Syringe Service Program Perspectives on Barriers, Readiness, and Programmatic Needs to Support Rollout of the COVID-19 Vaccine

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Background: We explored syringe service program (SSP) perspectives on barriers, readiness, and programmatic needs to support coronavirus disease 2019 (COVID-19) vaccine uptake among people who use drugs.

Methods: We conducted an exploratory qualitative study, leveraging an existing sample of SSPs in the United States. Semistructured, in-depth interviews were conducted with SSP staff between February and April 2021. Interviews were analyzed using a Rapid Assessment Process, an intensive, iterative process that allows for rapid analysis of time-sensitive qualitative data.

Results: Twenty-seven SSPs completed a qualitative interview. Many SSP respondents discussed that COVID-19 vaccination was not a priority for their participants because of competing survival priorities, and respondents shared concerns that COVID-19 had deepened participant mistrust of health care. Most SSPs wanted to participate in COVID-19 vaccination efforts; however, they identified needed resources, including adequate space, personnel, and training, to implement successful vaccine programs.

Conclusions: Although SSPs are trusted resources for people who use drugs, many require additional structural and personnel support to address barriers to COVID-19 vaccination among their participants. Funding and supporting SSPs in the provision of COVID-19 prevention education and direct vaccine services should be a top public health priority.

Key Words: syringe service programs, syringe exchange, coronavirus, COVID-19, vaccine

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People who use drugs (PWUD) are at increased risk for severe illness and death due to coronavirus disease 2019 (COVID-19), owing to multiple medical comorbidities.[1–3] Although vaccination against COVID-19 can dramatically decrease the risk of hospitalization and death, particularly among those at increased risk,[4–6] as of the fall of 2021, millions of adults in the United States remain unvaccinated.[7] Despite being at high risk for complications of COVID-19, PWUD experience multiple barriers to accessing a COVID-19 vaccine, including a lack of transportation, inadequate access to technology for scheduling vaccine appointments, perceived and enacted stigma from health care systems and providers, and competing survival priorities.[8,9] Increased efforts are needed to prioritize this population for vaccination.

Syringe service programs (SSPs) are essential organizations for the prevention of overdose deaths and blood borne pathogens transmission among PWUD, and they often serve as trusted sources of other forms of preventive health care, including vaccination.[10–13] Indeed, many SSPs have been successful in providing routine vaccinations against influenza,[12] hepatitis A virus, hepatitis B virus,[10,11,13] and pneumococcus[12] to PWUD, and they have the potential to play an impactful and ongoing role in COVID-19 vaccination efforts as well. Although recent publications have highlighted COVID-19 vaccine hesitancy among PWUD,[14–17] to date, little is known about SSP perspectives on their capacity to support COVID-19 vaccine distribution and the role they might play in improving vaccine uptake among PWUD. Using an exploratory qualitative design, we conducted in-depth interviews with SSPs to understand program-level perspectives on potential barriers, readiness, and additional programmatic needs of SSPs to support COVID-19 vaccine rollout.

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METHODS

Study Sample and Recruitment

In the spring of 2020, our team conducted an initial round of qualitative interviews, focusing on the impacts of COVID-19 on SSP operations. The results of these interviews, including sample characteristics, have previously been published.[18,19] This initial round of interviews included 31 SSPs, 4 of whom had been purposively sampled, and 27 of whom had been randomly sampled from the North American Syringe Exchange Network directory, with sampling stratified by Census Bureau–designated regions. For the current study, we contacted the 31 programs that participated in the prior round of interviews via email and asked them to participate in a second individual in-depth interview. If programs did not respond to the initial email invitation, 2 subsequent attempts were made to contact them, either by email and/or phone. Any staff member or volunteer familiar with SSP operations was eligible to complete the interview on behalf of that SSP. In total, 27 of the 31 programs responded to the request for a second interview and were included in our current study. To avoid confusion with SSP participants (eg, people who used SSP services), henceforth we refer to individuals who participated in interviews and surveys as "respondents."

