AIDS PATIENT CARE and STDs
Volume 00, Number 00, 2025

DOI: 10.1177/10872914251376934

HIV Services Implementation Within US Syringe Services Programs: A Qualitative Exploration

Alexis M. Roth, PhD, MPH,[1] Elana Forman, MLA,[1] Christopher F. Akiba, PhD,[2] William H. Eger, MPH,[3,4] Rose Laurano, MPH,[1] Shelby L. Huffaker, MPH,[5] Sheila V. Patel, PhD,[2] Jessica Smith, MA,[2] Barrot H. Lambdin, PhD,[2] and Angela R. Bazzi, PhD[5,6]

Abstract

The recent rise in HIV incidence among people who inject drugs in the United States highlights an urgent need to improve HIV testing, treatment linkage, and pre-exposure prophylaxis access in this group. Syringe services programs (SSPs) play a critical role by offering or linking clients to these services, yet little is known about how such care is delivered. Informed by the Consolidated Framework for Implementation Research, we conducted qualitative interviews with 41 representatives from 27 SSPs across the United States to characterize the current service delivery landscape, identify barriers to care, and explore modifiable implementation determinants. Rapid qualitative analysis revealed four primary HIV service delivery models: "one-stop shop" offering integrated, on-site HIV testing and follow-up care provided by the SSP; "test and refer" with integrated, on-site testing services followed by referrals to external partners for follow-up care; "co-located services" with SSPs relying on external partner organizations to provide HIV testing (and additional services) on-site; and "hand-off" involving referrals to off-site, external partners for HIV testing and follow-up care. SSPs faced varied implementation challenges, including staffing, funding, and space constraints; competing priorities; availability and accessibility of local partnerships; as well as SSP culture, which values participant autonomy (recipient-centeredness). These contextual factors influenced the feasibility and acceptability of HIV services and why SSPs adopted a particular service delivery model. To strengthen HIV prevention and care in SSPs, tailored implementation strategies are needed that account for programs' unique constraints and capacities.

Keywords: HIV testing, injection drug use, harm reduction, syringe services programs, implementation research

Introduction

In the United States, HIV incidence among people who inject drugs (PWID) increased between 2014 and 2018 for the first time in nearly 20 years.[1] Although incidence among PWID has since stabilized,[2] this temporary resurgence underscores an urgent need to (1) identify new cases of HIV through regular testing efforts and (2) increase access for and connection to appropriate, evidence-based antiretroviral medications for HIV treatment [antiretroviral therapy (ART)] and prevention [pre-exposure prophylaxis (PrEP)].

Syringe services programs (SSPs) have been identified as a cornerstone of HIV prevention and response among PWID.[3] SSPs assist in prevention and treatment efforts through the distribution of sterile drug use supplies, condoms, HIV testing, and referrals to appropriate clinical services.[4] A survey of 471 US SSPs found that approximately 82% of programs offered HIV testing, though far fewer offered PrEP (38%) or ART (20%).[5] A recent meta-analysis demonstrated that SSP clients are more likely to receive HIV testing within the past year than PWID who do not access SSPs;[6] however, despite regular engagement with SSPs, many PWID do not access these services or receive annual HIV testing,[7] as recommended by the Centers for Disease Control and Prevention (CDC).[8] Indeed, a national survey of 127 SSPs suggested that

[1]Dornsife School of Public Health, Drexel University, Philadelphia, Pennsylvania, USA.
[2]RTI International, Research Triangle Park, Durham, North Carolina, USA.
[3]School of Medicine, University of California, San Diego, La Jolla, California, USA.
[4]School of Social Work, San Diego State University, San Diego, California, USA.
[5]Herbert Wertheim School of Public Health, University of California, San Diego, La Jolla, California, USA.
[6]School of Public Health, Boston University, Boston, Massachusetts, USA.

fewer than one in five clients accessed HIV testing services when available.[9]

