**The Impact of Harm Reduction Policies and Programs on Health Equity in the United States: A Scoping Review**

**Background**

This scoping review provides an overview of the peer-reviewed literature on the impact of harm reduction policies and programs on health outcomes and health disparities, particularly disparities in incidence and prevalence of HIV and viral hepatitis. It also examines the impact of drug policy on the health of people who use drugs (PWUD) and other groups at increased risk of HIV and viral hepatitis more generally, with a focus on disparities in access to prevention and treatment of injection-related infections and other drug-related harms.

The review begins with an overview of the critical importance of reducing risks associated with bloodborne disease transmission specifically and drug-related harm generally, with a focus on individuals who access or would benefit from accessing harm reduction interventions such as syringe services programs (SSPs) and Pre-exposure Prophylaxis (PrEP). It then provides specific sections on disparities related to race/ethnicity and sexual orientation and gender identity. The review proceeds to summarize the literature on existing policy on relevant risk factors and highlights programs that currently exist to serve the needs of PWID, particularly those that incorporate culturally appropriate modalities. Finally, it discusses gaps in the literature and provides suggestions for future investigations to provide actionable evidence for interventions to reduce both the overall incidence of and disparities in HIV and viral hepatitis.

**Methods**

The Medline database was systematically searched using a series of text queries (see Appendix). Each query was designed to return articles that provide information on different (although potentially overlapping) areas related to equity in harm reduction law, policy, and practice. Both quantitative and qualitative articles were eligible for inclusion. Exclusion criteria were articles that did not report research results (commentaries, editorials, etc.), articles in a language other than English, and articles that reported on interventions exclusively outside of the United States.

After initial review of titles and eliminating duplicates, a total of 228 abstracts were deemed potentially relevant and manually reviewed. After this review, 164 articles were deemed potentially relevant. Each of these articles was reviewed for potential inclusion, and 125 deemed to have met inclusion criteria. In addition, 33 articles that were discovered through references in the relevant articles were themselves deemed relevant and included.

**Critical importance of addressing drug-related harm**

The United States (US) continues to experience an epidemic of drug-related harm. Nearly 107,000 people in the U.S. died of a drug overdose in 2021, the highest number ever recorded.7 To address this preventable harm, many states and the federal government have made legal and policy changes to increase access to evidence-based interventions such as medications for opioid use disorder (OUD) and the overdose reversal medication naloxone.8-10 Similarly, the Centers for Disease Control and Prevention (CDC) and many other federal, state, and local agencies and organizations have prioritized efforts to reduce overdose death and disability.11-13

This scoping review focuses mostly on the impact of harm reduction interventions to reduce bloodborne disease infection, with a focus on improving health equity. These health risks are often closely related to overdose risk. Increased access to medications for opioid use disorder (MOUD), for example, reduces risk factors associated with HIV transmission, such as injection drug use and syringe sharing.14, 15 One recent study of PWID in New York City found that individuals who reported previous overdose had a higher likelihood of hepatitis C (HCV) infection, suggesting that overdose may be an important indicator of HCV risk.16

Infections related to lack of access to new syringes and subsequent syringe sharing among people who inject drugs (PWID) have increased alongside the surge in opioid overdose deaths, with Indiana, Kentucky, Massachusetts, and Ohio all experiencing recent injection-related HIV outbreaks.17-19 Sharing syringes remains an important source of HIV infection,20 and an estimated 45% of people in US prisons who are living with HIV are also co-infected with HCV.21

People who inject drugs disproportionately experience high rates and prevalence of HCV.22 23 Hepatitis C infections, which overwhelmingly result from use of shared syringes, have increased every year for more than a decade, and acute HCV incidence rates doubled between 2013 and 2020.23, 24 Approximately two-thirds of people living with HCV who reported a risk factor reported injecting drugs, and drug injection is by far the most frequently reported HCV risk factor among incident cases with risk information in 2020.23 It is estimated that over 55% of PWID are infected with HCV.22 Extensive evidence demonstrates that syringe sharing is associated with increased HCV seropositivity among PWID.5, 16

People who inject drugs also experience high prevalence of hepatitis B (HBV) infection. 1, 22, 25 Among the identified risk behaviors and exposures for HBV , injection drug use was most commonly reported, followed by multiple sexual partners.26 Rates of injection-related infective endocarditis and skin and soft tissue infections among PWID are also at or near all-time highs.27-29 30 Harm reduction interventions such as syringe services programs have been demonstrated to decrease HIV prevalence, HCV infection prevalence, and HIV incidence.31

Evidence-based OUD treatment with methadone or buprenorphine (termed medications for opioid use disorder, MOUD) is associated with decreased illicit opioid use, decreased HIV and hepatitis C infections, improved birth outcomes, and an approximately 50% reduction in both opioid-related and all-cause mortality for persons with OUD.32, 33,34 Despite these benefits, most people with OUD do not receive treatment with these medications and there are significant disparities in OUD treatment access and engagement based on geography, income, and race.35-42 Indeed, despite increases in access to buprenorphine over the past decade, in 2018 more than half of rural counties have no buprenorphine providers at all.36

Given the high risk of death associated with opioid overdose and the reduction in overdose mortality associated with buprenorphine treatment, offering buprenorphine to individuals with OUD represents a critical opportunity to reduce opioid overdose fatalities.43 Unfortunately, this opportunity is far too often missed. In Massachusetts, for example, only approximately one-third of individuals aged 18-45 who received hospital or pre-hospital treatment for opioid overdose received any medication for OUD within the following twelve months, and the median time between an overdose and beginning of treatment was three to five months.44

**Disparities by Race and Ethnicity**

*Disparities in risk factors*

The risk environment for PWID and other individuals at increased risk for HIV and viral hepatitis varies based on the race and ethnicity of the individual. Black PWID are, on average, more likely than White PWID to live in environments associated with vulnerability to adverse HIV-related outcomes.45 Compared to White PWID, Black PWID are more likely to live in ZIP codes with higher poverty rates and worse access to substance use disorder treatment, and in counties with higher violent crime rates. They are also less likely to live in states with legal syringe access.45 Additionally, Hispanic/Latino people are more likely to live in metropolitan service areas with high numbers of drug-related arrests.45 In a survey of SSP clients in California, Black and Hispanic/Latino participants were significantly more likely to report being arrested or cited for paraphernalia crimes.46

There also appear to be disparities in risk perception among members of disproportionately affected communities. In a survey of young people recently diagnosed with HCV in California, 44% of non-Hispanic White respondents vs. 22% of people of color (POC) respondents reported thinking they were at risk for HCV before diagnosis.47

“To address [disparities in stimulant use among AI/AN communities], multifaceted, broad prevention, harm reduction, and treatment efforts are needed that leverage cultural strengths to mitigate the consequences of methamphetamine use.“3

While methamphetamine use has often been associated with rural White people, rates of methamphetamine injection have been increasing, and this increase has been most pronounced among Black individuals seeking treatment in urban areas.48 Evidence from several states suggests that polydrug overdoses, especially those that involve opioids and stimulants, are increasingly impacting Black communities. 49-51

There are also marked disparities in stimulant use among other historically disadvantaged communities, which can increase the risk of bloodborne disease infection and other drug-related harms. Perhaps most notably, 2015 to 2019 data from the National Survey on Drug Use and Health (NSDUH) found that reported methamphetamine use was almost four times higher among American Indian/Alaska Native (AI/AN) communities compared to the overall population.3 American Indian and Alaska Native individuals who reported methamphetamine use were more likely to be male and low-income, compared to those who did not report such use. Among people who use methamphetamine, about 20% reported injecting.3

Syringe sharing is the second highest risk factor for HIV transmission, behind receptive anal sex.52 Because sharing syringes is a key pathway for disease transmission, increasing access to sterile syringes is a key component of reducing such transmission. Semi-structured interviews with AI/AN PWID concluded that inability to access sterile syringes leads to syringe sharing; the researchers recommended that “low-barrier and streamlined access to needles should be coupled with other health care services for PWID.”53

Even though SSPs are associated with dramatic reductions in HIV infection, disparities in HIV prevalence by race remain among SSP participants.54 A nationwide survey of SSPs found that programs serving predominantly injection drug users (IDUs) of color were 3.56 times more likely to report frequent client arrest en route to or from the SSP and 3.92 times more likely to report having their injection equipment confiscated.55

Legal access to syringes from pharmacies is not sufficient to reduce racial disparities in syringe access. Even where over-the-counter (OTC) syringe sales are legal, some pharmacists refuse to sell them when they believe they will be used to inject illegal drugs.56 An analysis from North Carolina found that Black PWID were only 1/5 as likely to access syringes at pharmacies compared to White PWID.57 In an early study from New York City, Black New Yorkers were less likely than individuals of other races to report obtaining syringes from pharmacies or SSPs.58 Similarly, a survey of pharmacy syringe access in New York City found that 63% of Black participants, 68% of Hispanic participants, and 36% of White participants reported ever having been refused syringes at a pharmacy.59 Researchers have further reported that, in New York City, access to pharmacies selling OTC syringes was greater in districts with a higher white

population, regardless of the need for syringe access.60

Structural factors contribute to inequitable treatment access for patients with opioid use disorder (OUD) as well. In a recent analysis of NSDUH data, among people in the US with past-year OUD, lower odds of receiving MOUD were found among women, non-Hispanic Black adults vs non-Hispanic White adults, and individuals living in nonmetropolitan areas vs large metropolitan areas.61 In a recent review of commercially-insured patients who experienced a non-fatal overdose, Black patients were half as likely to obtain follow-up care compared with non-Hispanic white patients. Women and Hispanic/Latino patients were also less likely to receive follow-up care.62

While the choice of which MOUD to receive should be up to each patient, Black patients are less likely to have access to buprenorphine compared to methadone.63 Unlike methadone treatment, buprenorphine does not entail onerous limits on initial and observed dosing, making it easier for many patients to maintain.64 However, despite similar prevalence of OUD among Black and white adults, from 2012 to 2015 white patients were almost 35 times more likely to have a buprenorphine-related office visit compared to Black patients.63 Historically, Black patients who do receive methadone have been subjected to tighter regulations including lower methadone dose limits and a decreased likelihood of receiving take-home doses.65