Data Collection and Measures

Semistructured interviews were conducted remotely between February 11, 2021, and April 23, 2021. Interviews were performed by 4 study team members (MAC, AMJ, NDF, EH), all of whom were knowledgeable about SSP services and COVID-19 vaccination. A semistructured interview guide was developed by consensus of the study team and included questions on programmatic plans for the COVID-19 vaccine, as well as other questions assessing the impact of COVID-19 on key program activities; responses to these other questions are not included in this analysis. Specific questions and probes regarding the COVID-19 vaccine included: (1) Please tell me about your program's plans for the COVID-19 vaccine; (2) What conversations, if any, are happening among clients, staff, and other community members with regards to the vaccine? (3) What has been done so far with regard to vaccinating your population, including staff? (4) What role, if any, will your SSP play in the COVID vaccine rollout? (5) What will your SSP need to support vaccine rollout efforts?

Before participating in the semistructured interview, programs were asked to fill out a brief self-administered, online demographic form, which collected information on the SSP's geographic region, organizational affiliations, syringe distribution model, and distribution approaches. All demographic data were collected in REDCap.[20]

No identifying data on SSP participants were collected as part of this study. Respondents received a $50 electronic gift card for completing the qualitative interview.

Data Analysis

All interviews were recorded and transcribed. Interview transcripts were analyzed using a rapid assessment process, an intensive, iterative process that allows for rapid analysis of time-sensitive qualitative data.[21–23] Transcripts were summarized by 4 study members (MAC, MCF, ESB, EJA) using a data summary template in Microsoft Word, which was organized into themes. Themes were developed a priori based on the interview guide, with emergent themes identified throughout analysis. Templates were iteratively reviewed by analysts and qualitative leads (EJA, ECW) and updated throughout analysis to include emergent themes, based on consensus of the analytic team. Transcripts were initially reviewed independently by 2 members of the analysis team. When a clear consensus on data themes was reached, subsequent transcripts were summarized by one analyst. Data from transcript summaries were used by qualitative leads to develop a detailed summary of themes in Microsoft Excel. The summary of themes was reviewed by the entire study team and sent to participating SSPs for their information (eg, member checking).

Ethics

The study protocol was reviewed by the University of Washington Human Subjects Division, which determined that this study did not involve human subjects and therefore did not require institutional review board approval.

RESULTS

Twenty-seven SSPs completed the qualitative interview and demographic questionnaire. Basic demographic data are displayed in Table 1. Three themes emerged that characterize

TABLE 1. Characteristics of Syringe Service Programs that Completed a Qualitative Interview, February to April 2021 (n = 27)

	n	%
Geographic region		
Northeast	8	30
Midwest	9	33
South	5	19
West	4	15
US territories	1	4
Urbanicity/rurality		
Urban	20	74
Rural	7	26
SSP type		
Health department operated	4	15
Nonprofit/community-based organization	23	85
Current syringe distribution model		
1 for 1	2	7
Needs based	16	59
Other	9	33
Current syringe distribution approach(es)*		
Fixed site	20	74
Mobile delivery	21	78
Secondary exchange	18	67
Other†	4	15
No. syringe exchange sites operated		
1	13	48
2–3	8	30
4–9	3	11
10+	3	11
	Median	**Range**
Estimated annual syringe distribution‡	300,000	10,000–5,800,000

*Responses not mutually exclusive. Percentages can sum to >100%.

†Responses included "1+," "negotiated exchange," "1 for 1 + 20," and "syringe access program."

‡Missing one (n = 1) program that was unable to respond.

SSP perspectives on potential barriers that may influence their capacity to support the COVID-19 vaccine rollout: (1) concerns about barriers to vaccination and vaccine hesitancy among program participants, (2) programs felt they could not provide the person-centered care required to roll out the vaccine with their current resources, and (3) SSPs expressed uncertainty surrounding balancing vaccine rollout with other critical client needs.

Theme 1. SSP Perspectives and Beliefs on Participant-Level Barriers to COVID-19 Vaccination

Syringe service program respondents perceived views on the COVID-19 vaccine to be mixed among SSP participants, although most described that COVID-19 vaccination was either not a priority for their participants or that participants were distrustful of the vaccines. Several respondents reported that, given the intense marginalization of their participants, they had very different experiences with COVID-19 compared with the general population, with many participants not having seen COVID-19 affect their immediate community.

> *"Weirdly, the people we serve are so marginalized that they're actually marginalized from COVID. And we know if you're sleeping outside, your risk for transmission is really low, so that was just a really weird pivot. We're all thinking these doomsday scenarios, and it turns out actually most people don't know somebody who had COVID, and so they don't really believe that it exists, which is crazy." [Urban, Northeast]*

Many respondents further reported that their participants' lack of first-hand experience with COVID-19, as well as their baseline distrust of the government, fueled participant beliefs in conspiracy theories about the virus and promoted mistrust of the vaccine.