These data indicate critical gaps in early HIV diagnosis and prevention efforts for PWID, underscoring a need to support optimization of HIV services delivery within SSPs.[8] However, there is a dearth of research on how and why SSPs implement HIV services, and how key implementation determinants (e.g., funding, staffing, partnerships) affect service delivery.[10,11] Thus, we sought to characterize the current landscape of SSPs' HIV services delivery, identify common barriers to delivering care, and explore factors influencing implementation. To frame this inquiry, we drew upon the Consolidated Framework for Implementation Research (CFIR), which delineates a useful set of constructs that influence the implementation of services.[12,13]

Methods

Study design and sample

From May 2023 to February 2024, we purposively sampled[14] US SSPs providing HIV testing to clients, either on-site or through referrals, to complete qualitative interviews aimed at exploring CFIR-derived factors influencing their HIV services delivery. To identify potentially eligible programs, we first emailed SSP contacts in our professional networks and later reviewed the public directory of the North American Syringe Exchange Network,[15] filtering by HIV-related services [i.e., filtering for programs offering "HIV testing/education," "case management/coordinated care," "PrEP," and/or "HIV/sexually transmitted infection (STI) testing and treatment"] and CDC-established HIV regions (South, West, Northeast, Midwest).[16]

We emailed SSPs' contacts to provide a brief study description and invited staff knowledgeable about HIV services delivery to contact our team. For interested programs, we confirmed eligibility (i.e., offered HIV testing or referrals in the past 30 days, via self-report) and scheduled virtual interviews (described below), which were designed to last approximately 60 minutes. SSP representatives familiar with their programs' HIV services were then invited to participate in individual or small group interviews (i.e., with one to three staff members) to explore programs' HIV services delivery and related implementation determinants. Each participant provided verbal informed consent. Programs received $200 compensation for their staff's participation. The institutional review boards of the University of California San Diego and Drexel University reviewed and approved the study protocol and provided a waiver of documentation of informed consent.

Data collection

Prior to interviews, we emailed SSP representatives a brief electronic survey (one per program) on organizational characteristics (e.g., program type, region, number of staff and participants, funding sources, primary services, and supplies distributed). Trained, graduate-level interviewers with experience in harm reduction and HIV services delivery reviewed responses prior to qualitative interviews to gain contextual information on participating programs. All interviews were conducted via Zoom, with one interviewer and an additional member of the research team present to take notes when available. The semi-structured interview guide, informed by literature, our team's experience, and key constructs from CFIR,[12] contained open-ended questions and detailed probes designed to elicit key features of HIV services delivered by programs, how services were impacted by local HIV outbreaks, support from local health departments, overall "fit" of HIV services within programs' larger missions and other core services, how HIV testing and referral processes were structured, and key barriers and facilitators to delivering HIV services (see Table 1 for examples of key questions). Interviews were audio-recorded and transcribed verbatim by a professional transcription service.

Data analysis

Our team utilized an adjusted rapid analysis protocol,[17] which was based on completing structured debriefing reports[18] designed for quick turnaround, rather than a fully inductive coding approach.[19] Immediately after interviews, interviewers and observers independently completed debriefing reports[18] designed to capture findings aligned with key interview guide domains, which were based on CFIR constructs, and denoted any additional themes that naturally emerged during interviews. One member of the research team also diagrammed client flow through HIV services within the SSP, noting which pieces of the care cascade were provided by SSP staff versus external partners, and whether those services were offered on-site or not. Next, a member of the research team reviewed transcripts for accuracy and updated debriefing reports to include their observations of the most salient findings within each domain and illustrative quotes that served as evidence for findings in each domain. We then transferred data (i.e., notes and quotes) from debriefing reports into an Excel matrix, allowing for comparison between programs.