Opioid treatment programs – the only locations methadone for OUD treatment can be accessed – are disproportionately located in majority Black and Hispanic/Latino communities, partly because of “not in my backyard” advocacy from individuals in more historically privileged neighborhoods.66 Disparities in access to MOUD treatment are also evident geographically: A nationwide survey found that the mean driving time to an OTP is over 20 minutes, and that many people in rural areas are located more than 60 minutes from an OTP.67

*Disparities in outcomes*

Members of many minoritized groups continue to experience disproportionately high rates of fatal overdose and preventable disease transmission. Since 2012, Black people in the U.S. have experienced the greatest annual percentage increase in overdose mortality. 68 From 2016-2020, the opioid overdose rate doubled among Black residents of Kentucky, and stimulant involvement in overdose deaths increased by more than 500% compared to 200% among White residents.51 Nationwide, opioid overdose fatalities among Black Americans surpassed those of White Americans in 2020.69 American Indian or Alaska Native individuals experienced the highest rate of overdose mortality in 2020, a rate of 41.4 per 100 000, approximately 31% higher than White individuals.68

During the early months of the COVID-19 epidemic (March through August 2021), non-Hispanic American Indian or Alaska Native men had the highest rates of drug overdose overall, as well as the highest rates of fentanyl and methamphetamine overdose. Among individuals from 35 to 64 years old, overall overdose rates were highest among non-Hispanic Black men and American Indian or Alaska Native men; fentanyl-involved death rates were highest among Black men and death rates involving methamphetamine without fentanyl were highest among American Indian or Alaska Native men.70

In 2020, Black people accounted for nearly 42% of new HIV cases in the US.52 It is estimated that HIV prevalence among Black people who inject drugs (PWID) is approximately 11%, nearly twice the 6% among white PWID.71 The rate of newly reported chronic hepatitis B was almost 12 times higher among Asian/Pacific Islander persons than among non-Hispanic White persons.26 In the US, American Indian/Alaska native individuals reported the highest rates of both acute and chronic HCV infection.23

**Disparities by Lesbian, Gay, Bisexual, Transgender, and Queer (LGBTQ) Status**

Research has consistently shown that LGBT individuals are more likely to use illicit drugs compared to heterosexual individuals.72, 73 This is particularly true for LGBTQ youth, a particularly vulnerable group.74 Despite this, evidence on the impact of harm reduction interventions on the health of LGBTQ individuals is sparse. Most existing literature focuses on men who have sex with men (MSM), a group that generally includes but is not synonymous with men who identify as gay, and much of that research is specific to HIV risk. As HIV disproportionately impacts the MSM community, it is clearly important to study the impact of interventions to reduce HIV among MSM. However, research on harm reduction interventions among other LGBTQ individuals and populations is also needed.

A 2018 review found that, despite overwhelming evidence that syringe coverage and MOUD significantly reduce risk of HCV, there is little research on the effects of harm reduction interventions on HCV among men who have sex with men and who inject drugs.75  Qualitative research from King County, Washington has found that methamphetamine use has increased among men who have sex with men (MSM).76 This research also found that MSM share injection equipment with non-MSM who inject methamphetamine.76 Similarly, qualitative research from Seattle found that cisgender men and transgender people who have sex with men and who use methamphetamine describe multiple intersecting sources of stigma, which translates into fear of judgment from providers when seeking both HIV testing and treatment.77 A study of cisgender and transgender youth who reported sexual attractions to more than one gender or regardless of gender found that they expressed numerous reasons for using controlled substances, suggesting that interventions for such youth should address a wide variety of reasons for using drugs, and not assume that such drug use is motivated by minority-specific stressors.78

While this scoping review did not explicitly examine gender-based disparities, several notable themes appeared in the review. Similar to LGBTQ individuals, there is a relative dearth of literature on harm reduction services for women who inject drugs.79 It is clear, however, that while male and male-identified individuals are generally more at risk from arrest for possessing syringes, women face numerous barriers to service access. For example, among recipients of syringes from a mail-based distribution program, women participants reported significantly lower odds of having exclusively used safe sources for injecting supplies.80 Similarly, cis-and transgender women face a number of barriers to Pre-Exposure prophylaxis (PrEP) uptake.6

As with many other interventions, researchers have found that co-locating services to reach individuals at risk of stigma against LGBTQ individuals and gender-based violence in areas where they are comfortable accessing other care can increase uptake.

“One potential solution may be to bring PrEP care to women in their current environments, by providing PrEP onsite at mobile syringe sites and at syringe exchange and sex worker drop-in centers instead of requiring women to travel to a separate location.”6

For example, evaluation of a drop-in program for women in San Francisco found that a harm-reduction oriented, low-barrier program contributed to participants’ feelings of safety, community, and empowerment.81 A study from Philadelphia found that integration of PrEP into SSPs can effectively reach women who inject drugs, and that both uptake and retention was positively associated with frequency of SSP visits.82

Similarly, data from New York City demonstrated that PrEP awareness among women who inject drugs was associated with having a conversation about HIV prevention at an SSP.83 Likewise, the authors of a study in Seattle concluded that offering HIV testing and PrEP in settings that are accessible and welcoming to men who have sex with men and use methamphetamine can help increase PrEP uptake.77

**Impact of policy on infection-related risk factors**

Injection drug use is not, in and of itself, a risk factor for HIV, hepatitis C, infective endocarditis, and other bloodborne illness.24 Rather, lack of access to sterile syringes, HIV and viral hepatitis testing, treatment and education are risk factors for infectious disease transmission.

“Harm reduction strategies are the most cost-efficient approaches to curbing the co-occurring epidemics of HIV/AIDS/HBV, HCV, and TB among minority drug injectors.”1

Lack of access to syringes is associated with syringe sharing.84 The evidence that SSPs increase access to sterile syringes is overwhelming. 84, 85 SSPs and other sources of sterile syringes are also associated with less syringe sharing, less cooker sharing, and less syringe reuse.85-90 Nationwide survey data show that individuals who obtained syringes from SSPs had lower adjusted odds (vs those who obtained from “street” sources) of both borrowing and re-using syringes.91 It has been suggested that people who inject drugs in Hawaii have consistently seen lower HIV infection rates than individuals in other areas due to early adoption of harm reduction measures in the state.92

Syringe service programs also reduce incidence of infectious disease among people who inject drugs.93 A study found that in Kentucky counties that established an SSP, diagnoses of six conditions (HIV; hepatitis C; hepatitis B; osteomyelitis; endocarditis; and skin/soft tissue infection) were all significantly lower following the implementation of the SSP. Most of these SSPs operated in rural communities with fewer than 40,000 residents.93

Although several other countries have fully or partially decriminalized drug possession, the use and possession of many drugs remains criminalized in the US, and stigma associated with drug use, particularly drug injection, is widespread, as is stigma against LGBTQ individuals.94-98 99-101 Although the overall number of arrests in the U.S. decreased by nearly 25% from 2009 to 2019, arrests for drug possession remained essentially stable, and more arrests were made in 2019 for drug offenses than any other category of crime. 102 There is strong evidence that the arrest, prosecution, and incarceration of PWID increases health risks to those individuals and their communities.103-106 Police stops, arrests, and incarceration are associated with lower levels of health and well-being across a wide variety of measures.107 Incarceration is associated with a large number of negative health impacts 108, and formerly incarcerated people are at extremely high risk for overdose. 109-111

Drug-related arrests, prosecution, and incarceration fall disproportionately on Black, Indigenous, and other People of Color, exacerbating and perpetuating health disparities. 112-114 Arrests of Black individuals in young adulthood significantly increases the odds of drug use and experiencing a substance use disorder by two to three times, even if the individual is not subsequently incarcerated. 115 The misdemeanor arrest rate in New York city neighborhoods is associated with higher overdose death rates, even after adjusting for rates of drug use.116 Being arrested is also temporally associated with higher rates of sexual risk behaviors among drug-involved men. 117 Research has demonstrated that drug arrests have little association with injection drug use, suggesting that they do not deter injection drug use or initiation.95 118

In a national survey of SSPs in the United States, 43% reported that their clients experience police harassment on at least a monthly basis, and 31% reported that their injection equipment was confiscated at least monthly. 55 In a survey of participants utilizing legal SSPs, 19% reported that police confiscated syringes obtained from an SSP, and nearly 13% reported being arrested for possession of syringes obtained from the SSP.119 Increased police activity has been shown to reduce the number of people who access syringe service programs and low-barrier buprenorphine, and to increase risky-drug using behavior.96, 120-123

Similar results are reported by many programs across the country. In a survey of California SSPs, 14% of respondents reported being arrested or cited for paraphernalia possession in the previous six months, and 19% of those individuals reported that they were on their way to or from the SSP at the time.46 Eleven percent of respondents reported being stopped by the police and having their injection equipment confiscated without being arrested or cited.46

In a survey of PWID in California’s central valley, 42% of participants had experienced police violence; 62% had experienced verbal abuse from police; 39% had unused syringes confiscated by police; 9% had experienced sexual violence from police. In a study of SSP participants in Baltimore, most reported being arrested in the previous six months, and 68% of participants who were arrested reported that they were on their way to or from the SSP when they were arrested.124 Analysis of a police anti-drug operation in Philadelphia found that the operation was associated with decreases in SSP use, and that the declines were more severe for Black individuals and male participants.125

In a separate study from California, having syringes confiscated by police was significantly and independently associated with anti-HCV seropositivity.5 Evidence also suggests that arrests and drug confiscation contribute to overdose risk for urban people of color who inject drugs, in part because such actions reduce interactions with known sellers.49 HIV testing among Black men who have sex with men is negatively associated with drug arrest rates.126

**Harm Reduction Programs as a source of culturally-appropriate interventions**

Many PWID are not engaged in, or lack access to, testing and treatment for HIV and viral hepatitis. In addition to being an important source for syringes, SSPs are also an excellent source for co-locating other services. HIV testing among Black men who have sex with men, for example, is positively associated with syringe service presence.126 As the authors of a study that found that accessing an SSP was associated with being tested for HCV among PWID in Fresno, California, concluded, their findings “highlight the importance of expanding access to and utilization of HCV testing via SSPs.”5 SSPs are also a good source of wound care for PWID.127 Indeed, a qualitative study in New York found that people who identified as non-White or LGBT were more likely to utilize ancillary services such as HIV prevention and testing at SSP sites.128

