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## A qualitative study of service engagement and unmet needs among unstably housed people who inject drugs in Massachusetts\*

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### Abstract

**Introduction:** People who inject drugs (PWID) are disproportionately affected by HIV in the United States, and HIV prevention and care services may be inaccessible to or underutilized by PWID. In 2018, the Massachusetts Department of Public Health (MDPH) and the Centers for Disease Control and Prevention (CDC) investigated an increase in HIV diagnoses primarily among unstably housed PWID in Lawrence and Lowell.

**Methods:** The response team interviewed 34 PWID in Lawrence and Lowell, with and without HIV, to inform effective response strategies. Qualitative interviews were recorded, transcribed, and coded. Interviews were transcribed verbatim and coded using a thematic analysis approach structured around pre-designated research questions related to service engagement (including harm reduction services, substance use disorder treatment, medical services, shelters, and other community services), unmet needs, and knowledge gaps regarding HIV prevention.

**Results:** Participants ranged in age from 20 to 54 years (median: 32); 21 of the 34 participants (62%) were male, and 21 were non-Hispanic white. Fifteen (44%) self-reported being HIV positive. All 34 participants had experienced homelessness in the past 12 months, and 29 (85%) had ever received services at syringe service programs (SSP). We identified five key themes:

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substance use as a barrier to accessing health and social services; experiences of trauma and mental illness as factors impacting substance use and utilization of services; unstable housing as a barrier to accessing services; negative perceptions of medication for opioid use disorder (MOUD); and the desire to be treated with dignity and respect by others.

**Conclusions:** Findings highlight the need for well-resourced and integrated or linked service provision for PWID, which includes mental health services, housing, MOUD, harm reduction, and infectious disease prevention and care services. Co-locating and integrating low-barrier services at trusted community locations, such as SSPs, could increase service engagement and improve health outcomes for PWID. Further implementation science research may aid the development of effective strategies for services for PWID and build trusting relationships between service providers and PWID.

## Keywords

People who inject drugs; Substance-related disorders; Qualitative research; HIV

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## 1. Introduction

People who inject drugs (PWID) are a diverse and often marginalized population disproportionately affected by HIV in the United States. From 2010 to 2014, the estimated lifetime risk of HIV diagnosis was much higher for PWID (1 in 26 for female, and 1 in 43 for male PWID), compared with the general U.S. population (1 in 106) (Hess et al., 2017). From 2014 to 2018, the percentage of HIV diagnoses attributed to nonsterile injection drug use increased, and PWID recently account for about 1 in 15 total HIV diagnoses in the United States (Centers for Disease Control and Prevention, 2020b). However, existing HIV prevention and care services for PWID vary by state, and may not always be available or accessible to PWID. Per National HIV Behavioral Surveillance data, in 2018, only 53% of PWID received syringes from syringe services programs (SSPs), 1% reported taking pre-exposure prophylaxis (PrEP) in the previous 12 months, and 47% of self-reported HIV-positive PWID visited an HIV care provider within 1 month after their diagnosis (Centers for Disease Control and Prevention, 2020a). Additionally, only 43% of participants participated in a substance use treatment program in the prior 12 months, highlighting the need to further understand potential underlying barriers to accessing care and treatment and how to best expand service delivery strategies for PWID (Centers for Disease Control and Prevention, 2020a).

Between 2011 and 2015 in Massachusetts, the prevalence of opioid use disorder increased by approximately 200%, and the number of opioid-involved overdose deaths more than doubled (Massachusetts Department of Public Health, 2017). Increasingly, opioid-involved overdose deaths in Massachusetts involve fentanyl, a potent synthetic opioid (Massachusetts Department of Public Health, 2017). Fentanyl is more rapidly metabolized in the body, often leading PWID to inject more frequently to avoid withdrawal, increasing both the risk of overdose and the risk of acquiring infections such as hepatitis C virus (HCV) and HIV. The number of PWID newly diagnosed with HIV infection in Massachusetts had decreased from 99 in 2007 to a ten-year low of 30 in 2014, then increased to 50 in 2015 and 67 in 2016 (Massachusetts Department of Public Health & Bureau of Infectious Disease and Laboratory

Sciences, 2018). To combat the opioid crisis and its infectious disease consequences, the Massachusetts Department of Public Health (MDPH) expanded harm reduction services through SSPs and access to medication for opioid use disorder (MOUD) (Cranston et al., 2017).