We reviewed the matrix and process maps during regular study team discussions that occurred throughout data collection and analysis. Through this process, we discovered an emergent theme relating to SSPs organizing their HIV services delivery in four distinct ways or "models." We then reorganized data within the matrix based on the service delivery model and reviewed notes and analytic memos to identify key implementation determinants (internal and external to SSPs) aligned with CFIR constructs. We continued conducting interviews until we reached thematic saturation within each model and felt we had sufficient geographic representation of all four CDC regions, recognizing that qualitative studies are not intended to be generalizable. Table 1 displays salient CFIR constructs that emerged from the data, their application to SSPs' HIV services delivery, and exemplar interview questions that generated the data. In the section "Results," we describe how the CFIR constructs function as implementation determinants within the unique HIV services delivery models we uncovered.

Results

Interviewee and SSP characteristics

We interviewed 41 representatives from 27 SSPs, with interviewees having leadership (63%), frontline (22%), clinical (10%), and case management (5%) roles (Table 2). SSPs were from the US South (30%), West (26%), Northeast (26%), and Midwest (18%), with over half (56%) located within "Ending the HIV Epidemic" priority jurisdictions. The

Table 1. Consolidated Framework for Implementation Research Constructs and Related Questions in the Interview Guide

	CFIR construct	*Application within study*	*Relevant interview questions*
Inner setting domain (factors internal to SSPs that impact HIV services delivery)	Physical infrastructure Available resources	Degree to which space, resources, and funding to conduct HIV services facilitate or hinder delivery of these services	"*What are the greatest challenges your organization experiences with delivering HIV services? (probe on fixed vs. mobile sites, # of clinic days/hours, types of clinicians,* etc.)"
	Mission alignment	Degree to which implementing and delivering HIV services is perceived to align with the overarching goals of the SSP	"*How does HIV testing 'fit' within the overall mission of your organization?*" If program provides ART and/or PrEP, "*How do ART and/or PrEP 'fit' within the overall mission of your organization?*"
	Relative priority	Degree to which staff view HIV services as important compared to other services they offer	"*What are the top services that your organization dedicates most of its time and resources to?*" "*Do you feel like leadership has competing priorities?*"
	Culture (recipient-centeredness)	Degree to which organizational culture and client needs inform delivery of HIV services	"*How do you think frontline staff view HIV testing? How about your participants?*" If program provides ART, "*How do you think frontline staff view ART? How about participants?"* If program provides PrEP, "*How do you think frontline staff view PrEP? How about participants?*" "*What are barriers you face from the participant end in terms of getting people to access these services?*"
Outer setting domain (factors external to SSPs that impact HIV-related services delivery)	Local conditions Critical incidents	Degree to which local conditions and public health climate affect prioritization of HIV services	"*Tell me about any recent HIV outbreaks/clusters due to drug use in your region.*" "*How has HIV transmission among PWID in this area changed over time?*"
	Partnerships and connections	How strength and availability of relationships with external partners (e.g., health departments, local health clinics) influence delivery of HIV services	"*How does your organization refer participants to HIV services provided by other organizations (*e.g., *health clinics)?*" "*Could you tell me more about what your community partnerships look like?*"
	Financing	The available funding from external entities to deliver testing and/or HIV-related services	"*How are your HIV services funded?*" "*Have you seen any changes in HIV funding? What does that look like?*"
	External pressures	The external pressures (e.g., health department directives, market-performance goals) which impact HIV services in programs	"*How involved, if at all, has the local/state public health department been in addressing HIV among PWID?*" "*What data related to HIV are you required to report and to whom?*"

CFIR, Consolidated Framework for Implementation Research; PWID, people who inject drugs; SSP, syringe services program.

