID and decrease access stigma (Volpe, 2023). PHVM were used in the US since 2017. Some women express safety concerns, like feeling targeted for assault or robbery if seen using a PHVM, especially if PHVM were located near drug trade site. Despite the protection the Good Samaritan Law provided in Minnesota, law enforcement nearby was listed as a deterrent to using the PHVN due to past mistrust and fear of arrest (Wagner et al., 2022), particularly if needle and syringe kits are part of the supplies dispensed (Harris et al., 2015).

In March 2023, the Federal Drug Administration, (FDA), recommended over the counter Narcan sales which will improve access, but dependent on product placement in the store, stigma may remain a barrier and privacy an issue. FDA approval includes nasal Narcan, which is the most expensive configuration, so cost remains an issue (FDA, 2023).

Pharmacist attitudes, especially in rural areas, and cost are barriers to access (Olives et al., 2020). Prescription for naloxone had been a barrier to access. Point of sale naloxone (POSN) defined as naloxone access in retail outlets and is often dispensed with a standing order from a collaborating provider. Pharmacies in rural areas are more likely to be independently run and less likely to offer POSN despite the statute in State law allowing POSN. Pharmacists in rural areas provided four reasons:

1)-They were unaware of the statute allowing collaborative prescribing, 2)-There wasn't a demand, 3)-There was no supply and, 4)-They were using their professional discretion not to fill the requests (Olives et al., 2020, p. 1191). Bias and stigma affect healthcare provider attitudes and access to naloxone, and negatively impact supply delivery, especially in rural areas, and especially for youth (Wagner et al.,2022).

Insurance access continues as a major barrier despite Minnesota's expansion of Medicaid (Medicaid, 2020). due to drug paraphernalia laws, only eight percent of PWID have access to clean supplies. These laws penalize both medical users of syringes as well as burden HRS (Singer & Heimowitz, 2022). Prior knowledge of Narcan is limited in young users to first exposure need and PWID surveyed mention concerns of childproofing PHVM and THN. This concern emphasizes the large knowledge gap present on the safety profile of Narcan and the need for education among PWID (Wagner et al., 2022).

***Feasibility: operational***

Proper placement of PHVM dramatically increases accessibility of harm reduction products. If PHVM dispenses educational and treatment referral information, increased addiction service utilization is found (Stewart et al., 2023). The MDH works in cooperation with harm reduction community agencies to operate a network of drug utilization supply distribution centers where PHVM could be placed. Take home naloxone programs are also located within healthcare systems like ER, primary care clinics and addiction treatment centers (Wagner et al., 2022). The first PHVM in Minnesota is set for implementation this year on tribal land near Duluth (Palombi, 2023).

Narcan is stored at room temperature, so no supply chain limitations are noted (Mayo Clinic, 2023). Discussions about 'evidence-based' research emphasize the importance of lived experience, and the inclusion of affected populations in the development and design of legislation and policy (Lancaster, Treloar & Ritter, 2017). Young adults and PWID state twenty-four-hour access to Narcan is important as illicit substance use often occurred after regular hours of operation for clinics or distribution centers (Wagner et al., 2022). Distribution methods to improve availability include mail order, online ordering,

and mobile delivery units targeting rural communities where travel and transportation to delivery sites is a barrier (Stewart et al., 2023). Pharmacists who can dispense Narcan with each opioid prescription could help to decrease stigma (Olives et al., 2020). Access strategies to PHVM vary from card or code (Wagner et al., 2022) to biometrics (Stewart et al., 2023).

### *Economic and budgetary impact*

Delivery and cost of Narcan, especially the easily administered nasal Narcan, are current financial barriers, particularly in rural and impoverished urban communities. Injectable Narcan is cheap, but syringes and needles are restricted by state and federal law. Narcan nasal spray and auto-injection Narcan are cost prohibitive for young adults and PWID with economic instability (Stewart et al., 2023). The over-the-counter preparations are not currently covered by insurance or Medicaid (Hoffman, 2023). Projected utilization of PHVM improves if supplies are free, especially for younger users (Kerr et al., 2022; p.6). The cost burden and cost benefit issues discussed in Policy Option A also apply to Narcan expansion and PHVM.

