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MEDICAL PROVIDERS AND HARM REDUCTION VIEWS ON PRE-EXPOSURE PROPHYLAXIS FOR HIV PREVENTION AMONG PEOPLE WHO INJECT DRUGS

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Abstract

Despite high pre-exposure prophylaxis (PrEP) acceptability among people who inject drugs (PWID) and PrEP providers, PrEP uptake is low and little is known about how to promote PrEP among PWID. This qualitative study with providers in North Carolina explored views on PrEP delivery approaches for PWID. Interviewers conducted semistructured interviews with 10 PrEP providers and 10 harm reduction (HR) providers. Interviews were transcribed and analyzed. Many participants expressed acceptability for providing PrEP referrals at syringe exchange sites, stationing PrEP providers at syringe exchange sites to provide PrEP prescriptions, and providing standing orders for PrEP at syringe exchange sites. Barriers were identified, including low PrEP awareness and limited resources. Many advocated for co-location of HR and PrEP services and scaled-up outreach services. PrEP providers emphasized maintenance of clinical requirements, while HR providers emphasized flexibility when treating PWID. Promoting PrEP uptake and adherence among PWID likely requires integration of HR and PrEP services.

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Pre-exposure prophylaxis (PrEP) is a once-daily oral HIV prevention medication (emtricitabine/tenofovir, also called FTC/TDF). A randomized controlled trial in Bangkok, Thailand found that PrEP substantially reduces the risk of HIV infection among people who inject drugs (PWID), demonstrating that PrEP should be considered part of a HIV prevention package for PWID (Choopanya et al., 2013). Additionally, research has shown high PrEP acceptability among PWID and medical providers who prescribe PrEP (Edelman et al., 2017; Kuo et al., 2016; Martin et al., 2017). However, PrEP uptake is low and little is known about how to design and implement interventions that effectively increase PrEP uptake and adherence among PWID (Escudero, Lurie, Kerr, Howe, & Marshall, 2014; Roth, et al., 2018, 2019.

The opioid epidemic has had a large impact on North Carolina (NC) (Rudd, Seth, David, & Scholl, 2016), underscoring the need for HIV prevention services for PWID in that state. In NC, the rate of HIV is four times higher than the national average, and over 10% of all HIV infection cases are attributable to injection drug use (IDU) (North Carolina HIV/STD/Hepatitis Surveillance Unit, 2016). Heroin-related overdose deaths have also risen 565% over the past 4 years, and hepatitis C virus (HCV) cases have more than doubled, pointing to increased rates of IDU in recent years in NC (Rudd et al., 2016). In response, in July 2016, NC legalized syringe exchange—the only state in the Southern U.S. to do so. As of March 2017, over 16 syringe exchange programs staffed with harm reduction providers had been established across NC. Harm reduction programs, such as syringe exchange, aim to reduce negative health, social, and legal effects associated with drug use while respecting the rights of PWID and creating a stigma-free environment (Harm Reduction International, n.d.). Syringe exchange programs can offer a bridge to other needed services (Strathdee et al., 1999) and may be an opportunity to deliver PrEP or link PWID to local PrEP clinics. Research is urgently needed to understand how to package PrEP as a harm reduction tool that might be efficacious and/or make PWID more likely to engage in other harm reduction techniques. As PrEP requires a doctor's prescription, it is critical to understand both PrEP and harm reduction providers' perspectives on PrEP delivery in harm reduction settings for PWID.

This article presents findings from a qualitative study with PrEP and harm reduction providers conducted in the Triad and Triangle region of NC that explored (1) experiences prescribing or referring PWID to PrEP, (2) perceived acceptability and benefits of providing PrEP to PWID, (3) perceived barriers and facilitators to PrEP uptake, adherence, and retention for PWID, and (4) views on PrEP delivery to PWID including gauging the feasibility and acceptability of packaging PrEP as a harm reduction tool.

METHODS

STUDY SETTING

The study took place in NC's Triad and Triangle region, which consists of 20 rural, medium metropolitan, and large metropolitan counties. The Triad and Triangle region is located across north-central NC with a total estimated population of over 3.5 million people. Most of the counties in the Triad and Triangle region have higher HIV incidence rates than other counties in NC, with a range of 3-year average county rates for newly diagnosed HIV cases of 5.6–27.4 per 100,000 population (North Carolina HIV/STD/Hepatitis Surveillance Unit, 2017).

STUDY RECRUITMENT

Individuals who provided PrEP (MDs, mid-level providers, registered nurses) and harm reduction outreach workers were recruited to provide institutional-level perspectives on PrEP. The authors utilized the NC AIDS Training Center's up-to-date list of PrEP providers to locate clinicians in the Triad and Triangle area (see https://www.med.unc.edu/ncaidstraining/clincian-resources/prep/prep-for-consumers/). Similarly, harm reduction outreach workers were identified from the North Carolina Harm Reduction Coalition's website (www.nchrc.org). With both groups of providers, we then utilized snowball sampling procedures by asking sampled participants to name other individuals who are PrEP or harm reduction providers. The study objectives and procedures were introduced by email and other forms of direct outreach to PrEP and harm reduction providers. Introductory recruitment materials included instructions on how to contact researchers for eligibility screening and, if found eligible, how to schedule an interview.