Table 2. Interviewee and Syringe Services Program Characteristics

1A. Interviewee characteristics	n = *41*[a]
Role/Job category	
Leadership (director, manager, coordinator, administrator)	26
Frontline staff (outreach, public health worker)	9
Clinical staff (nurse, phlebotomist, tester, medical director)	4
Case management (care coordinator, peer counselor)	2
1B. SSP characteristics	n = *27*
Region	
West	7 (25.9)
Midwest	5 (18.5)
South	8 (29.6)
Northeast	7 (25.9)
Located in "Ending the HIV Epidemic" priority jurisdiction	15 (55.6)
Number of staff	
≤10	8 (29.6)
11–30	9 (33.3)
>30	10 (37.0)
Number of clients served (per month)	
≤100	3 (12.0)
101–400	10 (40.0)
401–1000	9 (36.0)
>1000	3 (12.0)
Unsure/Not reported	2 (7.4)
Service delivery modalities	
Fixed services only	2 (7.4)
Mobile services only	4 (14.8)
Both fixed and mobile services	21 (77.8)
Organization type	
Community-based organization	17 (63.0)
Municipal health department	7 (25.9)
Health care system	3 (11.1)
Supplies and services offered	
Naloxone distribution	27 (100.0)
Sterile syringes	27 (100.0)
Safer smoking supplies	19 (70.4)
Safer sex supplies	27 (100.0)
HIV testing (on-site)	21 (77.8)
HIV pre-exposure prophylaxis (PrEP)	10 (37.0)
HIV treatment (ART)	7 (25.9)
Hepatitis, STI, or other testing	20 (74.1)
Hepatitis, STI, or other treatment	9 (33.3)
Basic clinical services	13 (48.1)
Mental health services	8 (29.6)
Case management and/or housing coordination	14 (51.9)
Types of HIV tests offered among testing SSPs ($n = 21$)	
Antibody rapid test	19 (90.5)
Antibody self-tests	9 (42.9)
Antigen/antibody finger pricks	10 (47.6)
Antigen/antibody blood draws	9 (42.9)
HIV services delivery model (based on qualitative analysis)	
One-stop shop	7 (25.9)
Test and refer	14 (51.2)
Co-located services	3 (11.1)
Hand-off	3 (11.1)

[a]Number of participants is greater than the number of programs because multiple staff members could partake in each program-specific interview.

ART, antiretroviral therapy; SSP, syringe services program; STI, sexually transmitted infection.

majority were independent community-based organizations (63%). The majority also operated both fixed sites and mobile outreach services (81%) and served between 101 and 400 clients (40%) or 401 and 1000 clients (36%) per month. Twenty-one SSPs (78%) provided HIV testing on-site, with the most common type being rapid (i.e., point-of-care) antibody tests (91%).

HIV services delivery models and related implementation considerations

We identified four distinct HIV services delivery models: (1) "one-stop shop," with SSPs providing integrated HIV testing and follow-up care on-site; (2) "test and refer," with SSP staff providing integrated HIV testing on-site followed by referrals to external partner organizations for follow-up care; (3) "co-located services," with SSPs relying on external partner organizations to provide HIV testing (and additional services) on-site; and (4) "hand-off," with SSP staff providing referrals to external, off-site HIV services including testing (Fig. 1).

Internal and external determinants (i.e., inner and outer setting factors highlighted within CFIR; see Table 1) influenced SSPs' specific HIV services delivery models. While the presence and influence of these factors varied greatly between SSPs, some of the most commonly referenced inner setting factors included availability of HIV-specific resources (*physical infrastructure* and *available resources*); the extent to which addressing HIV was considered a critical component of a program's purpose (*mission alignment*); and *relative priority* of HIV compared with other, often more acute client needs (e.g., overdose prevention, wound care). Relatedly, despite believing in the general importance of addressing HIV, many interviewees described organizational cultures of *recipient-centeredness*, in which they emphasized the importance of "*meeting clients where they are*" and addressing clients' immediate harm reduction and social needs over the more distal threat of HIV.