## Assessment of Policy Options

**Table 9.** Policy analysis table (CDC.org). Rating Policy Options

| ***CRITERIA*** | **Effectiveness (Public Health impact** | **Feasibility** | **Economic and Budgetary Impact** |
|---|---|---|---|
| **Scoring Definition** | **Low-**small reach, effect size and impact on population<br>**Medium**-small reach with large effect size or large reach with small effect size<br>**High**-large reach, effect size, impact | L**ow-**no/small likelihood of enacted<br>**Medium**-moderate likelihood of being enacted.<br>**High**-high likelihood of being enacted | **Less favored:** less favorable by public, high costs per benefit<br>**Favorable:** favored with public; benefits justify costs<br>**More favorable:** favored by public; benefits outweigh costs |
| ***Safe consumption sites*** | **Medium:** depending on number of sites. Large scope of programs with great impact<br><br>**Concern about data quality/evidence? no** Effectiveness proven in multiple studies to decrease overdose deaths and blood borne disease transmission | **Medium**<br>Legislative agenda is progressive in MN currently Effectively implemented in multiple countries. Requires improved public acceptance but literature has shown educational /health communications could affect major concerns and decrease stigma.<br><br>**Concern about data quality/evidence?** yes | **Budget Impact: Favorable:** moderate costs to implement to large benefits for decreased healthcare, criminal justice cost burden. Varies on size of SCS and services offered. Basic verses multi-service.<br>**Economic Impact: More Favorable:** Cost savings impacted at healthcare, economic productivity and lives saved for individual and community.<br><br>**Concern about data quality/evidence? Yes.** No sanctioned SCS in MN yet. Relying on international data. Need implementation and cost benefit in MN with pilot study |

| | | | |
|---|---|---|---|
| | | New program to MN. Data collection important | |
| ***Expansion of Narcan: THN and PHVM*** | **High:** reach to vulnerable populations to decrease morbidity and mortality<br>**Concern about data quality/evidence? yes.** PHVM have not been implemented in MN yet. Provisional data and international data strong. One pending implementation in MN.<br>**No**. THN access and availability proven to save lives | **High:** strong stakeholder support<br>**Concern about data quality/evidence?** no | **Budget impact: Favorable:** PHVM cost depends on expansion of strategy. **More favorable:** Expansion of THN varies on cost of nasal naloxone.<br>**Economic impact: More favorable**. Cost benefit: immense return with lives saved and healthcare costs saved.<br><br>**Concern about data quality/evidence? no** |

Based on the scoring criterion in Table 9, Narcan expansion using THN and PHVM should be prioritized over SCS. However, evidence that both HRS could be implemented is strong, and is dependent on legislative action, policymaker will, and local governmental buy in.

## Funding

Fund availability is strong. The Opiate Epidemic Response Law, adopted in 2019 in Minnesota, raises 20 million dollars per year in fees from prescribers, manufacturers, and distributors of opioids. Pharmaceutical company settlements distributed 300 million to Minnesota in 2022 and more settlement disbursements are pending. (Ibrahim, 2022). Governor Walz appointed an Opioid Epidemic Response Advisory Council to oversee the funding distribution (MDH, 2023).

## Legal Landscape: Historical Context and Regulatory Change

Laws have criminalized drug possession and illicit use for decades in the United States and have disproportionately impacted racial minorities. The morbidity and mortality statistics reveal this inequity as overdose rates worsened in BIPOC but decreased in Whites (Nusslock et al., 2021; Davis & Carr,2022; Wakeman, 2022). Federal and State policies affect overdose rates and HRS implementation. (See Table 10). In Minnesota, in contrast to surrounding Midwestern states, drug paraphernalia laws limit resources and supply availability. There are three options to address drugs and drug paraphernalia legislatively include 1)-Ending drug prohibition. 2)-Undo paraphernalia laws completely, and 3)-Legalize HR

paraphernalia like syringes (Singer & Heimintz, 2022; Davis & Carr, 2022). The Minnesota State Legislature is debating laws and policies which will decriminalize the distribution to drug use supplies, fentanyl test strips and prioritize expansion of naloxone (MN.gov; Gomez, A., personal communications, 2023).

The Controlled Substance Act grants immunity to state, tribal or local officers. The Department of Justice could decline to prosecute or enforce deferral drug laws that do not align with state or local legalization of SCS. As example, the DOJ hasn't aggressively pursued marijuana which is legalized by some states not others (Gostin et al., 2019). According to Kennedy-Hendricks et al., (2019), legislation advocating for sanctioned SCS was introduced in six states and in Seattle and the city government allocated funds for a SCS site. The Federal X-waiver policy was rescinded in December 2022. By removing prescribing barriers, access to MAT is easier and empowers providers in multiple settings to treat addiction. MAT could be incorporated into the SCS model. However, new training requirements tied to healthcare provider State registration, a DEA (Drug Enforcement Agency) number to prescribe narcotics, is onerous and places a burden on healthcare providers (HCP) (Volpe, 2023).