DATA COLLECTION

From January to April 2018, a trained research assistant conducted 20 semistructured interviews with PrEP clinicians ($n = 10$) and harm reduction providers ($n = 10$). Prior to data collection, verbal informed consent was obtained from each participant. We did not collect demographic data to ensure that the participants could not be identified. Interviews assessed experiences prescribing or referring PWID to PrEP, perceived benefits of providing PrEP to PWID, acceptability of PrEP for PWID, possible barriers and facilitators to PrEP implementation for PWID, and ideas related to packaging of PrEP as a harm reduction tool that could be deployed in combination with syringe exchange and other PrEP provision preferences (see Table 1). In particular, providers were asked to discuss the strengths, weaknesses, and any suggestions for improvement for three PrEP provision modalities for PWID: (1) syringe exchange sites providing PrEP referrals to interested PWID, (2) stationing a PrEP provider at a syringe exchange who provides PrEP prescriptions to interested PWID, and (3) syringe exchange sites providing a standing order for PrEP (i.e., 30-day pill pack) to interested PWID. They were also asked for other suggested modalities for PrEP provision to PWID. There were a few questions in the guide that were not systematically asked to all participants due to interview flow and time constraints; these instances are noted when presenting the results. Interviews lasted approximately 60 minutes and were conducted at the provider's workplace (e.g., PrEP clinic) or over the phone, based on the provider's availability and preference. All participants were given a $10 Starbucks

gift card for participation. Interviews were audio recorded and transcribed by an external transcription company for analysis.

DATA ANALYSIS

We utilized a general inductive approach (Thomas, 2006), which allows for qualitative data to be segmented into codes that align with the research objectives and questions asked of participants. One investigator and one research assistant reviewed four (20%) of the transcribed interviews to develop the codebook. The codebook mostly included topical codes derived from the interview guide, although a few interpretive codes were added based on patterns identified in the data. For example, since many participants described provider stigma towards PWID in health care settings, a "Provider stigma" code was created. Transcripts were coded using NVivo11 software. Initially, the investigator and research assistant co-coded seven of the transcripts ($n = 3$ PrEP providers; $n = 4$ harm reduction providers) to ensure intercoder agreement. For these seven transcripts, they independently coded each transcript and then compared coding decisions. If there were disagreements on how to use a code, the investigator and research assistant discussed the issue and agreed on a revision to the codebook to avoid similar disagreements in the future. Once the codebook was finalized, the research assistant independently coded the remaining 13 transcripts.

After coding was completed, code summaries were written by the research assistant. Code summaries were created by reviewing all excerpts applied to each code and documenting any patterns or differences in responses across participants. Each code summary was split between PrEP and harm reduction providers to facilitate comparisons between these two groups of providers. By reviewing the code summaries, similarities and differences within each provider group and between PrEP and harm reduction providers were identified.

ETHICS

The study was approved by the ethical review committee at the University of North Carolina-Chapel Hill.

RESULTS

EXPERIENCES PRESCRIBING OR REFERRING PWID TO PREP

PrEP Providers.—All PrEP providers were asked about their experiences prescribing PrEP to PWID in NC, and only one said he had ever prescribed PrEP to a patient who injects drugs. This provider noted that he was unsure whether he had ever followed up with the patient after initially prescribing it. Some of the remaining providers who had never prescribed PrEP to PWID explained that none of their patients had disclosed IDU and that their patients were prescribed PrEP due to risky sexual behavior, noting that most of their PrEP patients are men who have sex with men (MSM).

Most of the PrEP providers were also asked about the nature and strength of their relationships with harm reduction providers. A little over half noted that they had no formal relationships with harm reduction providers, although they or social workers in their department often referred substance-using patients to harm reduction organizations. These

providers thought it would be beneficial for their patients to formally build relationships with harm reduction providers. They recognized that harm reduction organizations provide clean needles and a nonjudgmental and nonstigmatizing environment for PWID and therefore are uniquely positioned to work with PWID. However, a few of these providers noted serious challenges to formalizing relationships with harm reduction organizations, including lack of time and resources. Some also noted that potential negative press due to political views on syringe exchange could be an issue they face when formalizing relationships. One provider explained that there were challenges on both sides of the referral relationship. This provider noted that harm reduction providers face difficulties identifying PrEP service delivery sites for referral due to low availability or awareness. She also explained that syringe exchange sites are understaffed and underfunded, making it difficult to focus their efforts on providing high-quality PrEP education to PWID, which would help drive referrals.