In August 2016, clinicians at a Federally Qualified Health Center (FQHC) in Lawrence, Massachusetts, notified the MDPH of 5 new HIV diagnoses among PWID (Alpren et al., 2020; Cranston et al., 2019). Surveillance identified additional cases of HIV infection among PWID linked to Lawrence and Lowell, in northeastern Massachusetts, during 2016–2017 (Alpren et al., 2020; Cranston et al., 2019). In response to this increase, MDPH collaborated with local providers to increase outreach and recruitment of PWID into HIV testing and harm reduction services, including providing sterile syringes and clean injection equipment at SSPs, access to naloxone and MOUD, and education on safe injection practices.

In 1993, Massachusetts legalized syringe possession and distribution within the context of a pilot needle exchange program. In 2006, Massachusetts decriminalized possession and distribution of hypodermic needles, regardless of involvement with a needle exchange program or issuance of a prescription. Massachusetts pharmacies were then able to sell syringes to individuals over 18 without a prescription and without fear of criminal prosecution. This law was amended in 2018 to authorize pharmacies to sell syringes to any person, of any age, without identification.

In 2016, the Massachusetts legislature shifted the authority to approve SSPs from elected officials to local boards of health (Centers for Disease Control and Prevention, 2021a). This change simplified the approval process for cities and towns and, as a result, the number of publicly supported SSPs in Massachusetts grew from 5 in 2016 to 33 in 2019 (Centers for Disease Control and Prevention, 2021a). The City of Lawrence Board of Health was among the first to approve syringe services after this shift, and in January 2017, Lawrence opened an MDPH-funded syringe services program (Alpren et al., 2020; Cranston et al., 2019). A privately funded SSP opened in Lowell in early 2018, and by November 2018, MDPH-funded syringe services were being provided in Lowell (Alpren et al., 2020; Cranston et al., 2019).

During the outbreak, providers implemented changes in certain policies and protocols to facilitate access to services. For example, homeless shelters relaxed rules that previously had prevented people from accessing their shelters while possessing needles or injection equipment, and law enforcement officials began referring people in homeless encampments who experienced overdoses to MOUD programs rather than taking them to jail (Centers for Disease Control and Prevention, 2021a). Following these interventions and expansion of services, new HIV diagnoses in the area among PWID declined (Alpren et al., 2020).

In 2018, MDPH, with invited assistance from the Centers for Disease Control and Prevention (CDC), initiated a field investigation of the increase in HIV diagnoses primarily among PWID, many of whom were experiencing recent homelessness. To explore the underlying causes of this increase in HIV, and to inform an appropriate and effective

response to the outbreak, the response team conducted qualitative interviews with people with and without HIV who were members of the PWID community, in conjunction with other investigative strategies (Alpren et al., 2020; Cranston et al., 2019). Qualitative studies have previously provided insight into behaviors of PWID and identify opportunities for intervention (Bernstein et al., 2013; Broz et al., 2017; Mateu-Gelabert et al., 2015; Mateu-Gelabert et al., 2010; Patel et al., 2018). Gathering these data in the context of an outbreak response provide important insight for response planning efforts, which help to mitigate ongoing outbreaks and potentially prevent future outbreaks. Our analyses focused on PWID engagement with health and social services and unmet needs in Lawrence and Lowell in the context of an HIV outbreak. Our key findings presented here aim to inform implementation and expansion of harm reduction and care services in Lawrence, Lowell, and other communities dealing with similar outbreaks, which may in turn help to further reduce new diagnoses of infectious diseases like HCV and HIV among PWID. We then highlight developments in comprehensive services for PWID and people experiencing homelessness in northeastern Massachusetts that resulted in part from data gathered during the investigation and outbreak response.

## 2. Methods

This investigation was part of a public health response to an ongoing outbreak. The CDC approved the investigation in accordance with federal human subjects protection regulations and CDC policies and procedures as a nonresearch, disease control activity. Review by an institutional review board was not required.

### 2.1. Study participants

In May 2018, staff from MDPH and the CDC conducted 34 qualitative in-depth interviews with PWID in Lawrence and Lowell, MA. To be eligible, participants had to be age 18 years, report injection drug use within the previous year, and reside (including experiencing homelessness or unstable housing) in Lawrence or Lowell. The study used purposeful sampling to select participants and to ensure variation based on gender, city of residence, self-reported HIV status, and substances used (opioids, stimulants, or both). Local stakeholders assisted with participant recruitment by identifying potential participants and directing them to study staff. Participants provided verbal consent and were given \$25 for their participation (Board et al., 2021).