Outer setting factors also played a crucial role in shaping the general prioritization and delivery of HIV testing and other services. These included local HIV and substance use epidemics (*local conditions* and *critical incidents*) such as operating in proximity to HIV clusters or outbreaks attributed to injection drug use; availability of and relationships with external partner organizations that were trusted by SSP participants and could provide HIV services (*partnerships and connections)*

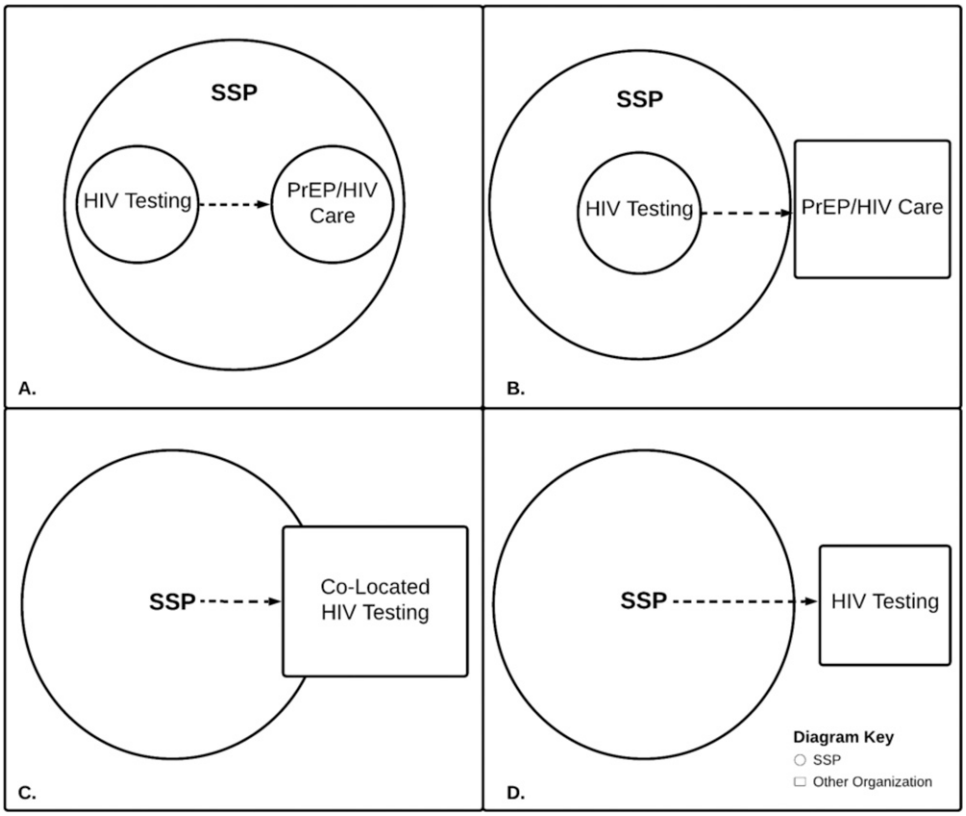

FIG. 1. SSPs' HIV services delivery model. SSP, syringe services program; PrEP, pre-exposure prophylaxis.

that allow SSPs to focus on other prioritized services; and expectations from funders or local health departments (*external pressures*) to meet established service delivery goals. The interplay between many of these inner and outer setting factors shaped SSPs' adoption of the four predominant HIV services delivery models described below.

One-stop shop. The "one-stop shop" model (Fig. 1, Model A), which characterized seven SSPs in our study, involved complete integration of HIV services on-site at the SSP, including HIV testing, PrEP, and ART provided by clinicians working for or affiliated with the programs. Of all the service delivery models, this was the most highly resourced with larger budgets (*financing*), highly trained clinical staff (*available resources*), and space (*physical infrastructure*). These SSPs tended to be larger health care organizations that had expanded to include harm reduction services, meaning SSPs were embedded within their larger clinical infrastructure. Providing HIV services was conceptualized as seamless within these larger programs: "*The ability to provide [HIV services] is unbelievable when we're embedded in a medical center to begin with.*" Some of the programs within this model, however, started as SSPs and were able to build significant clinical capacity over time through grants or other funding opportunities.