Federal Medicaid law and State drug paraphernalia laws prevent any Federal money use on syringes and needles (Medicaid, 2023; Singer & Heimowitz,2022). Policy option A would unlikely be accomplished without collaboration for SCS implementation at the city level, or modification of drug paraphernalia laws at the State level, or sanctioning SCS at the Federal level.

The Narcan expansion to all EMS and first responders in rural areas and placement of Narcan and user education into all Minnesota schools is currently being debated in the Minnesota House of Representatives (Baker, personal communications, February 2023; NASN). Minnesota law includes Naloxone Access Law and Good Samaritan Law which protects bystander administration of Narcan.

**Table 10.** Current and Proposed Legislation affecting harm reduction strategy policy in Minnesota.

| **Legislation** | **Level State/federal/local/International** | **Substance/definition** | **Policy option affected** | **Historical context** | **Unintended consequences Benefits/ challenges** |
|---|---|---|---|---|---|
| **CURRENT LEGISLATION** | | | | | |
| Good Samaritan law Steve's Law MN Statute 2020, Section 604A.05 Subdivision 1 | **State Law.** State Opioid specific good Samaritan Law | Healthcare providers and lay people are immune from prosecution if providing aid not in primary practice setting to overdose victim | Both | Law in MN since 2020 | Increased access to help prevents overdose deaths in community; |
| X waiver | **Federal Law: Eliminated** 12/29/2022 | Limited number of OUD clients who could be treated; limited settings for initiation of low threshold MAT; mandatory CME to obtain | MAT; SCS -if low threshold MAT offered in SCS | Enacted | Improved access to MAT; increased capacity of providers. |
| Controlled Substance Act (Beletsky et al.,2008) | **Federal Law** | Restricts use of illicit substances | SCS | Potential Federal Challenges to local authority to establish SCS; Originated in 1970's response to Crack houses | Creates legal uncertainty for local jurisdictions who have authority to authorize SCS in state or city |
| Mainstreaming Addiction Treatment Act (MAT Act) | **Federal Law** | 1. Increase availability of prevention, treatment, and recovery services<br>2.Promote and support HRS<br>3.Strategic Alternatives to pain management<br>4. Ensure transparent distribution of industry settlements<br>5. Practitioners with DEA can prescribe buprenorphine with Schedule III authority | All HRS.<br><br>Multi-service approach to SCS for MAT referral | Biden-Harris drug policy proposal response to Opioid Epidemic | Bipartisan support in Congress<br>Improves capacity of providers. Saves lives and empowers providers to treat OUD in low threshold programs like ER or clinic outside traditional addiction treatment centers. Mandatory stipulation for CME on OUD attached to DEA application. Effective June 2023 which may prove a barrier |
| Drug Legalization (Singer & Heimowitz, 2022) | **International Law** In several countries Netherlands, BC | In British Columbia, all drugs legal to possess but not sell.<br><br>1.recreational Marijuana-pending in MN | All HRS | War on drugs in US for decades. Continue with stigmatization. Strategy to reduce morbidity and mortality of illicit drug use. Reduce power of cartels | Public support is mixed. Potential to increase stigma of PWID; potential to decrease criminalization and stigma of illicit drug use |
| Medicaid expansion through the Affordable Care Act (MEDICAID.gov) | **Federal with State Law** expansion | State agreement to expanded access to health insurance | All HRS | MN participated. Partisan issue affecting PWID in other States. | Increased resources for treatment |
| **PROPOSED LEGISLATION** | | | | | |
| Drug paraphernalia law | **Pending** in State House bill | Multiple options. Current in MN is to legalize syringe and needle exchange and availability of fentanyl test strips in public places | SCS; THN | Drug use stigmatized and emphasis on eliminating drugs not primary prevention | Decreased blood borne disease; improved public support safe disposal |