Harm Reduction Providers.—All harm reduction providers were asked whether they were aware of any PWID taking PrEP. Only one harm reduction provider knew a client who injects drugs who was taking PrEP, explaining that the individual was taking PrEP because his/her sexual partner is HIV infected. The remaining providers gave multiple potential reasons that their clients who inject drugs were not on PrEP, such as lack of engagement in health care, PrEP-related cost barriers, HIV-related stigma, and/or low PrEP awareness. Similar to PrEP providers, a couple of harm reduction providers noted that they were mostly aware of members of the LGBTQ population accessing PrEP, not PWID.

All harm reduction providers were also asked about their experiences referring PWID to PrEP services. Despite limited awareness of PWID taking PrEP, a little over half said that they were actively referring PWID to PrEP providers, although the strength and structure of the referral system varied. Some had more formal relationships with particular clinics or hospitals. One provider explained that “warm handoffs” (Harm reduction provider) were provided, meaning the harm reduction providers physically accompanied their clients who inject drugs to care; another explained that the syringe exchange he worked at was located in the same building as a PrEP provider, allowing him to easily coordinate referrals with the clinic in person. Other providers explained that there were few PrEP providers to choose from, so they referred any interested PWID to the only available PrEP services in the area, without a formal collaboration in place.

The remaining harm reduction providers were not actively referring PWID to PrEP services, either because they had not yet identified PrEP providers for referral or they had previously tried to refer clients and found that clients faced issues accessing services. One provider who was trying to identify and build relationships with PrEP providers emphasized the importance of collaboration between syringe exchange and PrEP providers to successfully promote PrEP among PWID:

> I’d just like to add like we’re ready and willing. So you just gotta find us some PrEP providers [chuckles] and you gotta find some that are willing to partner with us, and not just lead the crusade on their own, ‘cause I don’t think it would be as successful without really combining that harm reduction piece that’s gonna be so

> key to reaching out to those populations. Like, it's the reason why some folks have not been to a doctor to have this conversation and will be the first time hearing it at a syringe exchange.
>
> (Harm reduction provider)

A few harm reduction providers stipulated that in order to feel comfortable referring PWID to a PrEP provider it was critical to identify PrEP providers who would be nonjudgmental and nonstigmatizing towards PWID.

Perceived Benefits and Advantages of Providing PrEP to PWID.—All harm reduction and PrEP providers agreed that PrEP would be beneficial for PWID because many PWID are at high risk of getting HIV. Some providers added that many PWID are not only at risk for HIV from injection drug use but also from engaging in condom-less sex and other risky sexual behaviors.

All who were asked felt that offering PrEP to PWID would increase PWID's access to other harm reduction services. One PrEP provider noted, "I would also say that PrEP is a carrot to get a patient engaged in regular health care, and that, then, is an opportunity pretty much every time you see the patient to talk about risk reduction, medically assisted therapy." Many providers noted that PWID who are interested in PrEP are more likely to be interested in engaging with other health services that offer health-related protection.

While most providers agreed that PrEP would be beneficial for PWID, a few harm reduction and PrEP providers also expressed concerns around risk compensation, mentioning that using PrEP may lead to increased HIV/STI risk behavior among PWID. These providers explained that PWID taking PrEP may get a "false sense of protection" (PrEP provider) and exercise increased risk behavior.

PREP ACCEPTABILITY AMONG PWID

Among the harm reduction and PrEP providers who were asked about PrEP acceptability, many agreed that PWID would generally be interested in taking PrEP. A few harm reduction providers even noted that they had directly talked to PWID about PrEP, and during these conversations the clients had shown interest. Despite agreement that PWID would find PrEP acceptable, almost all of these providers also noted significant barriers to PrEP uptake, including low PrEP awareness, stigma, and drug addiction.

PrEP Awareness Among PWID.—Harm reduction and PrEP providers commonly mentioned that PWID are often unaware of PrEP and pointed to the need for PWID-targeted PrEP education campaigns to promote PrEP acceptability. One provider explained why PWID may not respond to LGBTQ-targeted PrEP campaigns, speaking specifically about a PrEP poster at a syringe exchange site that featured two men hugging: "So, if I was a heterosexual man or woman, especially a woman, and I saw that poster, I wouldn't think I would be included in that conversation…" (Harm reduction provider). When asked about the optimal ways to increase PrEP awareness among PWID, some harm reduction and PrEP providers noted that it would be important to deliver PrEP education in places where PWID frequently congregate, such as syringe exchanges, "no-tell motels," drug treatment centers,

and prisons. A few providers explicitly stated that they felt media campaigns or pamphlets would be less effective than word-of-mouth campaigns, and all of these providers emphasized the importance of peer educators delivering the information. One harm reduction provider stated, “You have an experience of IV [intravenous] drugs, whatever, or hep C…. your message is gonna be listened to. If you have somebody behind a stethoscope in a white blouse, or white, y’know [coat], it’s, then, it’s not gonna work.” A few harm reduction providers noted that their harm reduction organizations were currently educating PWID on PrEP, but acknowledged that their efforts needed to be ramped up further to reach more PWID.