> *"I'm a little concerned, in general, about how many of our folks may participate [in COVID-19 vaccination efforts]. A lot of our meth users doesn't want the government injecting them with stuff. Stuff like that. There's a lot of misinformation about COVID among our folks. That it's a hoax, that this is — all the things I'm sure you've heard." [Urban, Midwest]*

Syringe service programs additionally expressed that many of their clients had preexisting distrust in the health care system, which derived from stigma, marginalization, and prior negative experiences when accessing care. Paired with conspiracy theories and misinformation, SSPs conveyed that, during the pandemic, this distrust of health care deepened for many participants and represented a major barrier to vaccination.

> *"How do we create programs that are like flu shots for COVID, because that's what we're going to need, most likely, and how do we get people to buy in. Because a lot of our folks don't get flu shots, they're super wary of anything from the government. Most of our participants are from [region]. They've had a lot of medical [expletive] happen in [region], so it's very reasonable the way our participants feel. It just takes time to change people's minds about things." [Urban, Northeast]*

> *"And I think that COVID has added to the avoidance of healthcare for especially this population. And that's really compounded with distrust and disbelief, because I think when you and I met early in the pandemic, it was like SSPs are gonna have 100% infection rate because of congregate housing and methadone clinics, and all the drug-users are gonna die. And I've not had one person symptomatic for COVID…. There's two different worlds that I live in, [one] where people are very, very, very afraid of COVID, and afraid of each other, and afraid of this. And that's real, because I understand that it's real. But there's also a population of drug users who just never saw COVID at all, and it adds to the distrust and the conspiracy theories about healthcare." [Rural, Northeast]*

Theme 2. Programs Felt They Could Not Provide the Person-Centered Care Required to Rollout the Vaccine with their Current Resources

Although many respondents indicated that their SSP was interested in or committed to participating in COVID-19 vaccine rollout efforts, they identified several areas of need to support and/or enable their participation in a person-centered way. In particular, they emphasized the need for accurate, clear, and participant-centered education surrounding the vaccine, as well as the need to make vaccination as accessible as possible for their clients who historically have not sought out preventive health care and have experienced barriers to scheduled follow-up.

> *"I mean, obviously, I think it's also important to say that as a program that works hard to reduce barriers and be noncoercive, we really got to think about how we're approaching and educating the public, and folks that interact with our program, especially folks that have really, really bad experiences in the medical profession. And that could be because of race, historically like black and brown folks, or because they're folks that use drugs and they get treated like dirt a lot when they go for medical emergencies or just general medical visits. So, how do we approach that and give people the information that is digestible, so they can make the best decision for their health?" [Urban, South]*

> *"If you have to make an appointment or follow up or show up somewhere else or do anything like that. Or, really even take more than five minutes to think about it, then they're probably not gonna access it. Whatever way we can make it as simple, easy, thoughtless, and having someone who can have that conversation really quick. It doesn't need to be a 20-minute conversation. It needs to be, 'Look. I got it. I'm here. I'm alive. I didn't get sick.' Or, 'I did get sick, but I was fine. And now I can be out here and we're safe.'" [Urban, Midwest]*

To help facilitate person-centered vaccine services, respondents highlighted the need for several tangible resources,

such as vaccine storage and handling supplies, as well as additional staff, staff training, and strong partnerships with clinical or other health-related agencies that could be leveraged to enhance their knowledge, readiness, and capacity to provide COVID-19 vaccinations.

"So, I think in terms of what support we would need, obviously we'd need the vaccine, and we'd need somebody that would be able to do it. And then, again, space, because then you want to have people to hang out after they've gotten vaccinated, so we can see if there's any kind of adverse effects. So, I think logistically, it would be a person and some space, and we'd just have to figure that out. But where there's a will, there's a way." [Urban, West]

"I think it would be nice not to have to use our own personal staff to vaccinate people…We do work with many of the medical schools in the area, and the Department of Public Health, so we'd like to see if we could pull them in to do the vaccinations… not stretching out already stretched-out staff." [Urban, Northeast]

Theme 3. SSPs Expressed Uncertainty Surrounding Balancing Vaccine Rollout with Other Critical Client Needs

Although all respondents interviewed were supportive of efforts to get SSP participants vaccinated, several expressed that the COVID-19 vaccine rollout was often in conflict with other SSP priorities and the many other pressing needs of their participants. Specifically, many respondents conveyed that the COVID-19 vaccine was not a priority for most of their participants who spent every day trying to survive, regardless of the COVID-19 pandemic.