Participants express interest in accessing services at SSPs where they do not currently exist. For example, interviews with Black participants of a Miami mobile harm reduction program found that more than 80% expressed interest in accessing PrEP and MOUD at the SSP.129 SSPs may also be a source of information regarding PrEP. One study that conducted interviews with 65 current or former PWID in two predominantly rural states (Arizona and Indiana) found that they often confused PrEP with HIV treatment, and many believed that PrEP was only for sexual risk or gay sexual risk.98

Numerous models for integrating other services into SSPs exist. For example, the New Haven SSP regularly provides, in addition to drug use equipment, direct prescription of or linkage to MOUD, HIV PrEP, and screening and treatment for HIV, HCV, tuberculosis and STIs.130 During the early COVID pandemic, this SSP successfully streamlined existing models of care delivery to minimize in-person visits, reducing the burden on participants to access care, including HVC treatment, demonstrating that delivery of high-quality care and positive outcomes are achievable in the SSP context.130 In a study of an integrated care model where SSP participants received treatment at an SSP, 48 attained sustained virologic response (SVR).131

“Programs that link health care to a syringe exchange program are effective ways to provide preventive health care services to IDUs, particularly HBV vaccination. Trust engendered by and mutual respect afforded by such programs result in repeated encounters by active IDUs over time.”2

The co-location of services at low-barrier harm reduction sites may preferentially improve access for stigmatized and minoritized individuals. A program from Baltimore that integrated services including HCV testing and treatment, PrEP, and buprenorphine into SSP services, for example, found that Black participants were more likely than white participants to remain in treatment after 3 months.132 Individuals who received a buprenorphine prescription were also more likely to be tested for HIV and HCV.132

Syringe services programs can also be a pathway to buprenorphine treatment for patients at high risk for opioid-related harms.133 The ability of SSPs to quickly adapt was highlighted during the COVID epidemic. In a 2020 survey of all known SSPs in the US, 24% of responding SSPs reported taking advantage of COVID-era regulatory flexibilities to implement buprenorphine induction via telehealth.134 Interestingly, non-governmental SSPs were almost 3 times as likely as governmental SSPs to implement a telehealth buprenorphine program.134 As MOUD is associated with ART adherence, these types of programs may impact HIV burden as well as overdose risk.135

“Our findings highlight the importance of expanding community-based access to sterile syringes alongside HCV testing and treatment services, particularly at syringe service programs where PWID may be more comfortable seeking testing and treatment.”5

Of course, for treatment options to be co-located with SSPs, SSPs must exist in the jurisdiction, and people at risk must feel comfortable accessing them.131 In addition to SSPs, the evidence base for other harm reduction programs, such as overdose prevention sites (OPS), is slowly building in the US. SSP participants report that they often use drugs in public places, and that doing so is associated with increased risk of drug-related arrest.136 There is evidence that hepatitis C spreads not only directly through syringe sharing but also through secondary blood exposure, as HCV reduces the blood’s clotting ability.137 These factors suggest that OPS, where wound care supplies are immediately available and surfaces can be sterilized between participants, may reduce bloodborne disease transmission even in areas with good syringe access.

A recent modeling study found that that due to projected overdose reversals, referrals to SUD treatment, and reduced resource burden on emergency services and hospitals, an OPS in Seattle, WA would “generate $4.22 for every dollar spent on OPS operational costs”.138 Similarly, a modeling study of a hypothetical OPS in Baltimore found that it would be highly cost-effective, and reduce HIV and HCV infections as well as soft tissue infections – in addition to reducing overdose deaths.139 Evidence from an underground OPC in the US found that it was associated with a drop in the number of unsafely disposed syringes and declines in receptive syringe sharing. 140

It has long been suggested that Black communities would particularly benefit from culturally appropriate, peer-based harm reduction approaches, and that such approaches can reduce both overdose and infectious disease risk.141, 142 However, there has historically been some resistance to harm reduction approaches in Black communities. One study that surveyed 21 programs that provided SUD and related services that served primarily populations of color found that respondents had a variety of criticisms of harm reduction programs; overall, many respondents considered them largely inadequate and inappropriate responses to community drug problems.143

Successful models, such as Bmore POWER, use peer-led strategies to destigmatize overdose and drug use and empower historically marginalized groups to counter race-based stereotypes.4 Bmore POWER attributes much of its success to valuing employees’ lived experience with drug use and criminal-legal system involvement, the same experiences that disqualify them from employment elsewhere.4 Community-participatory models in conjunction with co-located harm reduction and treatment services can help empower people of color.144

Another example of such a model is the Tsalagi Public Health Syringe exchange Program, an SSP that has been operated by and for the Eastern Band of Cherokee Indians in North Carolina since early 2018.145 Over 250 people registered for the SSP in its first six months of operation, which was started in part because of an epidemic of HCV in the local Cherokee community.146 In addition to a syringe and safer supply distribution, the SSP provides peer support services, naloxone kits, and referrals to HCV, HIV, and pregnancy testing. Similarly, the Gwayakobimaadiziwin Bad River Needle Exchange has provided syringe access services to members of the Bad River Band of Lake Superior Chippewa and the surrounding community since 2015.147 This SSP’s practice is rooted in the seven teachings of the Ojibwe: respect, humility, courage, honesty, wisdom, truth, and love and explicitly attempts to understand and meet the needs, goals, and desires of the local community.147

**Policy change can improve access to harm reduction interventions**

Increased access to new syringes is both effective and cost-effective in reducing the spread of HIV and hepatitis C. Surgeon General David Satcher released an extensive report in 2000 that concluded that syringe access programs reduce HIV incidence without encouraging the use of illegal drugs.148 Numerous studies have since replicated this finding, which has also been made by numerous other governmental and non-governmental organizations.149-151

Policy can be an important facilitator and barrier to harm reduction interventions, including access to syringes and infectious disease testing and treatment. In the early 1990’s, for example, most states changed their pharmacy laws to permit syringes to be access from pharmacies without a prescription.152 Research shows that just two states (MA and RI) now sell over 70,000 syringes every week.153 However, pharmacies are not always conveniently accessible,60 and pharmacists sometimes refuse to sell syringes to PWID.59 Consistent, low-barrier, needs-based access to syringes through a combination of avenues is needed to reduce syringe sharing.

Paraphernalia laws (even in states that authorize SSPs) contribute to the spread of infectious diseases and stymie efforts designed to permit PWID to utilize services designed to reduce their risk of fatal and non-fatal overdose. They undermine the health and safety of affected communities, and like most drug-related laws, their enforcement falls disproportionately on racial and ethnic minorities.154

Due to these restrictive laws, the US has a long history of underground, or unsanctioned, SSPs operated by harm reductionists. There is evidence that SSP participants benefit from these unsanctioned SSPs88, but sanctioned SSPs have far more resources for serving their communities and provide far more syringes, on average, than unsanctioned SSPs. 155 Sanctioning SSPs decreases prevalence of syringe sharing among people who use drugs.156, 157 Lack of specific legislative authorization of SSPs also limits the number and diversity of SSP volunteers and inhibits the operation and expansion of SSP.158

While most states have now legalized SSPs, nearly all state laws place limitations on their operation, and many require that programs be authorized at the local level.159, 160 PWID are less likely to source syringes from safe sources like SSPs or pharmacies in jurisdictions with restrictive paraphernalia laws.161 Requiring local authorities to approve SSPs may create implementation delays, harm reduction service limitations, and impediments to program sustainability.162

“There’re places we want to go that we can't go and that's, like, right outside the city… We want to do that because we know they're not getting served because they come in town to get served… It's not our jurisdiction. So, we can go across the street and yell at them and say, ‘Hey, could y'all come on this side of the street so you can be in the city?’”4

Local authorization is often stymied by stigma, lack of political will, and lack of local recognition of need.162 These barriers have direct impact on the health of PWID. A recent modeling study, for example, demonstrated that an earlier and more robust response to the HIV outbreak in Scott County, Indiana alone could have prevented at least 173 HIV infections.163, 164

Further, some states and localities restrict the number of syringes that SSPs can provide, with some adopting “1 for 1” models whereby individuals can only receive the number of syringes that they return. These models are less effective at providing the needed number of syringes to participants.86 Conversely, less restrictive laws permit backpack and mail-based SSP models, which reach populations who cannot or do not utilize fixed site SSPs, are likely even more effective than traditional SSPs.80, 165 Similarly, mobile SSPs can be particularly helpful in increasing access to individuals in rural areas. 84 Other low-barrier options for accessing harm reduction supplies, such as anonymous vending machines that dispense harm reduction supplies, have also shown to be an accessible and acceptable source for harm reduction supplies and information.166

**Gaps in the Literature**

The recent dramatic increase in overdose risk has resulted in a large volume of quantitative and qualitative research regarding policy and programmatic interventions to reduce overdose risk generally. To a lesser extent, research has also focused on efforts to reduce bloodborne disease transmission. This scoping review, however, found that the literature on the impact of harm reduction policies and services on health equity is relatively sparse.

Relatively few articles focused on the impact of harm reduction interventions on health equity specifically. Those that did were primarily qualitative, with relatively small sample sizes. Because many studies of harm reduction interventions are conducted in the SSP context, they necessarily exclude individuals who do not access services at SSP sites. Studies that report quantitative data are primarily of single sites, again with limited sample sizes.