| | | | | | |
|---|---|---|---|---|---|
| Fentanyl bill (Baker, personal communications, March,2023). | **Pending** in MN State House | Increase criminal penalties for fentanyl possession and selling | All HRS | Possession charges for fentanyl lower than other illicit drugs | Keeps focus on punitive model approach to opioid epidemic instead of harm reduction and improvement of health outcomes |
| Drug Formulary Reclassification | **Pending** in MN State House | Place all opioids in Category 1; no medicinal benefit noted | | | Challenges to pain management options, acute and chronic; hospice care use will be limited |
| School /first responder expansion of Narcan bill (NASN; Baker, 2023) | **Pending** in MN State House/Senate | Grass roots efforts in rural large town; expansion to other rural sites. | Narcan access | Introduce education and supply into MN schools; require all first responders have education to carry and use | Increase availability of life saving measures. Normalize Narcan presence to decrease stigma. |
| Narcan OTC | **Pending approval**. Federal, task force recommendation | Naloxone available without prescription at pharmacy | Narcan, SCS, SEP. MAT | Available to community by prescription | Increased Narcan in community.<br>Cost barrier may remain. |

## Unintended Consequences

Increased referral and access to primary care, mental health and addiction treatment provided by harm reduction strategies may be limited due to lack of adequate providers, so increased capacity is needed. COVID-19 policies to provide prescription of controlled substances through telemedicine and medication delivery services through mobile clinics continue to improve access (Stewart et al., 2023). Malpractice insurance will not be available for unsanctioned work (Gostin et al., 2019; Wakeman, 2022). PHVM can make access easier, but questions arise about maintaining inventory and resupply of machines or machine maintenance and malfunction. Access to Narcan from PHVM may be inconvenient and delay delivery depending on access method; phone or code verses biometrics (Wagner et al.,2022). Clinician concerns are that Narcan, and other supply accessed through PHVM would result in decreased contact and reduced referrals to treatment or healthcare programs for PWID (Kerr et al., 2022). Peer support providers have proven effective in linking ultizers to addiction and mental health care. Increased volunteer recruitment would be needed if SCS expanded (Foreman-Mackey et al., 2019; Marshall et al., 2015; Tran, 2022).

## Discussion

The opioid epidemic is worsening, and Minnesota policymakers are not fully engaged. The challenge is reducing overdose deaths in vulnerable populations. Impacting immediate health concerns like the increasing HIV rates, morbidity, and mortality, is crucial in this epidemic. Why do people overdose?

Where are they overdosing? What are the best strategies to reach PWID where they are to provide the best opportunities for improved health? This epidemic is built upon social, psychological, environmental, and economic causes, and a broad approach to address the social determinants of health, like social support, housing, and care access, in addition to implementing strategies to save lives and decrease disease, is necessary. OUD is highly treatable with effective interventions, including harm reduction and recovery support (Wakeman, 2022; Kerman, et al, 2020). PHVM and SCS effectively reach vulnerable communities where they are, reduce harm by providing safer consumption, safer space, overdose education, and referral and access to care. Most importantly, they decrease overdose deaths and improve quality of life (Saloner et al., 2018). These risk reduction and quality of life improvement effects are noted at the individual, community, and societal levels.

**Language and Stigma**

Language matters. Use of *Patient first* language reduces stigma at all levels (Barry & McGinty, 2018; Gupta et al., 2022). Avoidance of stigmatizing and value-laden language improves public support. (Barry et al., 2019). Stigma is a huge barrier to acceptance and utilization of harm reduction strategies, and reframing the problem is important to combat oppositional attitudes and beliefs among all stakeholder categories (Hoffman, 2023; Kerber et al., 2020; Foreman-Mackey, 2019; Stewart et al., 2023; Durieux et al., 2022; Wakeman, 2022). Avoidance of stigmatizing and value-laden language improves public support. (Barry et al., 2019). Promoting the benefits of HRS is essential. Highlighting the risk of fentanyl related to overdose deaths and the effectiveness of HRS to decrease the risks would be critical (Barry, 2018). Highlighting SCS connection to treatment would address the main argument against SCS (Barry et al., 2019.p. 21). An expansive health communications and education campaign, including research and development of effective health communication strategies, is needed to reduce the barrier of stigma and broaden public knowledge of harm reduction strategies.

## Implications for Policy Agenda Implementation.

### *A Stepwise approach*

SCS and PHVM are aspirational strategies. “From the realm of the possible that the actual emerges” (Bowen & Irish 2022, p.1164). Policy making is a dynamic process and this epidemic continues to evolve. Ultimately, policy relies on public approval and the ideologies of policymakers, and finding consensus is difficult. (Tietje, Harris et al., 2015; Des Jarlais et al., 2017). Hard work, cooperation and collaboration are needed before the full implementation of PHVM or SCS can occur in Minnesota.