"I really think for those we serve, COVID isn't a piece of their daily life, if that makes any sense. So, to them it doesn't matter. It doesn't make a difference. Every day [is] survival for them." [Urban, Midwest]

In addition, respondents discussed how, especially during peak waves of COVID-19, their interactions with participants were extremely limited, and program staff had to be strategic about how they used their time with participants to maximize health benefits and promote harm reduction priorities, including linkage to substance use treatment, overdose prevention, and HIV and viral hepatitis testing. Some SSPs expressed that providing the COVID-19 vaccine did not rise to the top of the priority list when discussing health care needs and services with clients.

"Going back to the vaccine, there's a lot of misinformation about that. So, I think when we're doing the [HIV/HCV] testing, even though we're explaining it to them, folks might think that we're gonna try to rope them into getting a vaccine or something else as well." [Rural, South]

"My people [SSP participants] don't want masks. My people don't want to hear it. And I have interesting conversations with people that if I could connect them with one healthcare service, it's probably not the vaccine." [Rural, Northeast]

Furthermore, in some cases, respondents conveyed concerns over how participating in vaccine rollout efforts might decrease their SSP's credibility with participants and hinder their ability to provide critical syringe exchange services to the community, particularly in areas where misinformation about the COVID-19 vaccine was pervasive.

"It's bad [skepticism surrounding the COVID-19 vaccine]. It's really bad here…. And, frankly, because of that, it could be a barrier to them accessing clean syringes in the future if we even ask them [to get vaccinated]… in the hierarchy of need, it just doesn't seem like it would be a good call for us to start offering that [COVID-19 vaccine] here, which is a bummer. It's a bummer, but it's the truth." [Urban, South]

DISCUSSION

In this exploratory qualitative study evaluating barriers, readiness, and programmatic needs to support rollout of COVID-19 vaccination at SSPs and uptake among PWUD, we found that most SSPs were eager to participate in vaccination efforts but identified several participant-level and programmatic-level barriers to effective vaccine rollout.

A major theme throughout our interviews was the ways in which COVID-19 served to deepen mistrust of the health care system and, in turn, of COVID-19 vaccination, for many SSP participants. Mistrust of the health care system among PWUD has been well documented in the literature, fueled primary by negative personal experiences, stigma, and significant gaps in the provision of evidenced-based addiction treatment to PWUD in clinical settings.[8,24–28] Indeed, health care systems have too often failed to meet the needs of PWUD and have reinforced harmful stereotypes, leaving the door open for heightened distrust and false narratives surrounding evidenced-based medical interventions, including vaccination against COVID-19.[8] Because of this, the dissemination of accurate, clear, and participant-centered vaccine education, as suggested by many respondents in this study, and the provision of COVID-19 vaccines via trusted SSPs and vaccinated SSP staff are key steps to reducing barriers and improving uptake of the COVID-19 vaccine among PWUD.

Nevertheless, additional SSP funding and staff are needed to make COVID-19 vaccination a reality at many SSPs and to concurrently address the many important health and prevention needs of PWUD so that the COVID-19 vaccination is not delayed or omitted as a "competing" priority. Although data from a recently published survey of SSPs indicated that 59% of SSP budgets increased in 2020 compared with 2019, SSP funding remains low, with 34% of SSPs reporting an annual budget less than $25,000 and 59% of programs reporting a budget of $100,000 or less.[29] Furthermore, prior qualitative studies indicate that, over the course of the pandemic, many SSPs have experienced concerns regarding their ability to pay for increased syringe and supply distribution,[19] as well as concerns regarding canceled fundraising events and receiving delayed payments from government funders.[30] Certainly, as rates of overdose deaths continue to rise,[31,32] as many SSPs struggle to meet their

goals for HIV and HCV testing,[19] and as programs continue to contend with the ever-present realities of COVID-19, increased efforts will be needed to adequately fund and support the critical work of SSPs.