There are also large gaps in research regarding effective interventions that address the needs of members of stigmatized and disproportionately at-risk groups. For example, most of the harm reduction research on LGBTQ individuals focuses on men who identify as gay or as men who have sex with men even though the LGBTQ community is widely varied in both identity and needs. In the PWID context, much of the research regarding infectious disease risk focuses on HIV compared to viral hepatitis. Some of this is driven by lack of access to data. For example, researchers have long recognized large gaps in data regarding the health of LGBTQ individuals generally.167, 168 A broader evidence base would likely help to bring attention to the unique needs of members of particularly disadvantaged groups and help to inform interventions designed to meet their needs.169

Similarly, this review found that there are few existing frameworks to measure the impact of harm reduction interventions on health equity. In 2021, Wallace et al. conducted a scoping review of all literature that used a health equity–oriented approach for preventing and reducing the harms of stigma or overdose for people who use illicit drugs or misuse prescription opioids.170 The authors found that few such frameworks exist, and most existing frameworks are not widely used. They identified several gaps in knowledge, including need for quality data, more diverse research methodologies, and a need for greater inclusion of directly impacted people, particularly people who use drugs.170 The results of this broader scoping review echo that finding.

**Conclusion**

This scoping review found that members of racial and ethnic minority and LGBTQ communities are often at increased risk of overdose, criminal-legal-related harm, and HIV and viral hepatitis infection. Research can be an important driver of reforms designed to advance equity in prevention and treatment for PWUD, as well as to address related social determinants of drug-related harm.169 Unfortunately, it found a relative paucity of research into effective harm reduction policies and practices to reduce those harms.

Research to better understand the impact of structural and policy factors on the ability of harm reduction organizations to support the health of members of racial and ethnic minority communities, LGBTQ individuals, people who inject drugs, and others at increased risk of bloodborne disease transmission is sorely needed. This research can and should be conducted in partnership with members of impacted communities, which can both build power and resilience in those communities and lead to better and more meaningful research.171, 172 It should also focus on the importance of law and policy as structural drivers of stigma, discrimination, and harm.

1. Estrada AL. Epidemiology of HIV/AIDS, hepatitis B, hepatitis C, and tuberculosis among minority injection drug users. *Public health reports (Washington, DC*. 2002/01/01/ 2002;117 Suppl 1:S126-34.

2. Altice FL, Bruce RD, Walton MR, Buitrago MI. Adherence to hepatitis B virus vaccination at syringe exchange sites. *Journal of Urban Health*. 2005/03/01/ 2005;82(1):151-161. doi:10.1093/jurban/jti016

3. Coughlin LN, Lin LA, Jannausch M, Ilgen MA, Bonar EE. Methamphetamine use among American Indians and Alaska Natives in the United States. *Drug and Alcohol Dependence*. 2021/10/01/ 2021;227:108921. doi:10.1016/j.drugalcdep.2021.108921

4. Owczarzak J, Weicker N, Urquhart G, Morris M, Park JN, Sherman SG. “We know the streets:” race, place, and the politics of harm reduction. *Health Place*. 2020/07/01/ 2020;64:102376. doi:10.1016/j.healthplace.2020.102376

5. Ozga JE, Syvertsen JL, Pollini RA. Hepatitis C antibody prevalence, correlates and barriers to care among people who inject drugs in Central California. *J Viral Hepat*. 2022/07// 2022;29(7):518-528. doi:10.1111/jvh.13677

6. Blackstock OJ, Platt J, Golub SA, et al. A Pilot Study to Evaluate a Novel Pre-exposure Prophylaxis Peer Outreach and Navigation Intervention for Women at High Risk for HIV Infection. *AIDS and behavior*. 2021/05// 2021;25(5):1411-1422. doi:10.1007/s10461-020-02979-y

7. National Center for Health Statistics. Vital Statistics Rapid Release: Provisional Drug Overdose Death Counts. Accessed November 1, 2022, <https://www.cdc.gov/nchs/nvss/vsrr/drug-overdose-data.htm>

8. Davis CS, Samuels EA. Continuing increased access to buprenorphine in the United States via telemedicine after COVID-19. *Int J Drug Policy*. Aug 15 2020:102905. doi:10.1016/j.drugpo.2020.102905

9. Haffajee RL, Cherney S, Smart R. Legal requirements and recommendations to prescribe naloxone. *Drug Alcohol Depend*. Apr 1 2020;209:107896. doi:10.1016/j.drugalcdep.2020.107896

10. Davis C, Carr D. State legal innovations to encourage naloxone dispensing. *J Am Pharm Assoc (2003)*. Mar - Apr 2017;57(2S):S180-S184. doi:10.1016/j.japh.2016.11.007

11. Incze MA, Kelley AT, Singer PM. Implementing the White House's Strategic Plan to Save Lives Amid the Opioid Crisis: Reaching for the "North Star". *JAMA*. Mar 7 2023;329(9):705-706. doi:10.1001/jama.2023.1041

12. Gupta R, Wright NF, Holtgrave DR. A 2023 Agenda for Substance Use Prevention and Treatment in the US. *JAMA*. Feb 6 2023;doi:10.1001/jama.2023.1090

13. Pless V, McClure J, Davis M, et al. Reducing Overdose Through Policy Interventions: ASTHO's Recommendations for State and Territorial Health Officials and Agencies. *Journal of Public Health Management and Practice*. 2023;29(5):748-752. doi:10.1097/phh.0000000000001799

14. Wilson ME, Schwartz RP, O'Grady KE, Jaffe JH. Impact of interim methadone maintenance on HIV risk behaviors. *J Urban Health*. Jul 2010;87(4):586-91. doi:10.1007/s11524-010-9451-7

15. Karki P, Shrestha R, Huedo-Medina TB, Copenhaver M. The Impact of Methadone Maintenance Treatment on HIV Risk Behaviors among High-Risk Injection Drug Users: A Systematic Review. *Evid Based Med Public Health*. 2016;2

16. Eckhardt B, Winkelstein ER, Shu MA, et al. Risk factors for hepatitis C seropositivity among young people who inject drugs in New York City: Implications for prevention. *PLoS One*. 2017/05/19/ 2017;12(5):e0177341. doi:10.1371/journal.pone.0177341

17. Rich JD, Adashi EY. Ideological Anachronism Involving Needle and Syringe Exchange Programs: Lessons From the Indiana HIV Outbreak. *JAMA*. May 22 2015;doi:10.1001/jama.2015.6303

18. Cranston K, Alpren C, John B, et al. Notes from the Field: HIV Diagnoses Among Persons Who Inject Drugs - Northeastern Massachusetts, 2015-2018. *MMWR Morb Mortal Wkly Rep*. Mar 15 2019;68(10):253-254. doi:10.15585/mmwr.mm6810a6

19. Health Departments Share CDC Recommendations to Address HIV Among People Who Inject Drugs. 2019. <https://nkyhealth.org/2019/01/22/health-departments-share-cdc-recommendations-to-address-hiv-among-people-who-inject-drugs/>

20. Dasgupta S, Tie Y, Lemons-Lyn A, Broz D, Buchacz K, Shouse RL. HIV-positive persons who inject drugs experience poor health outcomes and unmet needs for care services. *AIDS care*. 2021/09// 2021;33(9):1146-1154. doi:10.1080/09540121.2020.1826396

21. Ahmadi Gharaei H, Fararouei M, Mirzazadeh A, et al. The global and regional prevalence of hepatitis C and B co-infections among prisoners living with HIV: a systematic review and meta-analysis. *Infect Dis Poverty*. Jul 1 2021;10(1):93. doi:10.1186/s40249-021-00876-7

22. Degenhardt L, Peacock A, Colledge S, et al. Global prevalence of injecting drug use and sociodemographic characteristics and prevalence of HIV, HBV, and HCV in people who inject drugs: a multistage systematic review. *The Lancet Global Health*. 2017/12/01/ 2017;5(12):e1192-e1207. doi:10.1016/S2214-109X(17)30375-3

10.1016/S2214-109X(17)30375-3</p>

23. Centers for Disease C, Prevention. *2020 Hepatitis C Viral Hepatitis Surveillance Report*. 2022. 2022/09/14/T02:46:28Z. Accessed 2023/03/27/03:00:55. <https://www.cdc.gov/hepatitis/statistics/2020surveillance/hepatitis-c.htm>

24. Zibbell JE, Asher AK, Patel RC, et al. Increases in Acute Hepatitis C Virus Infection Related to a Growing Opioid Epidemic and Associated Injection Drug Use, United States, 2004 to 2014. *Am J Public Health*. Feb 2018;108(2):175-181. doi:10.2105/AJPH.2017.304132

25. Goldstein ST, Alter MJ, Williams IT, et al. Incidence and Risk Factors for Acute Hepatitis B in the United States, 1982–1998: Implications for Vaccination Programs. *The Journal of infectious diseases*. 2002/03/15/ 2002;185(6):713-719. doi:10.1086/339192

26. Centers for Disease C, Prevention. *2020 Hepatitis B Viral Hepatitis Surveillance Report*. 2022. 2022/09/06/T02:42:05Z. Accessed 2023/03/28/01:38:49. <https://www.cdc.gov/hepatitis/statistics/2020surveillance/hepatitis-b.htm>

27. Barocas JA, Eftekhari Yazdi G, Savinkina A, et al. Long-term Infective Endocarditis Mortality Associated With Injection Opioid Use in the United States: A Modeling Study. *Clin Infect Dis*. Dec 6 2021;73(11):e3661-e3669. doi:10.1093/cid/ciaa1346

28. Schranz AJ, Fleischauer A, Chu VH, Wu LT, Rosen DL. Trends in Drug Use-Associated Infective Endocarditis and Heart Valve Surgery, 2007 to 2017: A Study of Statewide Discharge Data. *Ann Intern Med*. Dec 4 2018;doi:10.7326/M18-2124

29. Wurcel AG, Anderson JE, Chui KK, et al. Increasing Infectious Endocarditis Admissions Among Young People Who Inject Drugs. *Open Forum Infect Dis*. Sep 2016;3(3):ofw157. doi:10.1093/ofid/ofw157

30. Ciccarone D, Unick GJ, Cohen JK, Mars SG, Rosenblum D. Nationwide increase in hospitalizations for heroin-related soft tissue infections: Associations with structural market conditions. *Drug Alcohol Depend*. Jun 1 2016;163:126-33. doi:10.1016/j.drugalcdep.2016.04.009

31. Abdul-Quader AS, Feelemyer J, Modi S, et al. Effectiveness of structural-level needle/syringe programs to reduce HCV and HIV infection among people who inject drugs: a systematic review. *AIDS and behavior*. Nov 2013;17(9):2878-92. doi:10.1007/s10461-013-0593-y

