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]

> “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]

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]

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]

> "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]

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.

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]

> "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]

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]

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 SSPs[88], 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]

> "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]

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]

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.

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