Although findings from our study suggest that many PWUD had limited direct experience with COVID-19 illness (perhaps because of their extreme marginalization), at least up until the time of data collection, they have nonetheless experienced disproportionate downstream effects of the COVID-19 pandemic.[33] Since the COVID-19 pandemic began, PWUD have been affected by an increase in overdose deaths,[31,34–36] and they have been disproportionately represented among groups experiencing both pandemic-related and non–pandemic-related housing instability.[37] A sense of limited community experience with COVID and these disproportionate downstream impacts of the COVID-19 pandemic, paired with ever-present daily stressors for PWUD (eg, risk of physical and/or sexual violence, food insecurity, other infectious complications of injection drug use, risk of incarceration), provide context to respondent reports that COVID-19 vaccination is often not a priority for individual PWUD. This barrier of multiple, potentially competing needs serves to amplify the ongoing vulnerability of PWUD to COVID-19 and related harms and emphasizes that COVID-19 prevention efforts must exist within a larger landscape of social and medical harm reduction services for this population.

Syringe service programs are a trusted entities for PWUD[38] and represent an ideal partner for the delivery of COVID-19 vaccinations. Nevertheless, as evidenced by findings from this study, some SSPs have avoided participation in vaccine rollout efforts because of concerns that offering COVID-19 vaccines would erode the trust they have built with participants and deter participants from engaging in other services. For SSPs that want to offer COVID-19 vaccinations, many require additional resources to scale up vaccination programs, including additional facility capacity (eg, storage, refrigeration) and personnel support (eg, staff training). One strategy to overcome these barriers is developing strong partnerships with local public health agencies, medical centers, or other community-based organizations that can provide vaccination services at SSPs. Indeed, this strategy has been effective for the provision of COVID-19 vaccination among PWUD in Baltimore,[39] and it has improved access to a number of routine vaccinations for PWUD accessing SSPs, including vaccination against hepatitis A virus, hepatitis B virus, tetanus and pertussis, and influenza.[40] Because of the critical services SSPs provide to PWUD, public health agencies should prioritize SSPs as key service delivery partners for vaccinating this underserved population, particularly during times of public health crisis.

This study has several limitations. Although the cohort of SSPs from which this study recruited was largely comprised of a stratified random sample, the sample may not be generalizable to all US SSPs, and programs with greater personnel infrastructure may have been more likely to respond. Similarly, the data presented represent the experiences, perceptions, and beliefs of SSP employees and volunteers and are not representative of SSP participants themselves. In addition, data from all qualitative interviews were obtained before the emergence of new variants of concern (eg, Delta, Omicron, and Omicron BA.2) in the United States, before the widespread availability of COVID-19 vaccination for all Americans 5 years and older and before recommendations for COVID-19 booster shots. As such, exposure of PWUD to COVID-19 within their communities, perceptions of risk for COVID-19 among PWUD and SSP staff, available vaccination resources, and strategies used by SSPs to promote vaccine uptake may have changed since completion of our in-depth interviews. Furthermore, there may be additional barriers to providing COVID-19 vaccination at SSPs that we did not capture in this study. For example, we did not ask SSPs about liability insurance or other regulatory barriers to vaccine delivery, and as a result, our findings may not have identified all barriers to COVID-19 vaccination experienced by SSPs and their participants.

CONCLUSIONS

In this study, we found that most SSPs were interested in or committed to participating in COVID-19 vaccine rollout efforts; however, many structural, personnel, and participant-level barriers complicate vaccination efforts. In particular, ongoing efforts are needed to reduce mistrust of the medical system and limit the spread of misinformation surrounding the COVID-19 vaccine among PWUD. Syringe service programs are trusted resources for PWUD and can help reduce these participant-level barriers to vaccination and improve uptake; however, many require additional structural and personnel support. Funding and supporting SSPs in the provision of accurate, clear, and participant-centered COVID-19 vaccine education as well as in the provision of direct onsite COVID-19 vaccine services should be a top public health priority.