### 2.2. Data collection

We used a semi-structured interview guide that the study team developed based on key questions relevant to understanding the local HIV outbreak and through an iterative process, with CDC and MDPH subject matter expert feedback; the team designed it to encourage open and honest disclosure. The study staff pilot tested the interview guide, revised as needed on an ongoing basis, and finalized it to be available in English and in Spanish. Interview guide topics included substance use and injection practices, access to SSPs, sexual risk behaviors, attitudes toward HIV and HCV, history of incarceration, and engagement with health and social services (including harm reduction services, substance use disorder treatment, medical services, shelters, and other community services). Study staff conducted

interviews in multiple locations identified by local public health and community-based providers, including a FQHC-based SSP, a homeless shelter, and a homeless services office. Providers chose these locations because they were likely to be familiar and comfortable for participants. Interviews were conducted by MDPH and CDC staff and fellows who were trained on in-depth interviewing, some of whom had prior experience with clinical or qualitative research interviews. Bilingual staff conducted interviews in Spanish for Spanish-speaking participants. Interviews lasted approximately 30–75 min. Two staff members conducted each interview: one to conduct the interview and one to take detailed notes to allow for ongoing rapid analysis in the field. Interviews were audio recorded, and each interview was transcribed verbatim.

### 2.3. Data analysis

We used a thematic analysis approach to analyze data (Braun & Clarke, 2006; Nowell et al., 2017). Thematic analysis is widely used in qualitative research since it is useful for team-based analysis on a breadth of research questions and is accessible and theoretically flexible (Braun & Clarke, 2006; Nowell et al., 2017). We chose a theoretical orientation to the analysis, so the coding structure and analysis was largely driven by our research interests (Braun & Clarke, 2006).

For this analysis our research questions were:

1. What factors impact engagement with health and social services?
2. What are unmet or additional health service needs?
3. What are opportunities for health service or linkage to care support among the subset of PWID who experience incarceration?
4. What are the educational or knowledge gaps regarding HIV prevention?

We used NVivo software (Version 12.1) (QSR International [Americas] Inc., Burlington, MA) to manage data coding and analysis. To develop the codebook, two coauthors (RH and KR) identified codes by referencing the study research questions and independently reviewing a subsample of the transcripts ( $n = 11$ ) (Hennink et al., 2017). The codebook was then independently piloted among three coders (RH, KE, ZG) using four additional transcripts. The team assessed intercoder agreement between coding pairs using Kappa statistics in NVivo until a Kappa of 0.8 was achieved for 81% of codes (for coder 1 vs. coder 2 and coder 1 vs. coder 3). The Kappa 0.80 was used as the threshold for agreement consistency, suggesting reliable and consistent coding (Board et al., 2021; Hruschka et al., 2004; Landis & Koch, 1977). Discrepancies in coding were resolved through discussion, the team made revisions to the codebook as needed, and finalized the codebook. All transcripts were divided among the coders and coded independently, including those previously used for pilot coding.

To identify themes within the data, the lead coder (RH) collated and organized the data based on the coding structure and study research questions. We further grouped data into categories between and among codes and refined the organizational structure until we identified our key themes. All coauthors periodically reviewed and confirmed the analytic

process and findings through written correspondence and discussion to reach a consensus on key findings.

### 3. Results

#### 3.1. Participant characteristics

Participants ranged in age from 20 to 54 years, with a median age of 32 years; 21 (61.8%) of the 34 participants were male, and 21 were non-Hispanic white (Table 1). Fifteen (44.1%) participants self-reported that they were HIV positive. All 34 participants had experienced homelessness in the past 12 months, and 28 (82.4%) were currently experiencing homelessness. All participants reported having health insurance, and 33 (97.1%) reported having public MassHealth (Massachusetts Medicaid) insurance. Twenty-seven (79.4%) participants had a history of incarceration. Twenty-nine participants (85.3%) had ever received services at an SSP.

#### 3.2. Key findings

We identified five main themes related to our research questions. The themes that emerged from our analysis relate mostly to our first two research questions (engagement with services and unmet needs) rather than the remaining research questions (opportunities for support for incarcerated participants and education and knowledge gaps regarding HIV prevention). Results from the qualitative interviews highlight substance use as a key barrier to accessing health and social services, past experiences of trauma and mental illness as factors contributing to substance use and service engagement, unstable housing as a barrier to accessing services, negative perceptions of MOUD, and the desire to be treated with dignity and respect by others.

**3.2.1. “Drug addiction completely consumed my life and I didn’t have time for anything else.” (Age 32, Male, HIV Negative): Active substance use can be a significant barrier to accessing services**—Throughout the interviews, participants described the drive to get high as a primary motivator for their actions, superseding all other motivations and often hindering participants from utilizing services offered in the community.