32. Lawrinson P, Ali R, Buavirat A, et al. Key findings from the WHO collaborative study on substitution therapy for opioid dependence and HIV/AIDS. *Addiction*. Sep 2008;103(9):1484-92. doi:10.1111/j.1360-0443.2008.02249.x

33. Larochelle MR, Bernson D, Land T, et al. Medication for Opioid Use Disorder After Nonfatal Opioid Overdose and Association With Mortality: A Cohort Study. *Ann Intern Med*. Jun 19 2018;doi:10.7326/M17-3107

34. Sordo L, Barrio G, Bravo MJ, et al. Mortality risk during and after opioid substitution treatment: systematic review and meta-analysis of cohort studies. *BMJ*. Apr 26 2017;357:j1550. doi:10.1136/bmj.j1550

35. Lagisetty PA, Ross R, Bohnert A, Clay M, Maust DT. Buprenorphine Treatment Divide by Race/Ethnicity and Payment. *JAMA psychiatry*. May 8 2019;doi:10.1001/jamapsychiatry.2019.0876

36. Andrilla CHA, Moore TE, Patterson DG, Larson EH. Geographic Distribution of Providers With a DEA Waiver to Prescribe Buprenorphine for the Treatment of Opioid Use Disorder: A 5-Year Update. *J Rural Health*. Jan 2019;35(1):108-112. doi:10.1111/jrh.12307

37. Jones CM, Campopiano M, Baldwin G, McCance-Katz E. National and State Treatment Need and Capacity for Opioid Agonist Medication-Assisted Treatment. *Am J Public Health*. Aug 2015;105(8):e55-63. doi:10.2105/AJPH.2015.302664

38. Amiri S, Lutz R, Socias ME, McDonell MG, Roll JM, Amram O. Increased distance was associated with lower daily attendance to an opioid treatment program in Spokane County Washington. *J Subst Abuse Treat*. Oct 2018;93:26-30. doi:10.1016/j.jsat.2018.07.006

39. Wen H, Hockenberry JM, Pollack HA. Association of Buprenorphine-Waivered Physician Supply With Buprenorphine Treatment Use and Prescription Opioid Use in Medicaid Enrollees. *JAMA Netw Open*. Sep 7 2018;1(5):e182943. doi:10.1001/jamanetworkopen.2018.2943

40. Joudrey PJ, Edelman EJ, Wang EA. Drive Times to Opioid Treatment Programs in Urban and Rural Counties in 5 US States. *Jama*. Oct 1 2019;322(13):1310-1312. doi:10.1001/jama.2019.12562

41. Goedel WC, Shapiro A, Cerda M, Tsai JW, Hadland SE, Marshall BDL. Association of Racial/Ethnic Segregation With Treatment Capacity for Opioid Use Disorder in Counties in the United States. *JAMA Netw Open*. Apr 1 2020;3(4):e203711. doi:10.1001/jamanetworkopen.2020.3711

42. Grimm C. *Geographic Disparities Affect Access to Buprenorphine Services for Opioid Use Disorder*. January 2020.

43. Warner-Smith M, Darke S, Day C. Morbidity associated with non-fatal heroin overdose. *Addiction*. Aug 2002;97(8):963-7.

44. Bagley SM, Larochelle MR, Xuan Z, et al. Characteristics and Receipt of Medication Treatment Among Young Adults Who Experience a Nonfatal Opioid-Related Overdose. *Ann Emerg Med*. Jan 2020;75(1):29-38. doi:10.1016/j.annemergmed.2019.07.030

45. Cooper HLF, Linton S, Kelley ME, et al. Racialized risk environments in a large sample of people who inject drugs in the United States. *The International Journal on Drug Policy*. 2016/01// 2016;27:43-55. doi:10.1016/j.drugpo.2015.07.015

46. Martinez AN, Bluthenthal RN, Lorvick J, Anderson R, Flynn N, Kral AH. The Impact of Legalizing Syringe Exchange Programs on Arrests Among Injection Drug Users in California. *Journal of Urban Health*. 2007/05// 2007;84(3):423-435. doi:10.1007/s11524-006-9139-1

47. Ohringer AR, Serota DP, McLean RL, Stockman LJ, Watt JP. Disparities in risk perception and low harm reduction services awareness, access, and utilization among young people with newly reported hepatitis C infections in California, 2018. *BMC public health*. 2021/07/21/ 2021;21:1435. doi:10.1186/s12889-021-11492-3

48. Pro G, Hayes C, Montgomery BEE, Zaller N. Demographic and geographic shifts in the preferred route of methamphetamine administration among treatment cases in the US, 2010-2019. *Drug and Alcohol Dependence*. 2022/08/01/ 2022;237:109535. doi:10.1016/j.drugalcdep.2022.109535

49. Rhodes B, Costenbader B, Wilson L, et al. Urban, individuals of color are impacted by fentanyl-contaminated heroin. *International Journal of Drug Policy*. 2019/11/01/ 2019;73:1-6. doi:10.1016/j.drugpo.2019.07.008

50. Ray B, Lowder E, Bailey K, Huynh P, Benton R, Watson D. Racial differences in overdose events and polydrug detection in Indianapolis, Indiana. *Drug and Alcohol Dependence*. 2020/01/01/ 2020;206:107658. doi:10.1016/j.drugalcdep.2019.107658

51. Slavova S, Freeman PR, Rock P, et al. Changing Trends in Drug Overdose Mortality in Kentucky: An Examination of Race and Ethnicity, Age, and Contributing Drugs, 2016-2020. *Public Health Reports (Washington, DC: 1974)*. 2023 2023;138(1):131-139. doi:10.1177/00333549221074390

52. Centers for Disease C, Prevention. HIV/AIDS Statistics Overview. 2022/08/10/T01:37:40Z 2022;

53. Leston J, Crisp C, Lee MC, Rink E. Interviews with American Indian and Alaska Native People Who Inject Drugs. *Am Indian Alsk Native Ment Health Res*. 2020 2020;27(1):64-85. doi:10.5820/aian.2701.2020.64

54. Des Jarlais DC, Arasteh K, Hagan H, McKnight C, Perlman DC, Friedman SR. Persistence and change in disparities in HIV infection among injection drug users in New York City after large-scale syringe exchange programs. *American Journal of Public Health*. 2009/10// 2009;99 Suppl 2(Suppl 2):S445-451. doi:10.2105/AJPH.2008.159327

55. Beletsky L, Grau LE, White E, Bowman S, Heimer R. The roles of law, client race and program visibility in shaping police interference with the operation of US syringe exchange programs. *Addiction (Abingdon, England)*. 2011/02// 2011;106(2):357-365. doi:10.1111/j.1360-0443.2010.03149.x

56. Fadanelli M, Cooper HLF, Freeman PR, Ballard AM, Ibragimov U, Young AM. A qualitative study on pharmacy policies toward over-the-counter syringe sales in a rural epicenter of US drug-related epidemics. *Harm Reduction Journal*. 2022/01/08 2022;19(1):1. doi:10.1186/s12954-021-00569-2

57. Costenbader EC, Zule WA, Coomes CC. Racial differences in acquisition of syringes from pharmacies under conditions of legal but restricted sales. *The International Journal on Drug Policy*. 2010/09// 2010;21(5):425-428. doi:10.1016/j.drugpo.2009.12.006

58. Rudolph AE, Crawford ND, Ompad DC, Benjamin EO, Stern RJ, Fuller CM. Comparison of injection drug users accessing syringes from pharmacies, syringe exchange programs, and other syringe sources to inform targeted HIV prevention and intervention strategies. *Journal of the American Pharmacists Association : JAPhA*. 2010 2010;50(2):140-147. doi:10.1331/JAPhA.2010.09193

59. Battles HB, Rowe KA, Ortega-Peluso C, Klein SJ, Tesoriero JM. Who purchases nonprescription syringes? Characterizing customers of the Expanded Syringe Access Program (ESAP). *Journal of Urban Health: Bulletin of the New York Academy of Medicine*. 2009/11// 2009;86(6):946-950. doi:10.1007/s11524-009-9356-5

60. Cooper HLF, Bossak BH, Tempalski B, Friedman SR, Des Jarlais DC. Temporal trends in spatial access to pharmacies that sell over-the-counter syringes in New York City health districts: relationship to local racial/ethnic composition and need. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*. 2009/11// 2009;86(6):929-945. doi:10.1007/s11524-009-9399-7

61. Jones CM, Han B, Baldwin GT, Einstein EB, Compton WM. Use of Medication for Opioid Use Disorder Among Adults With Past-Year Opioid Use Disorder in the US, 2021. *JAMA Netw Open*. Aug 1 2023;6(8):e2327488. doi:10.1001/jamanetworkopen.2023.27488

62. Kilaru AS, Xiong A, Lowenstein M, et al. Incidence of Treatment for Opioid Use Disorder Following Nonfatal Overdose in Commercially Insured Patients. *JAMA Netw Open*. May 1 2020;3(5):e205852. doi:10.1001/jamanetworkopen.2020.5852

63. Lagisetty PA, Ross R, Bohnert A, Clay M, Maust DT. Buprenorphine Treatment Divide by Race/Ethnicity and Payment. *JAMA psychiatry*. Sep 1 2019;76(9):979-981. doi:10.1001/jamapsychiatry.2019.0876

64. Davis CS, Carr DH. Legal and policy changes urgently needed to increase access to opioid agonist therapy in the United States. *Int J Drug Policy*. Nov 2019;73:42-48. doi:10.1016/j.drugpo.2019.07.006

65. D'Aunno T, Park SE, Pollack HA. Evidence-based treatment for opioid use disorders: A national study of methadone dose levels, 2011-2017. *J Subst Abuse Treat*. Jan 2019;96:18-22. doi:10.1016/j.jsat.2018.10.006

66. Nguemeni Tiako MJ. Addressing racial & socioeconomic disparities in access to medications for opioid use disorder amid COVID-19. *J Subst Abuse Treat*. Mar 2021;122:108214. doi:10.1016/j.jsat.2020.108214