Stigma.—When discussing PrEP acceptability among PWID, stigma was another dimension that providers felt was important to consider. Most of the harm reduction and PrEP providers felt that PWID may experience HIV-related stigma, noting that it could be a potential barrier to PrEP uptake. Most of these providers explained that taking PrEP could be seen as an indication of being irresponsible or unsafe and thus vulnerable to HIV infection. One PrEP provider said, “There’s this concept, it’s almost like their drug use isn’t as bad because they use a clean technique. But if you use PrEP, then maybe you’re admitting you’re not as careful, so then you actually have a problem.” Some PrEP providers explained their stigma-related concerns by stating that some of their PrEP clients who are MSM or sex workers experience HIV-related stigma when taking PrEP. They added that these PrEP clients often fear or experience stigma when their PrEP medication bottles are discovered by friends, partners, or family members. A couple of providers noted that PrEP education campaigns could be a way to reduce HIV-related stigma.

When discussing HIV-related stigma, many harm reduction and PrEP providers also mentioned IDU-related stigma as a barrier to PrEP uptake, often stating that IDU-related stigma was more serious and debilitating than HIV-related stigma. These providers often spoke about the pervasiveness of IDU-related stigma and how it can lead to internalized IDU-related stigma and/or mistreatment or discrimination in health care and law enforcement settings. To demonstrate the strong influence of IDU-related stigma, some PrEP providers explained that they suspected some of their clients hid their IDU behavior from them, despite admitting to risky sexual behavior. One PrEP provider explained how he found out that one of his clients used injection drugs:

> I have one [patient] that I know injects because he was disqualified from a study because of the injection drug use, so I see him clinically. I knew that from behind the scenes, but he won’t tell me that he injects. So, I think for him, he’s fine telling me he has sex with men, and he’s fine telling me he wants PrEP, but he won’t tell me that he is injecting drugs.

Additionally, a few PrEP providers noted that HIV- and IDU-related stigma inter-sected, explaining that taking PrEP could be stigmatizing as it would make others suspect that the individual is injecting drugs.

Provider stigma was another stigma-related barrier discussed, mostly by harm reduction providers. Most harm reduction providers mentioned provider biases when asked about any relationships their harm reduction organizations had with PrEP providers, stating that it was

important and sometimes difficult to identify a nonstigmatizing, nonjudgmental provider for PWID referrals. A few of these harm reduction providers noted that stigma in the health care setting was not only coming from clinicians, but also from pharmacists and secretaries. Some harm reduction providers explained that PWID often noted the lack of stigma at syringe exchange sites as unique due to the poor treatment they had received in the past.

> Sometimes they [syringe exchange clients] tear up because they've never been some place [a medical provider] that seems so friendly and nonstigmatizing. They're like, "Wow, y'all are so nice, and how can you be so friendly to us, and we're such bad people and we're drug addicts and we're junkies" and all this stuff. "Stop calling yourself those names. So what? You use drugs? Try to do it a little bit safer. Use a clean needle. Dispose of it properly." And things start moving in the right direction.
>
> (Harm reduction provider)

While many harm reduction providers mentioned provider stigma, only one PrEP provider stated that he was aware of other providers stigmatizing PWID due to a lack of understanding that addiction is a disease.

Drug Addiction.—Drug addiction was another barrier mentioned often by providers when discussing PrEP acceptability among PWID. One harm reduction provider explained how addiction can hinder PrEP uptake: "The thing is, theoretically, yes, they're all for it [PrEP] …. But when people are dope-sick, all that goes through the window." Further, one harm reduction provider noted that some PWID feel that they should treat their addiction before going on a medication like PrEP. Some PrEP providers felt that among PWID, those who were already particularly engaged in protecting their own health, or "really dogged about not sharing needles" (PrEP provider), would be more interested in taking PrEP than other PWID.

PREP ADHERENCE

Many of the harm reduction and PrEP providers felt that PrEP adherence would likely be a major challenge for PWID. Mostly, these providers explained that adhering to a daily pill can be difficult for all individuals taking PrEP, but speculated that it might be especially difficult for PWID due to their addiction. Providers mentioned a few potential strategies to address poor adherence, such as medication reminders delivered by phone, Facebook, or email, putting up visible cues at the syringe exchange (i.e., signs), or building the habit of taking the PrEP pill when injecting daily. One of the PrEP providers described the first time he suggested to a patient who injects drugs to pair his morning injection with PrEP pill-taking:

> He [patient who injects drugs] looked at me like I had lost my mind. I just said to him, [Name of patient], I'm being realistic here. When you're ready to quit, I am here to help. I'm going to keep encouraging you to do it. But, in the meantime, I can't have you dying of HIV because then we don't have a chance.

Providers tended to talk about PrEP adherence when asked whether they thought PWID would prefer oral or injectable PrEP. Oral PrEP is a daily pill, while injectable PrEP is

administered by a provider every 2 to 3 months. Several providers explained that they felt injectable PrEP would be preferred since PWID would have one less thing to worry about every day and would find adhering to a daily pill difficult. PrEP providers often elaborated that while injectable PrEP may help with daily adherence, retention in care would remain a significant challenge for injectable PrEP and could lead to adherence issues over time.