Um, I haven’t been seeing my psychiatrist and my doctors because I’m actively using right now. So I’m not doing, worried about the good things that are going on in my life like medication and what’s going to help me, I’m not worried about those things, I’m worried about my day-to-day getting high, staying clean—I mean staying from being sick.

(Age 39, Male, HIV Positive)

Well, before this 7 months of clean time I don’t think I’d been to a doctor in like 7 or 8 years. I mean besides overdoses, because you don’t, I mean I can only speak for myself, but I’m pretty sure it’s a common theme when you’re in active addiction the last thing on your mind is getting a doctor and getting health insurance and taking care of yourself. I know for me I didn’t do any of those things.

I didn't.... I just, I didn't.....the issue was always the drug addiction completely consumed my life and I didn't have time for anything else.

(Age 32, Male, HIV Negative)

Participants described active substance use as a persistent barrier to accessing health care. Many said they spent most of their time and energy on their substance use and were unable to take the time to access health care.

Participants also described active substance use as a barrier to seeking out and utilizing other resources, such as shelters and HIV testing.

[The shelter] was just a place to stay sometimes. I really didn't go there most of the time because I was too busy getting high.

(Age 29, Female, HIV Positive)

Interviewer: Are there any services that you think they should have offered [by the SSP]?

Participant: Yeah, testing...they'll like direct you to the right place to things if you ask them. But no one is going to leave the block to go and do shit. And get shit done. We are homeless and hopeless, we don't give a fuck about anything except for getting high.

(Age 29, Female, HIV Positive)

The underlying motivation to get high took precedence over most participants' lives, often presenting a persistent and underlying challenge to accessing services in the community.

**3.2.2. "I have some mental health issues and I've been through a lot of shit in my life" (Age 39, Male, HIV Positive): Trauma experiences and untreated mental health conditions can contribute to substance use and limit engagement with services**—Many participants described past experiences of trauma and mental health issues as factors that impacted their initiation of or continued use of substances.

I had so much sobriety until my son died, and then once, it's been three years of hell...to be honest, I didn't give two shits when my son died... you know, unfortunately depression plays a lot into drug use, and if I'm out there and I'm depressed, I'm...why stay straight? [chuckles] That's just how...I gotta get my mind to think differently, once I do that I'll be okay [chuckles]. [sniffs]

(Age 47, Female, HIV Positive)

You know, so, like my personal opinion is that I have some mental health issues and I've been through a lot of shit in my life. There are not many programs out there that do the dual diagnosis thing, you know, where you have addiction and you have mental health issues and we want to take care of both of those at the same place, same time, [mumbled words] and there are not a lot of places that do that long-term, you know?

(Age 39, Male, HIV Positive)

Many described substance use a tool to cope with depression or to numb the pain from grief and trauma, and they felt there is a lack of services that integrate mental health care with other services, such as harm reduction, basic health care, and substance use treatment services. Participants saw underlying mental health disorders and lack of access to treatment and care as barriers to accessing other services in the community.

**3.2.3. “How can I go to the food pantry when I don’t got a place to put food?” (Age 23, male, HIV Positive): Housing instability is a barrier to accessing services**—Housing was a predominant and primary need highlighted by participants. Many expressed that without stable housing, they were not able to access other services.

I don’t have a safe place to go to sleep every day, you know? And that prevents me, so, like, people can tell me, ‘hey I got work for you, man’ — I can’t go to work every day if I know I’m not going to be able to come home to a safe place and take a shower and clean myself, and sleep, and get a good night’s sleep in order for me to go back to work tomorrow....And then, I can’t work so now I have no money, you know what I mean? Like, it just, it’s like a domino effect, one thing leads to another, and...it sucks.

(Age 39, Male, HIV Positive)

How can, how can I go to food pantry when I don’t got place to put food?

(Age 23, Male, HIV Positive)

Participants described encountering many obstacles to obtaining housing, including the money necessary to secure a rental unit (security deposit and first and last month’s rent) and extremely long waiting lists to get into housing programs.

I don’t see why really anybody’s homeless. There’s plenty of places to go, it’s just a matter of getting people in...I know I’m down and out now, but give me a chance and you know when I get a job I can start paying rent...I mean the waiting list...A couple of people were on the waiting list for like 8 years, things like that. I think that’s ridiculous, you know.

(Age 34, Male, HIV Negative)

While many participants described utilizing shelters, they identified barriers to accessing them. Many participants found shelters’ strict rules to be challenging, so they often preferred to sleep on the street, including in the homeless encampments, such as a longstanding site under a local bridge. Some had been expelled from shelters or banned from using them in the future for breaking their rules.