Programs operating a "one-stop shop" model viewed HIV prevention and care as being aligned with their mission (*mission alignment*), and staff described how HIV testing was promoted during routine client encounters, with one explaining, "*Whenever we make those [encounters] and talk to our clients, [we offer] sexual health and drug user health education; HIV and Hep C prevention are part of that messaging, and then we offer those resources in house.*" In some cases, participants described dedicating time and offering tangible resources, such as transportation, to clients to ensure they were able to receive HIV testing or care (*available resources*): "*There's as much handholding as they need or want; we'll provide rides [to the clinic], the case manager will be here, lots of friendly faces, you'll get your syringes . . . it's a one stop shop.*"

Despite being more highly resourced compared to other models, programs in this model still described challenges to scaling services. For example, addressing clients' more immediate needs was often prioritized over HIV testing (*relative priority*), as acknowledged, "*[Our clients] make a lot of really tough decisions every day about what they're going to access and how they're going to spend their time and energy.*" The issue of balancing *relative priority* was not unique to this model; however, it was important to note that even in this highly resourced, robust service delivery model, a *culture of recipient-centeredness*[12] could be considered more mission-critical.

Test and refer. In the "test and refer" model (Fig. 1, Model B) operated by 14 SSPs in our sample, HIV testing was integrated on-site, but additional clinical services relied on coordinated care with external collaborators, with some variation in how specific services were organized and delivered. While HIV testing was universally provided on-site by SSP staff in this model, the types of testing and provision of follow-up care varied. All programs in this model offered rapid HIV testing. Some (36%) had the capacity (e.g., staff

and facilities; *available resources*) to offer phlebotomy services for confirmatory testing. Those unable to offer phlebotomy provided supported referrals to external partners to help clients access confirmatory testing. A few programs (21%) offered initial PrEP prescribing when capacity and staffing allowed, though none offered comprehensive, ongoing PrEP navigation and care or HIV treatment.

Common external partners for SSPs offering services via referral included federally qualified health centers, local clinics accepting Medicaid or serving vulnerable populations, and federal initiatives such as the Health Resources and Services Administration's Ryan White program. Because parts of care continua were provided through off-site, external providers, these programs, despite some distinctions, were all categorized as operating a "test and refer" model.

Most SSPs operating this model were independent community-based organizations, though they varied greatly in terms of staffing, client volume, and the diversity of other clinical and social services offered (e.g., medications for opioid use disorder, wound care, housing, and case management). In this model, participants viewed HIV services as well-aligned with their programs' missions (*mission alignment*); however, they also described challenges relating to resource constraints and limited physical infrastructure (*available resources*). A couple of participants described the tension of offering HIV testing in the context of competing priorities (*relative priority*), with one saying, "*There's so much to do, and never enough time, or people, or resources.*"

Even though these SSPs were able to offer integrated HIV testing services on-site, they relied on strong external partnerships (*partnerships and connections*) for follow-up care because, as some interviewees acknowledged, "*We can't do it all ourselves.*" In this context, interviewees explained how important it was to partner with organizations that treated their clients with dignity and respect. Cultivating these external relationships and building up the trust of SSP staff required years of careful vetting in some cases: "*We feel pretty confident in making those referrals because we know who we are sending our [clients] to, and based on knowing those people ourselves, personally, and by getting feedback from our [clients], [we know] that they're going to have a good experience [there].*" While these SSPs strove to provide supported referrals, their specific referral processes varied widely, depending on physical proximity to external partner organizations, SSP staff availability to facilitate referrals, resources available (e.g., for participants' transportation), and the strength of relationships between SSPs and partnering agencies. External facilitators supporting referrals to these external providers included funding from local health departments (*financing*) and regional directives mandating HIV testing and referrals for locally authorized SSPs (*external pressures*).