PREP RETENTION

Many providers, especially PrEP providers, mentioned broad retention-related challenges to providing PrEP to PWID. Mostly, these providers emphasized how difficult it would be for PWID to regularly follow up due to their inconsistent or unstable circumstances, co-occurring diseases like mental health, and addiction. One harm reduction provider explained why PWID who successfully initiate PrEP may have trouble staying in care: “Sometimes they’re just deep into addiction where nothing really matters. Like their priorities change.” PrEP providers also mentioned lack of health insurance and difficulty traveling to the clinic as barriers to retention in care. Some providers offered potential strategies to promote retention in care, including incentives for coming to the clinic (i.e., transport reimbursements, gift cards), free services, telehealth appointments, and integrating services into the syringe exchange. Some providers also brought up retention issues when asked whether they thought PWID would prefer oral or injectable PrEP, stating that PWID would have difficulty with the injectable PrEP due to the need for regular visits to a provider. A few PrEP providers expressed serious concerns around PWID developing resistance mutations if clients initiated injectable PrEP and were not regimented about attending follow-up visits.

PREP ACCESSIBILITY

All providers were asked their views on three PrEP provision modalities for PWID: (1) syringe exchange sites providing PrEP referrals to interested PWID (i.e., Referral), (2) stationing a PrEP provider at a syringe exchange who provides PrEP prescriptions to interested PWID (i.e., Doctor prescription), and (3) syringe exchange sites providing a standing order for PrEP, such as a 30-day pill pack, to interested PWID (i.e., Standing Order) (see Tables 2 and 3).

Views on Providing PrEP Referral at a Syringe Exchange.—Many PrEP and harm reduction providers thought that PrEP referral at a syringe exchange would be a feasible way to link PWID to PrEP. When asked to select their most preferred PrEP delivery option, half of PrEP providers and a few harm reduction providers selected the PrEP referral option. Mostly, these providers felt that the PrEP delivery modality was a beneficial option since it was the easiest to implement and required the least amount of additional resources. One harm reduction provider described the effectiveness of their current referral system, saying that the doctor they work with trusts them to identify appropriate individuals for referral before checking with him, which helps to facilitate the process. One PrEP provider acknowledged that it may be difficult or stressful for an individual who injects drugs to follow up on the referral and access care but said that he felt overcoming this challenge was “like a stress test” and an important show of dedication to taking PrEP.

Despite agreement among most providers that the PrEP referral option was feasible, many mentioned serious challenges involved with implementing the referral system. In fact, some PrEP providers explicitly stated that while the referral option was the most feasible to implement, it would probably be the least effective of all PrEP delivery options. The most common issues that were identified were lack of insurance coverage, PrEP-related costs, provider stigma, and distrust in medical providers. One harm reduction provider said, “The referral [is the least effective option] just because it’s an extra step. Another person that they [PWID] have to open up to and trust to let in their world.” Other barriers that were mentioned by some providers included long waiting lines at clinics/hospitals and distance from clinics/hospitals.

When asked for suggestions on how to improve the PrEP referral option, some providers recommended syringe exchanges providing “warm handoffs” to physically link the referred client to the provider and co-location of syringe exchange and PrEP services. Providers explained that these two strategies would help improve accessibility and address transportation barriers. Two harm reduction providers mentioned reducing the cost of PrEP services or subsidizing costs with financial assistance. A few PrEP providers also emphasized the need for syringe exchange services to play a role in increasing awareness of and education about PrEP to drive demand and strengthening relationships between syringe exchange services and PrEP delivery sites to ensure syringe exchange services know where to refer. One PrEP provider suggested a 24-hour hotline for PWID to call to ask questions about services like PrEP, as they thought PWID may be hesitant to approach syringe exchange services to ask questions about it.

Views on Providing Doctor Prescription at a Syringe Exchange.—Many harm reduction and PrEP providers felt that providing a doctor’s prescription at a syringe exchange was feasible. Some harm reduction providers and a few PrEP providers mentioned benefits of the doctor prescription option, explaining that it would make it easier to link PWID to doctors and ensure they get the PrEP prescription. “I think that people tend to value the opinions of physicians and want good medical advice. And I think that if there was an opportunity where something like that could happen with a doctor, it might make a difference” (Harm reduction provider). One harm reduction provider felt that syringe exchange sites would be able to carry out all of the prerequisite laboratory testing needed before providing a PrEP prescription.