Shelters, you know they got rules and um, you have to be in a shelter at a certain time. Um, some places you have to call in advance earlier that day to reserve your bag, um, yea, you gotta be there at a certain time, you gotta leave at a certain time. You know, if it’s nice weather people are just more like, they’ll tend to just be like, well, you know, if I go in early just to get this bag then I’m not gonna have time to make money to get high. So, well it’s nice weather, so it’s, who cares, sleep on a bench, you know? Or underneath a bridge or in somebody’s car.



(Age 32, Male, HIV Negative)

Participants described barriers as intertwined and compounding, making it overwhelming and difficult to address just one need or issue at a time when trying to access services and programs.

**3.2.4. “Once methadone grabs you it’s almost as worse as heroin to kick.”**

**(Age 29, Male, HIV Positive): MOUD is a crutch rather than a solution, and there is a strong and persistent fear of addiction to these medications—**Many participants were aware of MOUD options in the community but were wary of initiating treatment because they felt that it would replace their current addiction with a new addiction to the prescribed medications.

I’m kinda against methadone just you know using one substance to quell your urges for another. And suboxone®’s the same thing because that I mean...that will obviate you when you’re clean you know.

(Age 34, Male, HIV Negative)

I don’t believe in that shit...cause it’s a substitute... it’s a substitute.. you have another habit.

(Age 22, Female, HIV Negative)

What’s the point of gettin’ that shot and then like, it’s saying it’s gonna crush it, or it’s just, that’s like puttin’ a nicotine patch on, sayin’ that you’re not gonna smoke a cigarette no more. I’ve seen people put nicotine patches on and still smoke a cigarette. So when I heard that I thought that was bogus, so, and it is. I, I’ve known, I probably known more people that tried the Vivitrol shot and died tryin’ to get high than people on the streets that I know.

(Age 29, Male, HIV Positive)

Several participants resisted methadone treatment because of the concern that they would feel sicker when coming off methadone than from the substances they were currently using.

For me I just believe that it’s delaying a problem. I’m addicted to heroin, I’m going to get sick to get off heroin, now I’m addicted to methadone, which is harder to get off than [heroin] and I’m going to get way more sick.

(Age 32, Male, HIV Negative)

I’ve always said there is no way I’m gunna, I’m gunna go to a methadone clinic. There is just no freaking way because coming off it is just [laughter] oh my god. You just want to die.

(Age 44, Male, HIV Negative)

While participants were generally aware of MOUD programs available in the community, they had a lot of hesitancy and fear about engaging in these programs, due to misconceptions about substituting their current addiction with an addiction to prescribed medications.

**3.2.5. “We are drug users, but we are not animals, we are still human. We have a right to feel human.” (Age 32, Female, HIV Positive): Participants desire to be treated with dignity by others, and trusted relationships with providers encourage participants to engage with services—**Participants disliked or avoided services where they did not feel respected by the providers. The subset of participants who had experienced recent incarceration also described perceiving a lack of caring from staff and providers while incarcerated.

For the most part they're wonderful. There are a couple of workers at the shelter that just...I don't even know why they are working there. It doesn't even seem like they want to help. [One shelter staff member] is awesome. There's a couple others. It's like half and half. To where it's like you know why are you working here...they're just nasty, they don't make you feel welcome. It's more like they're trying to be like, I don't know, it's like they are more like trying to tell you what to do, how to do it, you know, control you more so than treat you like a person. And it doesn't seem like they look at you like a person either. You're just like cattle going in and out of there.

(Age 34, Male, HIV Negative)

Participants felt misunderstood and mistreated by community and family members. They described negative interactions with others who often stigmatized them for their substance use disorders.

[The community] make[s] it so difficult for the homeless, you know? They're horrible to the people. They just shouldn't...they'll dealing with, they are dealing with a situation that they don't know how to handle. At all! And the only means of handling it is to [long pause] to degrade that person. To threaten them. To kick them out. You know what I mean? Shit like that.

(Age 44 Male, HIV Negative)

A lot of people in my family were like, “You did this to yourself, you're going to be by yourself now,” which is disgusting... And unfortunately, I know of a lot of young kids out there through my niece that have it [HIV], that are on the streets 'cause their parents just don't want them in their home, yeah.

(Age 47, Female, HIV Positive)

Several participants indicated a need for more education to change stereotypes and reduce stigma related to substance use and homelessness.