### *Public health impact/effectiveness*

Both strategies, SCS and PHVM, have proven beneficial in reducing overdose rates and have low cost to high benefit ratios with increased healthcare savings and the immeasurable value of saved lives. Both options can impact health disparities and improve health equity by reaching vulnerable populations of PWID, one by providing a safe space, community, and overdose protection and the other by having lifesaving medication accessible and available for family, friends, community. The results suggest that these policy options can be incrementally implemented with initial emphasis on reduction of the major barriers, like stigma and low public approval of SCS. Narcan expansion has greater potential for quick implementation of low-level strategies, like THN, but both SCS and PHVM face feasibility, operational and budgetary concerns.

### *Political feasibility*

Proponents of SCS look at SDH as drivers of population health. To improve the health and wellbeing of PWID, it is imperative to understand the intersectionality of SDH and substance use disorder and the promotion or prevention of reaching health equity. To influence and address the drivers of the epidemic equitably, housing support must be at the top of the agenda. A shared understanding among stakeholders, including policymakers and people with lived experience, is that OUD is a chronic condition which requires biomedical interventions, and where the rights of individual freedom are valued must be

prioritized. Primary care, addiction and recovery services expansion is a priority to improving access and increasing provider capacity is needed (ORN; Bowen & Irish, 2022).

Opponents view the problem through the lens of personal responsibility, seeking punitive measures which promote stigmatization. The results show that law enforcement presence both helped and hindered certain factions of the PWID population's use of PHVM and SCS. Reducing fear of arrest can be realized with the passage of legislation currently being debated and would be a major step to realizing both strategies' full potential. Collaboration and cooperation with police forces are important. Inclusion of stigma reduction and addiction treatment continuing educational programs in the training of all health care professionals, law enforcement officials, and health service providers is overdue (Gupta et al., 2022; Wakeman,2022).

Political feasibility currently in Minnesota is positive; a progressive agenda is being pushed. There is a window of opportunity and the monetary funds to support SCS and/or PHVM (McGinty et al., 2018; Ibrahim 2022). There is legislative support for SCS but due to low feasibility at this time, more work must be accomplished prior to implementation. Narcan expansion has greater support, is less controversial and less stigmatized. Transparency is essential and building a coalition will strengthen support across stakeholders (Kennedy-Hendricks et al., 2019).

***Operational feasibility***

SCS have been shown to be very effective in improving health outcomes. A pilot project, implemented and monitored at the local level is more politically feasible at this stage, placed in a high PWID usage area, near other services to facilitate utilization. Other United States cities have accomplished this without Federal intervention by promoting the SCS as a research project. Data collection and evaluation for effectiveness of this pilot project as well as the data collection from SCS in other American cities will provide evidence for expansion. Increased stakeholder approval could lead to creation of multi-service programs, as discussed in the results, of many strategies, with overlapping objectives that are beneficial

and cost effective, and provide the means to collect research data on effectiveness and efficiency of HRS (Des Jarlais, 2017). Federal policy is promoting harm reduction strategies and SCS may be sanctioned in the future. Current collaboration with community outreach organizations is an excellent opportunity to contract with them to maintain supplies in PHVM.

Several strategies for Narcan expansion were discussed. Mandatory dispensing of Narcan with each opioid prescription filled at the pharmacy would be one starting point. Recent FDA approval of over-the-counter access of nasal Narcan is important, but barriers of privacy and cost remain. Supplementing the cost with vouchers may help, but where would the vouchers be located or accessed? The proposed PHVM in Northern Minnesota is an excellent beginning. Offering free nasal Narcan supply in the PHVM needs be a budgetary priority. Data collection and research on usage patterns, supply distribution, demographics will be important measures to evaluate program effectiveness and sustainability (Kerr et al., 2022). If this data can be correlated with decreased harm reduction and improved health outcomes as it has been shown in other countries and cities in the U.S., then public acceptance and feasibility in Minnesota will support PHVM expansion into rural, suburban, and urban areas. Universal access and availability are the goals to improve health outcomes and studies showed highly visible placement of PHVM could work to decrease public stigma. The importance of *access and availability* must be stressed. The accessible Narcan must be available to use. Decriminalization of drug utilization supplies is important for Narcan expansion, as well, since the ampules and injectable forms require supplies affected by law. Expansion of Narcan in schools and requirement for all first responders is also pending.