Despite providers’ positive views on the doctor prescription option, many harm reduction and PrEP providers described serious barriers to implementation, mostly talking about issues related to offering PrEP services at syringe exchange sites. When asked about their most preferred PrEP delivery option, this was the least popular option across both harm reduction and PrEP providers. Harm reduction providers tended to focus on how incongruent PrEP services would be with the current way the syringe exchange operates. In particular, harm reduction providers explained that syringe exchange clients often like to move in and out of the syringe exchange quickly and that the syringe exchange site is not seen as a medical space, besides providing hepatitis C and HIV testing occasionally. They noted that providing PrEP services would be a departure from their usual protocol, as it would require time-consuming activities, such as signing clients up for pharmaceutical companies’ patient

assistance programs (hereafter referred to as “patient assistance”) and/or conducting tests that would involve additional follow-up to get results. One harm reduction provider also mentioned that it would be difficult to find funds for a doctor to regularly spend time at a syringe exchange site. PrEP providers focused on issues around completing the required laboratory testing, such as HIV and kidney function testing, prior to providing the PrEP prescription. These PrEP providers stated that rapid HIV testing would be insufficient when initiating PWID on PrEP and needing to address potential cases of acute HIV infection. “Many people injecting drugs are doing it daily. They may not be sharing needles every day, but basically I imagine it would be a challenge to find people who have not been at risk for enough time [to start PrEP]” (PrEP provider). A couple of PrEP providers also brought up issues around liability and malpractice when placing medical providers in syringe exchange sites.

When asked about ways to improve the doctor prescription option, harm reduction and PrEP providers gave similar suggestions, speaking often about co-locating PrEP and harm reduction services and conducting mobile outreach to make it easier for PWID to access services and stay retained in care. One PrEP provider specified that, although mobile syringe exchange would be an effective way to initiate PWID on PrEP, a brick-and-mortar venue would be ideal for the follow-up appointments. Mostly, providers spoke about needing to be flexible to accommodate a hard-to-reach, transient population while still ensuring they are prescribing PrEP in a safe way with robust monitoring systems in place to follow up and retain PWID in care. A few harm reduction and PrEP providers mentioned additional suggestions, such as the need for more state funding, nonjudgmental treatment of PWID by medical providers, and getting PWID on patient assistance, potentially with the help of patient navigation services.

Views on Providing a Standing Order at a Syringe Exchange.—Many harm reduction and PrEP providers thought the standing order option was feasible; PrEP providers often added that they thought it would also be the most effective option. In fact, when asked to select their most preferred PrEP delivery option, half of harm reduction and PrEP providers chose standing order. Most harm reduction and PrEP providers felt that the standing order option would optimize accessibility by ensuring PWID didn’t have to go to a second location to pick up their medications or “hunt down the services” (Harm reduction provider). A few harm reduction providers also spoke about the ease of incorporating the standing order option into their current syringe exchange services, as it could be included in the package they give out that contains naloxone, clean syringes, and other health-related materials. Some PrEP providers emphasized that it would be particularly appropriate to use the standing order option to retain PWID in care, as opposed to initiating PWID onto PrEP, as there are not as many laboratory tests that need to be done during the maintenance phase.

Despite the overall positive views of the standing order option, almost all providers mentioned serious challenges to implementation, focusing on logistical issues around completing the necessary laboratory tests and follow-up monitoring appointments. PrEP providers often used particularly strong language, stating that they and other PrEP providers would feel uncomfortable distributing PrEP so easily, especially without assurance that they could conduct follow-up appointments and laboratory testing with PWID.

> There's a part of me that wants to say yes, PrEP for everyone. But at the same time, it's not Narcan. There are consequences. You have to have these labs [laboratory test results]. You have to. If you gave 3 months of PrEP in hand to an addict and their their HIV test came back positive, oops. That's bad. Because they could come back with significant drug resistance.
>
> (PrEP provider)

Some harm reduction providers tended to agree, saying that PrEP medication was different from Narcan/naloxone in that there were many requirements that need to be met before distributing PrEP to PWID. A few harm reduction and PrEP providers referenced the Centers for Disease Control and Prevention guidelines directly, noting that the standing order option would deviate from them.

Many providers also offered recommendations on how to improve the standing order model, mostly speaking about incorporating required laboratory services into syringe exchange sites and reducing PrEP-related costs or helping PWID get on patient assistance, acknowledging that these changes would require increased funding and resources to implement. One PrEP provider emphasized the magnitude of the structural changes needed at syringe exchange sites:

Interviewer: And is there anything that would be needed to make that [standing order] more feasible?

Interviewee: Everything is needed. You're creating a whole new structure in a place that isn't designed to provide health care. So, yes, I think we have to think about what's the bare necessities that we need? I mean, you can superimpose almost anything. Like we could talk about hepatitis C treatment. You could do hepatitis C treatment at a needle exchange if you wanted to, if you built it the right way. You can do a lot of things. You could do dental care. It just depends upon how many layers you wanna put on top, and what's feasible.

Harm reduction providers also often mentioned the importance of implementing PWID-targeted PrEP education and awareness campaigns through syringe exchange activities and state-level support and changes in the law. One harm reduction provider preferred PrEP medication distribution through pharmacies to address storage and monitoring issues at syringe exchange sites. PrEP providers also often mentioned the importance of implementing robust monitoring systems to track PWID and ensure they are retained in care. A couple of these PrEP providers recommended using patient navigators to help get PWID on patient assistance and/or follow up with PWID to ensure they are adhering and planning to attend any follow-up appointments. One PrEP provider felt that it would be necessary to offer PrEP medication only to PWID who visit the syringe exchange regularly and would reliably come to follow-up visits.