Parents of addicts they need to learn, they need to – they need to know more, more about like, whether you want to call it a disease or you want to call it... people will be like “Oh, you're a junky” and stuff... and I think that some people will learn more about the disease before they sit there and be like “Oh, you're not clean and don't deserve it” and just –just understand that like we're people too and like even though like we make mistakes we don't – we don't want to be bad people... some people just like don't understand addictions so, you know what I mean, so they have like a negative kind of attitude towards it like, all addicts should just be locked

up on an island. Like, do you think that's fair?... I just think they need more, need more around understanding what it actually is... like more in the community, just like more, you know what I mean? People need to know more about what it is. I feel like people just don't understand, so that's why they stereo, it's a stereotype.

(Age 28, Female, HIV Negative)

In contrast, many participants continue to access services at SSPs because of their positive engagements and experiences with SSP providers. Many felt that the SSP staff genuinely care about their well-being and described trusting relationships with these providers. Participants enjoyed interacting with the staff and continued to access services because of these positive interactions and relationships.

[SSP providers]...they really want to prevent HIV and hepatitis. They actually really care about people's lives....Just they're people...they're people people. They want to know about you, not just your addiction. They're not just there to issue needles. They want to know about you like how you're doing and you know they just, they care.

(Age 33, Female, HIV Negative)

Um, I like them a lot, they- they are very helpful. They're—I've gained a relationship with them like I've never gained with anybody else. I trust them...The staff here are amazing and they're not just regular staff, they're like family staff, you know? Like I talk to them like I talk to my own dad, like I have a lot of love for them because they've seen me at my worst, they've seen me at my best. They've seen me really low, I came in here really bad looking, really skinny, unhealthy, they helped me, they fed me, etcetera.

(Age 20, Female, HIV Negative)

Overall, participants expressed a desire to be treated with dignity and respect by community members, family, and providers, many of whom often lacked an understanding of substance use disorders.

#### 4. Discussion

The re-emergence of HIV clusters among PWID during the opioid crisis has revealed gaps in availability and utilization of comprehensive HIV prevention and other social and health services for PWID in northeastern Massachusetts, despite near universal insurance coverage in the state. The participants, most of whom were experiencing homelessness at the time of interview, described a persistent and underlying need for stable housing, and that a lack of housing was a barrier to engaging with other services, such as employment and food assistance. Social determinants of health, including access to adequate housing, are well recognized as determinants of health outcomes (Bergen & Labonté, 2020; De Jesus & Williams, 2018). Maslow's hierarchy of needs posits that people are unable to prioritize health and well-being until their basic safety and security needs, such as housing, are met (Maslow, 1947; Aidala & Sumartojo, 2007; Henwood et al., 2015). For PWID, research consistently demonstrates that a "housing first" model of harm reduction has a positive effect on reducing risk behaviors, increasing engagement in care services, and improving

health outcomes (Aidala et al., 2005; Aidala et al., 2007; Aidala & Sumartojo, 2007; Appel et al., 2012; Aubry et al., 2015; Blank, 2015; Des Jarlais et al., 2007; Tsemberis et al., 2004; Tsemberis et al., 2012). Future public health and outbreak response efforts should prioritize addressing housing needs, and include immediate access to client-centered, inclusive stable housing programs, which do not require sobriety or treatment enrollment for eligibility or retention. Housing programs, offered alongside and integrated with but not dependent on substance use disorder treatment and other behavioral health interventions, are essential to reducing this barrier to service engagement. In 2020, MDPH committed resources to create new low-threshold housing programs for Boston residents and, in 2021, expanded this initiative by procuring these programs in other regions of the state.

Participants experienced extensive and pervasive mental health challenges that were intertwined with their substance use. The existence of multiple co-occurring and synergistic conditions—including infectious diseases such as HIV, hepatitis C, and sexually transmitted infections, substance use disorders, unstable housing, and mental health disorders—is a syndemic (Services, 2021; Tsai & Burns, 2015). These linked health conditions can result in a magnified risk of morbidity and mortality, contribute to an excess burden of disease, and exacerbate existing health inequalities among impacted populations (Services, 2021; Tsai & Burns, 2015). Untreated mental health disorders among PWID can present a significant barrier to accessing health care services. Research has shown that co-locating and integrating mental health services with other health care, such as care for HIV prevention and treatment, can increase overall health outcomes and retention in care (Chuah et al., 2017; Coleman et al., 2012). It remains critical to design trauma-informed and culturally competent integrated service models for PWID that include mental health care as a focus (Services, 2021; Tsai & Burns, 2015).