67. Kleinman RA. Comparison of Driving Times to Opioid Treatment Programs and Pharmacies in the US. *JAMA psychiatry*. Nov 1 2020;77(11):1163-1171. doi:10.1001/jamapsychiatry.2020.1624

68. Friedman JR, Hansen H. Evaluation of Increases in Drug Overdose Mortality Rates in the US by Race and Ethnicity Before and During the COVID-19 Pandemic. *JAMA psychiatry*. Apr 1 2022;79(4):379-381. doi:10.1001/jamapsychiatry.2022.0004

69. Gibbons JB, Harris SJ, Solomon KT, Sugarman O, Hardy C, Saloner B. Increasing overdose deaths among Black Americans: a review of the literature. *Lancet Psychiatry*. May 23 2023;doi:10.1016/S2215-0366(23)00119-0

70. Han B, Einstein EB, Jones CM, Cotto J, Compton WM, Volkow ND. Racial and Ethnic Disparities in Drug Overdose Deaths in the US During the COVID-19 Pandemic. *JAMA Netw Open*. Sep 1 2022;5(9):e2232314. doi:10.1001/jamanetworkopen.2022.32314

71. Burnett JC, Broz D, Spiller MW, Wejnert C, Paz-Bailey G. HIV Infection and HIV-Associated Behaviors Among Persons Who Inject Drugs - 20 Cities, United States, 2015. *MMWR Morbidity and mortality weekly report*. 2018/01/12/ 2018;67(1):23-28. doi:10.15585/mmwr.mm6701a5

72. National Institute on Drug Abuse. Substance Use and SUDs in LGBTQ\* Populations. Accessed June 4, 2023, 2023. <https://nida.nih.gov/research-topics/substance-use-suds-in-lgbtq-populations>

73. Tardelli VS, Martins SS, Fidalgo TM. Differences in use of inhalants among sexual minorities in the USA in 2015-2018. *Addict Behav*. Apr 2021;115:106789. doi:10.1016/j.addbeh.2020.106789

74. Marshal MP, Friedman MS, Stall R, et al. Sexual orientation and adolescent substance use: a meta-analysis and methodological review. *Addiction*. Apr 2008;103(4):546-56. doi:10.1111/j.1360-0443.2008.02149.x

75. Martin TCS, Rauch A, Salazar-Vizcaya L, Martin NK. Understanding and addressing HCV reinfection among men who have sex with men. *Infect Dis Clin North Am*. 2018/06// 2018;32(2):395-405. doi:10.1016/j.idc.2018.02.004

76. Glick SN, Burt R, Kummer K, Tinsley J, Banta-Green CJ, Golden MR. INCREASING METHAMPHETAMINE INJECTION AMONG NON-MSM WHO INJECT DRUGS IN KING COUNTY, WASHINGTON. *Drug and alcohol dependence*. 2018/01/01/ 2018;182:86-92. doi:10.1016/j.drugalcdep.2017.10.011

77. McMahan VM, Violette LR, Andrasik MP, Martin A, Garske L, Stekler JD. ‘I make sure my doctor doesn’t know that I use meth’: perceived barriers to pre-exposure prophylaxis (PrEP) uptake among community peer educators in Seattle (WA, USA). *Sex Health*. 2020/02// 2020;17(1):29-37. doi:10.1071/SH19083

78. Mata D, Korpak AK, Macaulay T, Dodge B, Mustanski B, Feinstein BA. Substance Use Experiences Among Bisexual, Pansexual, and Queer (Bi+) Male Youth: A Qualitative Study of Motivations, Consequences, and Decision Making. *Arch Sex Behav*. Apr 2023;52(3):1169-1181. doi:10.1007/s10508-022-02447-9

79. Iversen J, Page K, Madden A, Maher L. HIV, HCV, and Health-Related Harms Among Women Who Inject Drugs: Implications for Prevention and Treatment. *Journal of acquired immune deficiency syndromes*. Jun 1 2015;69 Suppl 2(0 1):S176-81. doi:10.1097/QAI.0000000000000659

80. Hayes BT, Favaro J, Coello D, Behrends CN, Jakubowski A, Fox AD. Participants of a mail delivery syringe services program are underserved by other safe sources for sterile injection supplies. *The International journal on drug policy*. 2022/01// 2022;99:103474. doi:10.1016/j.drugpo.2021.103474

81. Magee C, Huriaux E. Ladies' night: evaluating a drop-in programme for homeless and marginally housed women in San Francisco's mission district. *The International Journal on Drug Policy*. 2008/04// 2008;19(2):113-121. doi:10.1016/j.drugpo.2007.11.009

82. Roth AM, Tran NK, Felsher MA, et al. Integrating HIV pre-exposure prophylaxis with community-based syringe services for women who inject drugs: Results from the Project SHE demonstration study. *Journal of acquired immune deficiency syndromes (1999)*. 2021/03/01/ 2021;86(3):e61-e70. doi:10.1097/QAI.0000000000002558

83. Walters SM, Reilly KH, Neaigus A, Braunstein S. Awareness of pre-exposure prophylaxis (PrEP) among women who inject drugs in NYC: the importance of networks and syringe exchange programs for HIV prevention. *Harm Reduct J*. Jun 29 2017;14(1):40. doi:10.1186/s12954-017-0166-x

84. Allen ST, White RH, O’Rourke A, et al. Syringe Coverage Among People Who Inject Drugs in West Virginia, USA. *AIDS and behavior*. 2021/10/01/ 2021;25(10):3377-3385. doi:10.1007/s10461-021-03247-3

85. Bluthenthal RN, Kral AH, Erringer EA, Edlin BR. Use of an illegal syringe exchange and injection-related risk behaviors among street-recruited injection drug users in Oakland, California, 1992 to 1995. *Journal of Acquired Immune Deficiency Syndromes and Human Retrovirology: Official Publication of the International Retrovirology Association*. 1998/08/15/ 1998;18(5):505-511. doi:10.1097/00042560-199808150-00013

86. Bluthenthal RN, Ridgeway G, Schell T, Anderson R, Flynn NM, Kral AH. Examination of the association between syringe exchange program (SEP) dispensation policy and SEP client-level syringe coverage among injection drug users. *Addiction (Abingdon, England)*. 2007/04// 2007;102(4):638-646. doi:10.1111/j.1360-0443.2006.01741.x

87. Patel MR, Foote C, Duwve J, et al. Reduction of injection-related risk behaviors after emergency implementation of a syringe services program during an HIV outbreak. *JAIDS Journal of Acquired Immune Deficiency Syndromes*. 2018 2018;77(4):373-382.

88. Bluthenthal RN, Kral AH, Gee L, Erringer EA, Edlin BR. The effect of syringe exchange use on high-risk injection drug users: a cohort study. *AIDS (London, England)*. 2000/03/31/ 2000;14(5):605-611. doi:10.1097/00002030-200003310-00015

89. Patel MR, Foote C, Duwve J, et al. Reduction of Injection-Related Risk Behaviors After Emergency Implementation of a Syringe Services Program During an HIV Outbreak. *Journal of Acquired Immune Deficiency Syndromes (1999)*. 2018/04/01/ 2018;77(4):373-382. doi:10.1097/QAI.0000000000001615

90. White RH, O'Rourke A, Kilkenny ME, et al. Prevalence and correlates of receptive syringe-sharing among people who inject drugs in rural Appalachia. *Addiction*. 2021 2021;116(2):328-336. doi:10.1111/add.15151

91. Marotta PL, Stringer K, Beletsky L, et al. Assessing the relationship between syringe exchange, pharmacy, and street sources of accessing syringes and injection drug use behavior in a pooled nationally representative sample of people who inject drugs in the United States from 2002 to 2019. *Harm Reduction Journal*. 2021/11/17/ 2021;18(1):115. doi:10.1186/s12954-021-00565-6

92. Marten LR, Qiu Y, Borthakur BP, Whiticar PM. Two decades of HIV/AIDS in Hawaii: contrast with national trends. *Hawaii Med J*. 2005/06// 2005;64(6):156,-158-160, 168.

93. Bushling C, Walton MT, Conner KL, et al. Syringe services programs in the Bluegrass: Evidence of population health benefits using Kentucky Medicaid data. *The Journal of Rural Health*. 2022 2022;38(3):620-629. doi:10.1111/jrh.12623

94. Upton: We can’t arrest our way out of opioid epidemic. Dec. 8, 2015. <https://energycommerce.house.gov/news-center/news/upton-we-can-t-arrest-our-way-out-opioid-epidemic>

95. Friedman SR, Pouget ER, Chatterjee S, et al. Drug arrests and injection drug deterrence. *Am J Public Health*. Feb 2011;101(2):344-9. doi:10.2105/AJPH.2010.191759

96. Davis CS, Burris S, Kraut-Becher J, Lynch KG, Metzger D. Effects of an intensive street-level police intervention on syringe exchange program use in Philadelphia, PA. *Am J Public Health*. Feb 2005;95(2):233-6. doi:10.2105/AJPH.2003.033563

97. Tsai AC, Kiang MV, Barnett ML, et al. Stigma as a fundamental hindrance to the United States opioid overdose crisis response. *PLoS medicine*. Nov 2019;16(11):e1002969. doi:10.1371/journal.pmed.1002969

98. Carter G, Meyerson B, Rivers P, et al. Living at the Confluence of Stigmas: PrEP Awareness and Feasibility Among People Who Inject Drugs in Two Predominantly Rural States. *AIDS and behavior*. Oct 2021;25(10):3085-3096. doi:10.1007/s10461-021-03304-x

99. Laqueur H. Uses and Abuses of Drug Decriminalization in Portugal. *Law & Social Inquiry*. 2015;40(3):746-781. doi:10.1111/lsi.12104

100. Unlu A, Tuukka T, Hakkarainen P. *Drug Decriminalization Policy: Literature Review: Models, Implementation and Outcomes*. 2020. <https://www.julkari.fi/bitstream/handle/10024/140116/URN_ISBN_978-952-343-504-9.pdf?sequence=1&isAllowed=y>