Views on Other PrEP Provision Modalities.—All participants suggested that co-locating harm reduction and PrEP services for "one-stop shopping" and scaling up outreach services to promote PrEP awareness and education would be effective strategies. Harm reduction providers recommended using outreach services to reach PWID at social service

providers, specifically mentioning the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) program, prisons, and neighborhoods/areas where PWID frequent. PrEP providers recommended using mobile outreach to target PWID at established health or counseling services such as emergency rooms, primary care providers, Narcotics Anonymous/Alcoholics Anonymous, or substance use treatment centers. A few harm reduction providers also specified that outreach and engagement strategies should be informed by current or previous PWID.

Despite advocating for co-location of services and scaling up outreach, about half of the harm reduction and PrEP providers also mentioned serious challenges to carrying out these efforts. Commonly mentioned issues were lack of funds or resources, difficulty accessing services (even if co-located) due to low availability and transportation issues, lack of health insurance or patient assistance for PWID, and mistrust in the health department by PWID. One harm reduction provider noted the low availability of syringe exchange services across the state, especially in rural areas, as evidence that institutional change was necessary to better serve PWID: “So, it’s not so much the question of how do we reach the drug users. It’s the question of how do the institutions themselves need to change?”

DISCUSSION

Our findings demonstrate that most harm reduction and PrEP providers think that PrEP provision to PWID is acceptable and feasible, but not without complexity. Providers highlighted the multilevel barriers to promote PrEP acceptability, awareness, and accessibility due to the unique needs of PWID. Participants also discussed the urgent need to improve upon and build effective and appropriate PrEP provision delivery systems for PWID by addressing these challenges. Perceived barriers to PrEP uptake and adherence among PWID mentioned by providers included individual-level barriers, such as fear of stigma, risk compensation, low PrEP awareness, drug addiction, and lack of health insurance; community-level barriers, including HIV- and IDU-related stigma; and health systems–level barriers, including provider stigma, low availability and lack of integration of harm reduction and PrEP services, high cost of PrEP medication, and lack of PrEP awareness strategies. Despite these numerous barriers, providers agreed that PrEP provision for PWID was feasible if resources and funds were available to improve and implement thoughtful solutions, such as co-location of harm reduction and PrEP services and scaled-up outreach services.

Our results highlighted that few harm reduction or PrEP providers had formal relationships with each other, although all agreed that building strong partnerships would improve their ability to engage and serve PWID. PrEP providers tended to explain that they didn’t have enough time or resources to formalize these relationships, while harm reduction providers noted that they were unsure how to identify appropriate PrEP providers whom they could trust to be nonstigmatizing towards PWID that they referred. Research shows that PWID have high levels of trust in needle and syringe programs (Treloar, Rance, Yates, & Mao, 2016) and that needle exchange services should be one component of a comprehensive HIV prevention package (Birkhead et al., 2007; Strike & Miskovic, 2018), suggesting that both harm reduction and primary care providers could benefit greatly from building these

relationships. Further, although PrEP and harm reduction providers had limited interaction with each other, the fact that they tended to agree on PrEP-related barriers and effective strategies for engaging PWID in PrEP care indicates that partnerships could be feasible as well as fruitful. Our findings suggest that systems are needed to connect harm reduction and PrEP providers. Additionally, stigma reduction interventions for PrEP providers are needed to ensure better care for PWID and stronger relationships between harm reduction and PrEP providers.

Despite agreement on views regarding PrEP-related barriers and PrEP provision modalities for PWID, several structural differences between harm reduction and PrEP providers were identified. For one, harm reduction providers often noted that syringe exchange services operate in a fundamentally different way than PrEP services. Syringe exchange services are designed to be nonmedical spaces and to accommodate clients quickly, while PrEP services involve one-on-one consultation and laboratory tests. While co-locating services was highly recommended by both harm reduction and PrEP providers, results suggest that bridging the cultural norms and practical necessities involved in integrating these services will need to be considered. In Vancouver, a health facility has been able to successfully implement an integrated, multidisciplinary model to address psychiatric, addiction-related, social, and medical needs for PWID (Birkhead et al., 2007). This model has effectively enhanced access to HCV treatment (Alimohammadi, Holeksa, Thiam, Truong, & Conway, 2018) and optimized the benefits of antiretroviral treatment (ART) among HIV-positive PWID (Ti et al., 2017). However, issues around stigma (Collins et al., 2016) were observed and social improvements among PWID were limited (Bozinoff, Small, Long, DeBeck, & Fast, 2017). Evidence from the Vancouver model highlights the effectiveness of using an integrated approach and the importance of being thoughtful about the complex needs of PWID when operationalizing it.