At the time of this investigation, owing to the opioid crisis and prior HIV outbreak response efforts, an increased investment had already occurred in a holistic service provision approach for PWID in Massachusetts, and MDPH has already incorporated many of these identified unmet service needs for PWID into the Massachusetts Integrated HIV/AIDS Prevention and Care Plan for 2017–2021, with an emphasis on service integration. Continued, client-centered integration of services is essential and may be achieved through various strategies such as: physical co-location of services; strengthening cross-program and cross-agency patient management (including using interdisciplinary care teams); and strengthening inter-agency operational collaboration (such as through memoranda of understanding that allow data sharing and co-management of patient care). To ensure appropriate reach, services should be accessible to clients in a variety of medical and nonmedical settings, including, but not limited to, substance use disorder treatment sites, encampments, SSPs, mobile clinics, shelters, food programs, other community-based organizations where PWID access services. Low-threshold access to services will address a key challenge reported by participants: that active substance use is time consuming, and they are unable to prioritize accessing services. Ensuring further and sustained service integration will continue to reduce barriers to accessing services and care, resulting in reducing disease burden, improved health outcomes, and fewer outbreaks of infectious diseases (Bositis & St. Louis, 2019; Prevention, 2018; Services, 2021; Tsai & Burns, 2015).

MOUD is a combination of effective medications with behavioral interventions that is proven to reduce opioid use, opioid-related mortality, and infectious disease transmission (Mattick et al., 2009, 2014; NIDA, 2016; Substance Abuse and Mental Health Services Administration, 2021; Schwartz et al., 2013). Additionally, MOUD is associated with an increase in ART adherence and viral suppression among PWID (Low et al., 2016). While not raised specifically in this analysis, we know that MOUD treatment capacity across the nation is insufficient to address the need and is therefore underutilized to treat opioid use disorders, by both patients and providers (Hodder et al., 2021; Jones et al., 2015; Knudsen et al., 2011; NIDA, 2016). While many participants were aware of at least some MOUD options, they consistently reported a negative perception of and misconceptions about MOUD programs, resulting in a hesitancy to engage in these services. A significant need exists to reduce structural, provider, and client barriers to accessing MOUD; to expand efforts to dispel myths that MOUD is substituting one addiction for another (National Institute on Drug Abuse, 2016); and to promote effective approaches to reshape the dialogue about MOUD among providers and clients. Many participants were concerned about engaging in methadone treatment specifically, for fear of the impacts of detoxification. More education about the range of MOUD options, in addition to the utilization of patient-tailored implementation approaches, may help to reduce patients' concerns about MOUD. Increased access to MOUD will help to address one of the main challenges identified by participants in this analysis: that active substance use is a key barrier to accessing services. However, linkage to MOUD must continue to be part of an integrated service provision approach that centers basic needs, such as housing, above all else and without sobriety or MOUD enrollment requirements.

Additionally, a need exists for strategies to reduce stigma and discrimination against PWID. Participants expressed a desire for more education and awareness for service provider staff (e.g., health care providers, shelter staff, and corrections officers), community members, and family members on substance use disorder; and for more sensitivity toward people experiencing unstable housing. Stigma and discrimination against people who use drugs are correlated with increased rates of depression and decreased engagement with care services (Ahern et al., 2007; Latkin et al., 2013; Muncan et al., 2020). Additionally, studies have shown that improved provider trust and social support for PWID are associated with increased engagement with care (Dion et al., 2020; Matsuzaki et al., 2018). Ensuring culturally competent staff, client-centered affirming care, and available support networks for PWID will reduce barriers to service access and lead to improved health outcomes.

In response to this outbreak, providers in Lawrence and Lowell initiated and expanded programs and strengthened partnerships to increase access to HIV care and treatment, MOUD, and harm reduction services, including sterile injection equipment. Overall, participants described SSPs as a trusted place to engage in services, and SSPs serve as an important focal point for PWID care coordination. At present, Massachusetts has a robust SSP system that could continue to be leveraged to improve engagement in services and continuity of care for PWID. This could be achieved by expanding internal clinical capacity within SSPs to provide HIV treatment, vein and wound care, MOUD, and other clinical care; or by strengthening collaborations with clinical and MOUD providers, to facilitate access to these underutilized resources (Bositis & St. Louis, 2019; North American Syringe

Exchange Network, 2021). Some SSPs in Massachusetts have already begun integrating clinical care into community-based settings where PWID access services including, but not limited to, syringe services. For example, an SSP in Pittsfield provides low-barrier hepatitis C treatment and PrEP to PWID via telehealth; a Boston-based SSP and community health center collaborate to link PWID to hepatitis C treatment and PrEP, including via street-based telehealth (Polito, 2020); and an SSP in Lawrence is piloting a PrEP program and offering office-based substance use treatment (Greater Lawrence Family Health Center, n.d.-a; Greater Lawrence Family Health Center, n.d.-b). Continued emphasis on and support for service integration for PWID (including supportive policies and regulations) will further reduce barriers to accessing care, improve the health of PWID, and help prevent future outbreaks of HIV and other infectious diseases.