101. Rosmarin A, Eastwood N. A quiet revolution: drug decriminalisation policies in practice across the globe. *Drugs, the Law and Human Rights (Release, London,, 2012)*. 2012;

102. Pew Charitable Trusts. *Drug arrests stayed high even as imprisonment fell from 2009 to 2019*. 2022. <https://www.pewtrusts.org/-/media/assets/2022/02/drug-arrests-stayed-high-even-as-imprisonment-fell-from-2009-to-2019.pdf>

103. Cohen A, Vakharia SP, Netherland J, Frederique K. How the war on drugs impacts social determinants of health beyond the criminal legal system. *Annals of Medicine*. 2022/12/31 2022;54(1):2024-2038. doi:10.1080/07853890.2022.2100926

104. Brinkley-Rubinstein L. Incarceration as a catalyst for worsening health. *Health & Justice*. 2013/10/24 2013;1(1):3. doi:10.1186/2194-7899-1-3

105. Wildeman C, Muller C. Mass Imprisonment and Inequality in Health and Family Life. *Annual Review of Law and Social Science*. 2012;8(1):11-30. doi:10.1146/annurev-lawsocsci-102510-105459

106. Bick JA. Infection Control in Jails and Prisons. *Clinical Infectious Diseases*. 2007;45(8):1047-1055. doi:10.1086/521910

107. Sundaresh R, Yi Y, Roy B, Riley C, Wildeman C, Wang EA. Exposure to the US Criminal Legal System and Well-Being: A 2018 Cross-Sectional Study. *Am J Public Health*. Jan 2020;110(S1):S116-S122. doi:10.2105/AJPH.2019.305414

108. Schnittker J, John A. Enduring stigma: the long-term effects of incarceration on health. *Journal of health and social behavior*. Jun 2007;48(2):115-30.

109. Beletsky L, LaSalle L, Newman M, Pare JM, Tam JS, Tochka AB. Fatal Re-Entry: Legal and Programmatic Opportunities to Curb Opioid Overdose Among Individuals Newly Released from Incarceration. *Northeastern University Law Journal*. 2015;7(1):155-215.

110. Binswanger IA, Blatchford PJ, Mueller SR, Stern MF. Mortality after prison release: opioid overdose and other causes of death, risk factors, and time trends from 1999 to 2009. *Ann Intern Med*. Nov 5 2013;159(9):592-600. doi:10.7326/0003-4819-159-9-201311050-00005

111. Binswanger IA, Stern MF, Deyo RA, et al. Release from prison--a high risk of death for former inmates. *N Engl J Med*. Jan 11 2007;356(2):157-65.

112. Pamplin JR, 2nd, Rouhani S, Davis CS, King C, Townsend TN. Persistent Criminalization and Structural Racism in US Drug Policy: The Case of Overdose Good Samaritan Laws. *Am J Public Health*. Jan 2023;113(S1):S43-S48. doi:10.2105/AJPH.2022.307037

113. Burris S, Anderson A, Craigg A, Davis CS, Case P. Racial disparities in injection-related HIV: A case study of toxic law. *Temple Law Review*. 2009;82:1263.

114. Gee GC, Ford CL. Structural racism and health inequities: Old Issues, New Directions. *Du Bois review : social science research on race*. Apr 2011;8(1):115-132. doi:10.1017/s1742058x11000130

115. Doherty EE, Cwick JM, Green KM, Ensminger ME. Examining the Consequences of the "Prevalent Life Events" of Arrest and Incarceration among an Urban African-American Cohort. *Justice Q*. 2016;33(6):970-999. doi:10.1080/07418825.2015.1016089

116. Bohnert AS, Nandi A, Tracy M, et al. Policing and risk of overdose mortality in urban neighborhoods. *Drug Alcohol Depend*. Jan 1 2011;113(1):62-8. doi:10.1016/j.drugalcdep.2010.07.008

117. Epperson MW, El-Bassel N, Chang M, Gilbert L. Examining the temporal relationship between criminal justice involvement and sexual risk behaviors among drug-involved men. *J Urban Health*. Mar 2010;87(2):324-336. doi:10.1007/s11524-009-9429-5

118. Friedman J, Syvertsen JL, Bourgois P, Bui A, Beletsky L, Pollini R. Intersectional structural vulnerability to abusive policing among people who inject drugs: A mixed methods assessment in california's central valley. *International Journal of Drug Policy*. 2021/01/01/ 2021;87:102981. doi:10.1016/j.drugpo.2020.102981

119. Morrissey B, Hughes T, Ostrach B, et al. “They don’t go by the law around here”: law enforcement interactions after the legalization of syringe services programs in North Carolina. *Harm Reduction Journal*. 2022/09/27/ 2022;19:106. doi:10.1186/s12954-022-00690-w

120. Weisenthal K, Kimmel SD, Kehoe J, Larochelle MR, Walley AY, Taylor JL. Effect of police action on low-barrier substance use disorder service utilization. *Harm Reduct J*. Jul 29 2022;19(1):86. doi:10.1186/s12954-022-00668-8

121. Cooper H, Moore L, Gruskin S, Krieger N. The impact of a police drug crackdown on drug injectors' ability to practice harm reduction: a qualitative study. Research Support, N.I.H., Extramural

Research Support, Non-U.S. Gov't

Research Support, U.S. Gov't, P.H.S. *Soc Sci Med*. Aug 2005;61(3):673-84. doi:10.1016/j.socscimed.2004.12.030

122. Wood E, Kerr T, Small W, Jones J, Schechter MT, Tyndall MW. The impact of a police presence on access to needle exchange programs. *Journal of acquired immune deficiency syndromes*. Sep 1 2003;34(1):116-8.

123. Park JN, Linton SL, Sherman SG, German D. Police violence among people who inject drugs in Baltimore, Maryland. *Int J Drug Policy*. Feb 2019;64:54-61. doi:10.1016/j.drugpo.2018.12.005

124. Beletsky L, Cochrane J, Sawyer AL, et al. Police Encounters Among Needle Exchange Clients in Baltimore: Drug Law Enforcement as a Structural Determinant of Health. *American Journal of Public Health*. 2015/07/16/ 2015;105(9):1872-1879. doi:10.2105/AJPH.2015.302681

125. Davis CS, Burris S, Kraut-Becher J, Lynch KG, Metzger D. Effects of an Intensive Street-Level Police Intervention on Syringe Exchange Program Use in Philadelphia, Pa. *American Journal of Public Health*. 2005/02// 2005;95(2):233-236. doi:10.2105/AJPH.2003.033563

126. Tempalski B, Beane S, Cooper HLF, et al. Structural Determinants of Black MSM HIV Testing Coverage (2011-2016). *AIDS and behavior*. 2020/09// 2020;24(9):2572-2587. doi:10.1007/s10461-020-02814-4

127. Sanchez DP, Tookes H, Pastar I, Lev-Tov H. Wounds and Skin and Soft Tissue Infections in People Who Inject Drugs and the Utility of Syringe Service Programs in Their Management. *Advances in Wound Care*. 2021/10// 2021;10(10):571-582. doi:10.1089/wound.2020.1243

128. Beidelman ET, Parker MA, Zoh RS, Owora AH. Service Utilization among Persons Who Inject Drugs Attending a Syringe Exchange Program in New York State. *Substance Use & Misuse*. 2023 2023;58(5):649-656. doi:10.1080/10826084.2023.2177965

129. Bartholomew TS, Andraka-Cristou B, Totaram RK, et al. “We want everything in a one-stop shop”: acceptability and feasibility of PrEP and buprenorphine implementation with mobile syringe services for Black people who inject drugs. *Harm Reduction Journal*. 2022/12/03/ 2022;19:133. doi:10.1186/s12954-022-00721-6

130. Sivakumar A, Madden L, DiDomizio E, Eller A, Villanueva M, Altice FL. Treatment of Hepatitis C virus among people who inject drugs at a syringe service program during the COVID-19 response: The potential role of telehealth, medications for opioid use disorder and minimal demands on patients. *International Journal of Drug Policy*. 2022/03/01/ 2022;101:103570. doi:10.1016/j.drugpo.2021.103570

131. Eckhardt BJ, Scherer M, Winkelstein E, Marks K, Edlin BR. Hepatitis C Treatment Outcomes for People Who Inject Drugs Treated in an Accessible Care Program Located at a Syringe Service Program. *Open Forum Infectious Diseases*. 2018/03/06/ 2018;5(4):ofy048. doi:10.1093/ofid/ofy048

132. Rosecrans A, Harris R, Saxton RE, et al. Mobile low-threshold buprenorphine integrated with infectious disease services. *Journal of Substance Abuse Treatment*. 2022/02// 2022;133:108553. doi:10.1016/j.jsat.2021.108553

133. Jakubowski A, Norton BL, Hayes BT, et al. Low-threshold Buprenorphine Treatment in a Syringe Services Program: Program Description and Outcomes. *Journal of addiction medicine*. 2022/08/01/Jul 2022;16(4):447-453. doi:10.1097/ADM.0000000000000934

134. Lambdin BH, Bluthenthal RN, Tookes HE, et al. Buprenorphine implementation at syringe service programs following waiver of the Ryan Haight Act in the United States. *Drug and Alcohol Dependence*. 2022/08/01/ 2022;237:109504. doi:10.1016/j.drugalcdep.2022.109504

135. McNamara KF, Biondi BE, Hernández-Ramírez RU, Taweh N, Grimshaw AA, Springer SA. A Systematic Review and Meta-Analysis of Studies Evaluating the Effect of Medication Treatment for Opioid Use Disorder on Infectious Disease Outcomes. *Open Forum Infectious Diseases*. 2021/08/01/ 2021;8(8):ofab289. doi:10.1093/ofid/ofab289

136. Sutter A, Curtis M, Frost T. Public drug use in eight U.S. cities: Health risks and other factors associated with place of drug use. *The International Journal on Drug Policy*. 2019//02/ 2019;64:62-69. doi:10.1016/j.drugpo.2018.11.007

137. Goldshear JL, Simpson KA, Kral AH, Wenger LD, Bluthenthal RN. Novel Routes of Potential Hepatitis C Virus Transmission among People Who Inject Drugs: Secondary Blood Exposures Related to Injection Drug Use. *Substance Use & Misuse*. 2021 2021;56(6):751-757. doi:10.1080/10826084.2021.1879149