Harm reduction and PrEP providers expressed fairly similar views on and preferences for the three PrEP provision modalities: providing PrEP referrals at syringe exchange sites, stationing a PrEP provider at a syringe exchange site to provide PrEP prescriptions, and providing a standing order for PrEP at syringe exchange sites. Many providers thought all three PrEP provision modalities for PWID were feasible; PrEP providers most often selected the referral and standing order options as their most preferred PrEP provision modalities, while harm reduction providers most often selected the standing order option.

Although many providers endorsed the same PrEP provision modalities, harm reduction and PrEP providers tended to differ on preferred requirements for PWID when discussing PrEP uptake, adherence, and retention. Harm reduction providers often emphasized the importance of being flexible by reaching PWID through mobile outreach or continuing to treat PWID if they miss a follow-up appointment. PrEP providers often spoke about their discomfort initially prescribing PrEP without certain laboratory test results or assurance of seeing clients at follow-up appointments. Further, PrEP providers often suggested that there should be separate models in place for PrEP initiation and for PrEP adherence due to the increased requirements for PrEP initiation. To facilitate initiation, rapid entry programs implemented in the Southern U.S. have effectively improved time to ART initiation and time to viral suppression among people living with HIV (Colasanti et al., 2018), suggesting that a

similar approach that eliminates select laboratory data and administrative requirements may be optimal for promoting PrEP among PWID. However, our findings demonstrate that PrEP providers may be resistant to such an approach for PrEP without sufficient evidence of effectiveness.

LIMITATIONS

This study has several limitations. The sample size is small; however, qualitative research is intended to explore participants' views on selected topics, as opposed to assessing the prevalence of attitudes, beliefs, or health outcomes in a sample. Thus, the sample size is sufficient considering the study objectives (Guest, Bunce, & Johnson, 2006), although findings should not be generalized beyond harm reduction and PrEP providers in the Triad and Triangle region of NC. Additionally, participants who were recruited using snowball sampling may have held views similar to those of the providers who had connected them to the study, making the range of perspectives among participants less diverse. Further, participants were asked to assess the feasibility of PrEP provision models for PWID, most of which are not currently in place in NC. As a result, the responses expressed here are based on their understanding of PrEP and HIV prevention care and policies, rather than direct experiences working on these PrEP provision delivery systems for PWID. Finally, the perspectives of PWID on PrEP provision models are not presented, limiting our understanding of acceptability.

CONCLUSIONS

In summary, the results of this study suggest that providing PrEP to PWID in harm reduction sites is potentially feasible but is likely to require substantial resources and efforts to overcome existing barriers and effectively reach and engage PWID with PrEP in NC. The providers participating in this study felt that co-location of syringe exchange and PrEP services and scaled-up outreach services would be the most effective approaches to providing PrEP to PWID but would require major changes to the current infrastructure of the health system that serves PWID. Integrated models, such as the Vancouver model, implemented in other settings can be used to inform development of PrEP uptake and adherence interventions for PWID.

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TABLE 1.

Interview Guide Topics and Example Questions

Topic	Example question
PrEP prescription[a]	How do you determine which people who inject drugs to prescribe PrEP to?
PrEP referral[b]	Whom do you currently refer for PrEP?
Relationship between PrEP and harm reduction providers	Whom do you currently work with in harm reduction? Would you like to do more with them? What would help you make those relationships more robust?
Perceived PrEP benefits	Do you think injection drug users would benefit from PrEP? Why/why not?
PrEP acceptability	Do you think people who inject drugs would be interested in taking PrEP to prevent HIV? Why/why not?
Views on PrEP provision modalities	Please let us know if you think the following would be feasible and why or why not: (a) Referring injection drug users to a PrEP clinic during syringe exchange; (b) Having a doctor prescribe PrEP during syringe exchange outreach sessions; (c) Making PrEP available via "standing order," similar to naloxone, and providing people with PrEP pill packs during syringe exchange.

[a]Questions on this topic were for PrEP providers only;

[b]Questions on this topic were for harm reduction providers only.

TABLE 2.

Views on Feasibility

	PrEP providers (*n* = 10)	Harm reduction providers (*n* = 10)
Referral		
Feasible	8	6
Not feasible	1	1
Unsure/Unclear	1	3
Doctor prescription		
Feasible	8	7
Not feasible	0	3
Unsure/Unclear	2	0
Standing order		
Feasible	6	9
Not feasible	3	1
Unsure/Unclear	1	0

TABLE 3.

Most Preferred PrEP Provision Modality

Modality	PrEP providers (n = 10)[a]	Harm reduction (n = 10)
Referral	5	2
Doctor prescription	1	3
Standing order	5	5
Not asked/answered	3	1

Note. Since some providers selected two out of the three options as the PrEP provision modality they prefer the most, the numbers sum to more than 10 for PrEP and Harm reduction providers.

[a]Three providers selected referral as their preferred provision modality in terms of feasibility and standing order as their preferred provision modality in terms of effectiveness in increasing PrEP uptake; one provider selected referral as his preferred provision modality in terms of feasibility and doctor prescription as his preferred provision modality in terms of effectiveness and safety.