***Budgetary and economic impacts***

An extensive cost-benefit analysis was beyond the scope of this project. Healthcare costs burden will decrease with overdose prevention, safer consumption, prevention of complex skin infections and blood borne infections. Costs averted due to improved economic productivity and stability of PWID, and decreased incarceration expenditures from fewer punitive law enforcement interactions, can be added to local and state coffers to assist in providing stable housing or employment counseling and training. Cost

of supplies and Narcan must be factored into impact since the most likely users of PHVM stated free supplies was a priority to utilization. SCS can easily provide many services and lower overhead costs by incorporating SEP, low threshold MAT and THN distribution into one framework (Hood et al., 2019).

### Limitations and Implications for Future Research

Data limits exist on SCS and PHVM for naloxone in the United States. SCS were effective in many countries, but generalizability may be a factor. However, unsanctioned sites noted in Baltimore and Seattle-similar population size as Minneapolis- were shown cost effective and impactful. Federal law could remain a significant barrier to state implementation, although the DOJ has not pursued the current unsanctioned sites. Transferability to rural areas is uncertain as research on SCS has been done in urban, political progressive areas, so a pilot study in Minneapolis could be used as an experimental and research-oriented strategy for data collection Evaluation research done on the effectiveness of the PHVM in northern MN will provide insight for future implementation/expansion for rural area (Volpe, 2023). The full impact of SCS on the PWID community may take several years to realize. Understanding the intersectionality of stable housing, employment training and food access with substance use would be important to measure SCS effects on SDH (Kerman, et al., 2020; Kameg, 2021). PWID are a fluid and dynamic population and gains in health outcomes may fluctuate depending on population demographics, usage patterns and recovery and addiction treatment success. Lastly, time limitations affected the number of harm reduction policy options reviewed. A comprehensive proposal will need research and analyses of other HRS, like MAT or SEP to adequately address the current MDH policy gaps.

## Conclusion

Too many opioid related overdose deaths occur daily in Minnesota. Implementation of SCS and PHVM will improve health outcomes and provide opportunities to close the data gap that exists, especially in rural areas. Further research on effectiveness on SCS and Narcan expansion using THN and PHVM is needed to garner increased stakeholder support. Proactive and necessary legislative action is in the hands

of Minnesota's House and Senate. MDH and community partnership collaborations and shared vision will be instrumental to increase public support and increase access and availability of HRS as the opioid epidemic continues. An incremental approach to implementation of these HRS is recommended. A policy initiative which also addresses additional priorities like housing stabilization, stigma reduction, educational programs, and collaboration with law enforcement is needed. This stepwise approach to supplement the MDH current policy response will improve the health and well-being of all those affected by the opioid epidemic in Minnesota.

## MPH Competencies

**C12.** ***Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence.*** By examining the evidence-based literature, proposed interventions will be designed. Included in the policy analysis are the ethical considerations involved in support of removing barriers to access and treatment leading to improved health outcomes.

**C14.** ***Advocate for political, social, or economic policies and programs that will improve health in diverse populations*****.** This competency is met by analysis and assessment with recommendations for improved access through advocacy to change restrictive laws at the state and federal level which limit access or create disparities among marginalized populations with OUD.

**C22**. ***Apply systems thinking tools to a public health issue***. Understanding the global effect, the opioid epidemic has and analyzing the US and MN drug policy using frameworks recognized for health policy analysis. Use of the theoretical model, Ecological model, to understand the opioid epidemic from perspective of the patient, community, state, national to the broader systems level of decreasing illicit drug supply and implications to learn from international implementation of harm reduction strategies.

**G4.** ***Propose sustainable and evidence-based multi-sectoral interventions, considering the social determinants of health specific to the local area.*** Review and understanding how the social determinants of health affect marginalized and vulnerable populations afflicted with OUD in Minnesota which have resulted in disparities and worsened outcomes for these populations and the use of literature review of evidence-based interventions which could be incorporated into the design of interventions for the specific strategies outlined in the policy.

**G6.** ***Display critical self-reflection, cross cultural awareness/cultural fluency, and ongoing learning in addressing global health problems***. In the process of literature review, national drug polices will be examined and policy options analyzed for their effect on ethnic and racial minorities and vulnerable communities. Bias against people afflicted with addiction issues is a barrier in health service delivery and is a continued reminder as a clinical provider to recognize the importance of care provided objectively with cultural humility.

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