This analysis has several limitations: First, despite our efforts to engage with trusted community partners and ensure participant confidentiality and anonymity, we cannot rule out the possibility that social desirability bias affected some responses, especially for sensitive or controversial topics (Bergen & Labonté, 2020). Second, the state made several expansions in services in response to the outbreak, so service availability and engagement in the community is different now than it was at the time of the interviews in 2018. Additionally, these findings may not be generalizable to other PWID populations in the United States and may not reflect experience of all PWID in Lowell and Lawrence. In particular, our sample does not represent PWID in the community who were stably housed. Finally, additional qualitative data analyses by HIV status are needed to help understand the potential differential effects of HIV status on service engagement and utilization.

Several opportunities remain for future research on unmet needs and effective service provision for PWID. Given the extent of existing services available in Massachusetts for PWID, findings presented here may inform best practices in other states, as PWID service provisions are scaled up and expanded. Follow-up interviews with PWID in Massachusetts and similar communities could provide insights into the expansion of service provision for PWID. Further research should develop effective implementation strategies for MOUD to remove access barriers and to ensure broader uptake, to save lives from drug overdose (Bernstein & Joel, 2021; Mattson et al., 2021). These data will also inform future analyses focusing on our later two proposed research questions, related to opportunities for linkage to care support among the subset of PWID who experience incarceration and knowledge gaps about HIV prevention. Finally, future studies examining the effect of the COVID-19 pandemic on this already vulnerable population will help to further the field's understanding of current gaps in services for PWID.

## 5. Conclusion

In conclusion, our findings indicate many opportunities to reduce barriers for service engagement and bolster comprehensive services for PWID in Lowell and Lawrence and in other cities experiencing similar challenges. Implementing low-threshold housing programs for PWID will improve housing stability, enabling individuals to engage in other services. Well-resourced, integrated mental health, housing, MOUD, harm reduction, and infectious disease prevention and care services will improve care and service coordination and access

for PWID. The CDC works closely with federal, local, and state partners to increase access to and use of comprehensive SSPs, as permitted by state and local laws (Centers for Disease Control and Prevention, 2021b). Local advocacy for harm reduction resources and supportive policies may create (or limit) environments that optimize health protection and promotion for PWID (Allen et al., 2019; Mack, 2019). Finally, building trusting relationships among all types of service providers (including clinical and social services providers) and PWID will help to reduce stigma and discrimination and further encourage engagement and retention in services among PWID. Continuing to reduce barriers to engagement in services for PWID will result in improved health outcomes and will help to prevent outbreaks of infectious diseases, such as HIV, in the future.

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### Abbreviations:

<b>CDC</b>	Centers for Disease Control and Prevention
<b>FQHC</b>	Federally Qualified Health Center
<b>HCV</b>	hepatitis C virus
<b>MDPH</b>	Massachusetts Department of Public Health
<b>MOUD</b>	medication for opioid use disorder
<b>PrEP</b>	pre-exposure prophylaxis
<b>PWID</b>	people who inject drugs
<b>SSP</b>	syringe services program

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**Table 1**

Characteristics of people who inject drugs interviewed as part of investigation into HIV outbreak – Lowell and Lawrence, Massachusetts, 2018 (N = 34).

Characteristic	N	%
Age (years)		
18–24	6	17.6
25–29	7	20.6
30–39	11	32.4
40+	10	29.4
Gender		
Male	21	61.8
Female	13	38.2
Race/ethnicity		
White Non-Hispanic	21	61.8
Black Non-Hispanic	1	2.9
Hispanic	11	32.4
Other Non-Hispanic	1	2.9
Primary language spoken		
English	26	76.5
Spanish	8	23.5
Homeless status <sup>a</sup>		
Homeless within last 12 months	34	100.0
Currently homeless	28	82.4
Self-reported HIV status		
Positive	15	44.1
Negative	19	55.9
Currently have health insurance		
Yes	34	100
No	0	0
Type of health insurance		
MassHealth	33	97.1
Private insurance	1	2.9
Ever utilized SSP services		
Yes	29	85.3
No	5	14.7
History of incarceration		
Yes	27	79.4
No	5	14.7
Unknown/not asked	2	5.9

<sup>a</sup>Not mutually exclusive.