138. Hood JE, Behrends CN, Irwin A, et al. The projected costs and benefits of a supervised injection facility in Seattle, WA, USA. *International Journal of Drug Policy*. 2019/05/01/ 2019;67:9-18. doi:10.1016/j.drugpo.2018.12.015

139. Irwin A, Jozaghi E, Weir BW, Allen ST, Lindsay A, Sherman SG. Mitigating the heroin crisis in Baltimore, MD, USA: a cost-benefit analysis of a hypothetical supervised injection facility. *Harm Reduct J*. May 12 2017;14(1):29. doi:10.1186/s12954-017-0153-2

140. Kral AH, Lambdin BH, Wenger LD, Browne EN, Suen LW, Davidson PJ. Improved syringe disposal practices associated with unsanctioned safe consumption site use: A cohort study of people who inject drugs in the United States. *Drug and Alcohol Dependence*. 2021/12/01/ 2021;229:109075. doi:10.1016/j.drugalcdep.2021.109075

141. Belenko SR, Shedlin M, Chaple M. HIV risk behaviors, knowledge, and prevention service experiences among African American and other offenders. *Journal of health care for the poor and underserved*. 2005/11// 2005;16(4 Suppl B):108-129. doi:10.1353/hpu.2005.0108

142. VanderWaal CJ, Washington FL, Drumm RD, Terry YM, McBride DC, Finley-Gordon RD. African-American injection drug users: tensions and barriers in HIV/AIDS prevention. *Substance Use & Misuse*. 2001 2001;36(6-7):735-755. doi:10.1081/ja-100104088

143. Eversman MH. "We want a living solution": views of harm reduction programs in black US Communities. *J Ethn Subst Abuse*. 2015 2015;14(2):187-207. doi:10.1080/15332640.2014.976803

144. Blume AW, Lovato LV. Empowering the disempowered: harm reduction with racial/ethnic minority clients. *Journal of Clinical Psychology*. 2010/02// 2010;66(2):189-200. doi:10.1002/jclp.20668

145. Cox ME, Dzialowy N, Armstrong L, Proescholdbell S. Overdose Deaths and Acute Hepatitis Infections among American Indians in North Carolina. *North Carolina Medical Journal*. 2019 2019;80(4):197-203. doi:10.18043/ncm.80.4.197

146. Mckie S. Tribe’s Syringe Services Program working on ‘harm reduction’. *Cherokee One Feather*. Aug. 16. <https://theonefeather.com/2018/08/16/tribes-syringe-services-program-working-on-harm-reduction/>

147. Expanding the Circle of Care: A Practical Guide to Syringe Services for Tribal and Rural Communities. 2020. <https://static1.squarespace.com/static/61b2437f05011b1f37605c04/t/6228de5e5f55652e8464ccf0/1646845536975/CircleofCare+web%281%29+%281%29.pdf>

148. Satcher D. *Evidence-based findings on the efficacy of syringe exchange programs: an analysis of the scientific research completed since April 1998* 2000. <https://harmreduction.org/wp-content/uploads/2012/01/EvidenceBasedFindingsOnEfficacyofSEPs.pdf>

149. Wodak A, Cooney A. Do needle syringe programs reduce HIV infection among injecting drug users: a comprehensive review of the international evidence. *Subst Use Misuse*. 2006;41(6-7):777-813. doi:10.1080/10826080600669579

150. Sweeney S, Ward Z, Platt L, et al. Evaluating the cost-effectiveness of existing needle and syringe programmes in preventing hepatitis C transmission in people who inject drugs. *Addiction*. Mar 2019;114(3):560-570. doi:10.1111/add.14519

151. Platt L, Minozzi S, Reed J, et al. Needle and syringe programmes and opioid substitution therapy for preventing HCV transmission among people who inject drugs: findings from a Cochrane Review and meta-analysis. *Addiction*. Mar 2018;113(3):545-563. doi:10.1111/add.14012

152. Meyerson BE, Davis A, Agley JD, et al. Predicting pharmacy syringe sales to people who inject drugs: Policy, practice and perceptions. *Int J Drug Policy*. Jun 2018;56:46-53. doi:10.1016/j.drugpo.2018.02.024

153. Green TC, Stopka T, Xuan Z, et al. Examining nonprescription syringe sales in Massachusetts and Rhode Island community pharmacies. *J Am Pharm Assoc (2003)*. Jul-Aug 2021;61(4):e237-e241. doi:10.1016/j.japh.2021.03.004

154. Beletsky L, Grau LE, White E, Bowman S, Heimer R. The roles of law, client race and program visibility in shaping police interference with the operation of US syringe exchange programs. *Addiction*. Feb 2011;106(2):357-65. doi:10.1111/j.1360-0443.2010.03149.x

155. Bluthenthal RN, Heinzerling KG, Anderson R, Flynn NM, Kral AH. Approval of syringe exchange programs in California: results from a local approach to HIV prevention. *American Journal of Public Health*. 2008/02// 2008;98(2):278-283. doi:10.2105/AJPH.2005.080770

156. Nassau T, Al-Tayyib A, Robinson WT, Shinefield J, Brady KA. The Impact of Syringe Services Program Policy on Risk Behaviors Among Persons Who Inject Drugs in 3 US Cities, 2005-2015. *Public Health Rep*. 2020/07/31/ 2020;135(1 Suppl):138S-148S. doi:10.1177/0033354920930137

157. Syvertsen JL, Pollini RA. Syringe access and health harms: Characterizing “landscapes of antagonism” in California’s Central Valley. *The International journal on drug policy*. 2020/01// 2020;75:102594. doi:10.1016/j.drugpo.2019.10.018

158. Bluthenthal RN, Kral AH, Lorvick J, Watters JK. Impact of law enforcement on syringe exchange programs: a look at Oakland and San Francisco. *Med Anthropol*. 1997/12// 1997;18(1):61-83. doi:10.1080/01459740.1997.9966150

159. Fernandez-Vina MH, Prood NE, Herpolsheimer A, Waimberg J, Burris S. State Laws Governing Syringe Services Programs and Participant Syringe Possession, 2014-2019. *Public Health Rep*. Jul/Aug 2020;135(1\_suppl):128S-137S. doi:10.1177/0033354920921817

160. Davis CS, Carr DH, Samuels EA. Paraphernalia Laws, Criminalizing Possession and Distribution of Items Used to Consume Illicit Drugs, and Injection-Related Harm. *Am J Public Health*. Nov 2019;109(11):1564-1567. doi:10.2105/AJPH.2019.305268

161. Gleghorn AA, Wright-De Agüero L, Flynn C. Feasibility of one-time use of sterile syringes: a study of active injection drug users in seven United States metropolitan areas. *Journal of Acquired Immune Deficiency Syndromes and Human Retrovirology: Official Publication of the International Retrovirology Association*. 1998 1998;18 Suppl 1:S30-36. doi:10.1097/00042560-199802001-00007

162. Harris SJ. An Early Implementation Analysis of Syringe Services Programs in Kentucky: Barriers and Facilitators Identified by Program Operators and Local Officials. *AIDS and behavior*. 2022/11/01/ 2022;doi:10.1007/s10461-022-03861-9

163. Gonsalves GS, Crawford FW. Dynamics of the HIV outbreak and response in Scott County, IN, USA, 2011-15: a modelling study. *Lancet HIV*. Oct 2018;5(10):e569-e577. doi:10.1016/S2352-3018(18)30176-0

164. Bluthenthal RN, Anderson R, Flynn NM, Kral AH. Higher syringe coverage is associated with lower odds of HIV risk and does not increase unsafe syringe disposal among syringe exchange program clients. *Drug Alcohol Depend*. Jul 10 2007;89(2-3):214-22. doi:10.1016/j.drugalcdep.2006.12.035

165. Hebert MR, Caviness CM, Bowman SE, Chowdhury SP, Loberti PG, Stein MD. Backpack Needle Exchange: Background, Design, and Pilot Testing of a Program in Rhode Island. *Journal of Addictive Diseases*. 2008/06/12/ 2008;27(3):7-12. doi:10.1080/10550880802122521

166. Russell E, Johnson J, Kosinski Z, et al. A scoping review of implementation considerations for harm reduction vending machines. *Harm Reduction Journal*. 2023/03/16/ 2023;20(1):33. doi:10.1186/s12954-023-00765-2

167. Cahill S, Singal R, Grasso C, et al. Do ask, do tell: high levels of acceptability by patients of routine collection of sexual orientation and gender identity data in four diverse American community health centers. *PLoS One*. 2014;9(9):e107104. doi:10.1371/journal.pone.0107104

168. Kronk CA, Everhart AR, Ashley F, et al. Transgender data collection in the electronic health record: Current concepts and issues. *J Am Med Inform Assoc*. Jan 12 2022;29(2):271-284. doi:10.1093/jamia/ocab136

169. Blanco C, Kato EU, Aklin WM, et al. Research to Move Policy - Using Evidence to Advance Health Equity for Substance Use Disorders. *N Engl J Med*. Jun 16 2022;386(24):2253-2255. doi:10.1056/NEJMp2202740

170. Wallace B, MacKinnon K, Strosher H, et al. Equity-oriented frameworks to inform responses to opioid overdoses: a scoping review. *JBI Evidence Synthesis*. 2021/08// 2021;19(8):1760. doi:10.11124/JBIES-20-00304

171. Muhammad M, Wallerstein N, Sussman AL, Avila M, Belone L, Duran B. Reflections on Researcher Identity and Power: The Impact of Positionality on Community Based Participatory Research (CBPR) Processes and Outcomes. *Crit Sociol (Eugene)*. Nov 2015;41(7-8):1045-1063. doi:10.1177/0896920513516025

172. Mann-Jackson L, Alonzo J, Garcia M, et al. Using community-based participatory research to address STI/HIV disparities and social determinants of health among young GBMSM and transgender women of colour in North Carolina, USA. *Health Soc Care Community*. Sep 2021;29(5):e192-e203. doi:10.1111/hsc.13268

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