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REFERENCES

1. Wang QQ, Kaelber DC, Xu R, et al. COVID-19 risk and outcomes in patients with substance use disorders: analyses from electronic health records in the United States. *Mol Psychiatry*. 2021;26(1):30–39.
2. Baillargeon J, Polychronopoulou E, Kuo YF, et al. The impact of substance use disorder on COVID-19 outcomes. *Psychiatr Serv*. 2021;72(5):578–581.
3. Allen B, El Shahawy O, Rogers ES, et al. Association of substance use disorders and drug overdose with adverse COVID-19 outcomes in New York City: January–October 2020. *J Public Health (Oxf)*. 2021;43(3):462–465.
4. Polack FP, Thomas SJ, Kitchin N, et al. Safety and efficacy of the BNT162b2 mRNA Covid-19 vaccine. *N Engl J Med*. 2020;383(27):2603–2615.
5. Baden LR, El Sahly HM, Essink B, et al. Efficacy and safety of the mRNA-1273 SARS-CoV-2 vaccine. *N Engl J Med*. 2021;384(5):403–416.
6. Sadoff J, Gray G, Vandebosch A, et al. Safety and efficacy of single-dose Ad26.COV2.S vaccine against Covid-19. *N Engl J Med*. 2021;384(23):2187–2201.
7. Centers for Disease Control and Prevention. COVID-19 Vaccinations in the United States. COVID Data Tracker. Available at: https://covid.cdc.gov/covid-data-tracker/#vaccinations_vacc-total-admin-rate-total. Accessed October 19, 2021.
8. Barocas JA. Business not as usual — Covid-19 vaccination in persons with substance use disorders. *N Engl J Med*. 2021;384(2):e6.
9. Price O, Dietze P, Sullivan SG, et al. Uptake, barriers and correlates of influenza vaccination among people who inject drugs in Australia. *Drug Alcohol Depend*. 2021;226:108882.
10. Altice FL, Bruce RD, Walton MR, et al. Adherence to hepatitis B virus vaccination at syringe exchange sites. *J Urban Health*. 2005;82(1):151–161.

11. Des Jarlais DC, Fisher DG, Newman JC, et al. Providing hepatitis B vaccination to injection drug users: referral to health clinics vs on-site vaccination at a syringe exchange program. *Am J Public Health*. 2001;91(11):1791–1792.
12. Stancliff S, Salomon N, Perlman DC, et al. Provision of influenza and pneumococcal vaccines to injection drug users at a syringe exchange. *J Subst Abuse Treat*. 2000;18(3):263–265.
13. Bowman S, Grau LE, Singer M, et al. Factors associated with hepatitis B vaccine series completion in a randomized trial for injection drug users reached through syringe exchange programs in three US cities. *BMC Public Health*. 2014;14:820. doi:10.1186/1471-2458-14-820.
14. Cioffi CC, Kosty D, Nachbar S, et al. COVID-19 vaccine deliberation among people who inject drugs. *Drug Alcohol Depend Rep*. 2022;3:100046. doi:10.1016/j.dadr.2022.100046.
15. Dietze PM, Hall C, Price O, et al. COVID-19 vaccine acceptability among people in Australia who inject drugs: Implications for vaccine rollout. *Drug Alcohol Rev.* 2022;41(2):484–487
16. Aronson ID, Bennett AS, Ardouin-Guerrier MA, et al. How vaccine ambivalence can lead people who inject drugs to decline COVID-19 vaccination and ways this can be addressed: qualitative study. *JMIR Form Res*. 2022;6(3):e35066. doi:10.2196/35066.
17. Strathdee SA, Abramovitz D, Harvey-Vera A, et al. Correlates of coronavirus disease 2019 (COVID-19) vaccine hesitancy among people who inject drugs in the San Diego-Tijuana border region. *Clin Infect Dis*. 2021. doi:10.1093/cid/ciab975.
18. Glick SN, Prohaska SM, LaKosky PA, et al. The impact of COVID-19 on syringe services programs in the United States. *AIDS Behav.* 2020;24(9):2466–2468.
19. Frost MC, Sweek EW, Austin EJ, et al. Program adaptations to provide harm reduction services during the COVID-19 pandemic: a qualitative study of syringe services programs in the U.S. *AIDS Behav.* 2021;26(1):57–68.
20. Harris PA, Taylor R, Thielke R, et al. Research electronic data capture (REDCap)—a metadata-driven methodology and workflow process for providing translational research informatics support. *J Biomed Inform*. 2009;42(2):377–381.
21. Beebe J. *Rapid Assessment Process: An Introduction*. Lanham, MD: Rowman Altamira Press; 2001.
22. A H. *Rapid Turn-Around: Tips for Speeding UP Qualitative Projects, in 5th Annual Planning for Qualitative Research: Design, Analysis and Software Integration*. Chapel Hill, NC: University of North Carolina, 2014.
23. Ash JS, Sittig DF, McMullen CK, et al. A rapid assessment process for clinical informatics interventions. *AMIA Annu Symp Proc*. 2008;2008:26–30.
24. Motavalli D, Taylor JL, Childs E, et al. "Health is on the back burner": multilevel barriers and facilitators to primary care among people who inject drugs. *J Gen Intern Med*. 2021;36(1):129–137.
25. Park JN, White B, Bates A, et al. Motivators and barriers influencing willingness to participate in candidate HCV vaccine trials: perspectives of people who inject drugs. *Drug Alcohol Depend*. 2012;123(1–3):35–40.
26. Biancarelli DL, Biello KB, Childs E, et al. Strategies used by people who inject drugs to avoid stigma in healthcare settings. *Drug Alcohol Depend*. 2019;198:80–86.
27. Paquette CE, Syvertsen JL, Pollini RA. Stigma at every turn: health services experiences among people who inject drugs. *Int J Drug Policy*. 2018;57:104–110.
28. Neale J, Tompkins C, Sheard L. Barriers to accessing generic health and social care services: a qualitative study of injecting drug users. *Health Soc Care Community*. 2008;16(2):147–154.
29. Behrends CN, Lu X, Corry GJ, et al. Harm reduction and health services provided by syringe services programs in 2019 and subsequent impact of COVID-19 on services in 2020. *Drug Alcohol Depend*. 2022;232:109323. doi:10.1016/j.drugalcdep.2022.109323.
30. Wenger LD, Kral AH, Bluthenthal RN, et al. Ingenuity and resiliency of syringe service programs on the front lines of the opioid overdose and COVID-19 crises. *Transl Res*. 2021;234:159–173.
31. Appa A, Rodda LN, Cawley C, et al. Drug overdose deaths before and after shelter-in-place orders during the COVID-19 pandemic in San Francisco. *JAMA Netw Open*. 2021;4(5):e2110452. doi:10.1001/jamanetworkopen.2021.10452.
32. Garcia GP, Stringfellow EJ, DiGennaro C, et al. Opioid overdose decedent characteristics during COVID-19. *Ann Med*. 2022;54(1):1081–1088.
33. Aponte-Melendez Y, Mateu-Gelabert P, Fong C, et al. The impact of COVID-19 on people who inject drugs in New York City: increased risk and decreased access to services. *Harm Reduct J*. 2021;18(1):118. doi:10.1186/s12954-021-00568-3.
34. Mason M, Welch SB, Arunkumar P, et al. Notes from the field: opioid overdose deaths before, during, and after an 11-week COVID-19 stay-at-home order — Cook County, Illinois, January 1, 2018–October 6, 2020. *MMWR Morb Mortal Wkly Rep*. 2021;70(10):362–363.
35. Shreffler J, Shoff H, Thomas JJ, et al. Brief report: the impact of COVID-19 on emergency department overdose diagnoses and county overdose deaths. *Am J Addict*. 2021;30(4):330–333.
36. Katz J, Sanger-Katz M. 'It's huge, it's historic, it's unheard-of': drug overdose deaths spike. *The New York Times*. Available at: https://www.nytimes.com/interactive/2021/07/14/upshot/drug-overdose-deaths.html. Accessed October 25, 2021.
37. Perri M, Dosani N, Hwang SW. COVID-19 and people experiencing homelessness: challenges and mitigation strategies. *CMAJ*. 2020;192(26):E716–E719.
38. Treloar C, Rance J, Yates K, et al. Trust and people who inject drugs: the perspectives of clients and staff of Needle Syringe Programs. *Int J Drug Policy*. 2016;27:138–145.
39. Heidari O, Meyer D, O'Conor KJ, et al. COVID-19 vaccination and communicable disease testing services' integration within a syringe services program: a program brief. *J Assoc Nurses AIDS Care*. 2022;33(3):348–352.
40. Burr CK, Storm DS, Hoyt MJ, et al. Integrating health and prevention services in syringe access programs: a strategy to address unmet needs in a high-risk population. *Public Health Rep*. 2014;129(Suppl 1):26–32.