Co-located services. Three SSPs operated a "co-located services" model (Fig. 1, Model C). In this model, HIV services were offered alongside other harm reduction services, oftentimes within or near SSPs' sites, but were always provided by a partner agency with whom the SSP had no organizational or systems integration. Rather than providing HIV services themselves, SSP staff prioritized delivering services they felt uniquely qualified to provide: "*We don't have to do everything; we [can] partner with folks whose expertise is doing [what] we can't do, like HIV testing and PrEP.*" In this way, SSP staff could ensure clients had access to HIV-related services while focusing on services perceived to be more closely aligned with their mission (*mission alignment*) and circumvented infrastructure-related challenges such as lack of space or personnel, or external challenges such as community opposition to SSPs more broadly: "*Our services are mobile, but we partnered with some local agencies where we utilize their space. We tried to get our own brick-and-mortar space [to provide these services] and we got a lot of community pushback about having our own building. So instead, we just took the 'back door' and partnered with agencies that were already established in that community.*"

Moreover, having trusted external partners come on-site was highly valued (*partnerships and connections*), as another interviewee described: "*It's been really helpful to bring in other organizations to help bolster those [HIV-related] resources . . . our team is becoming more comfortable taking trainings and learning [about HIV] transmission [from them].*" Similarly, representatives from SSPs using this "co-located model" explained how it enabled them to create networks of partnerships to help "*fill in the gaps*" to align services with their mission, without "*more and more expansion [which] is not necessarily the goal.*"

Hand-off. Three SSPs in our sample operated a "hand-off" model (Fig. 1, Model D) where they provided HIV education, but no integrated services such as testing. Instead, staff connected clients to external partners located off-site, who provided testing and other related services. These SSPs tended to be the most resource limited with regard to funding, staffing, and space (*lack of available resources*). As one participant explained, "*We've seen funding drying up for HIV programming . . . these foundations or grants just don't exist anymore. Funding specifically for HIV prevention is just not what it used to be.*" Without needed resources, providing referrals to external partners for HIV-related services was a practical solution to meeting client needs: "*We have hep[atitis] C testing on-site, but if they need HIV or STI testing, we have in the neighborhood referrals and we can either go with them, make an appointment, or get [bus or train] tickets to make that referral as easy as possible.*"

In this model, SSP staff were interested in novel and less demanding solutions to expanding HIV services. For example, as one participant described, "*I'm trying to get [an external partner organization] to give me the at-home tests [to distribute] during outreach . . . a lot of our people don't have insurance or money, or primary care, so we've been advocating for all the good things.*" Even though these programs were not providing any HIV services on-site, they viewed HIV testing, prevention, and care services as valuable for their clients and were considering how to best partner with external organizations to make these services accessible: "*We're working on building up other referral networks to federally qualified health centers in the neighborhood. By the nature of the work we do, it's really important to make sure we're referring folks . . .*"

Discussion

To better understand the landscape of US SSPs' HIV services delivery to PWID, we conducted interviews with

41 representatives of 27 SSPs nationwide and identified four distinct models of HIV services implementation. The level of clinical integration across these models ranged from complete in the "*one-stop shop*" model to none in the "*hand-off*" model. A central finding of this study is that most SSPs lacked the resources needed to deliver full HIV prevention or care continua on-site. Instead, most rely on partnerships with external organizations with greater clinical capacity, especially for the later stages of these continua. Access to external partners varied by location and directly impacted how easily SSPs could establish and sustain referrals for HIV services. This was especially true for programs operating under "*co-located*" and "*hand-off*" models, which depended on strong, trusted relationships with clinical providers.

We also found significant variation in service delivery across and within these four models. This variability suggests that a standardized, "one-size-fits-all" approach to scaling up HIV services is unlikely to succeed. Instead, research to tailor implementation strategies to address local barriers, leverage existing resources, and build partnerships will be needed. Approaches such as Implementation Strategy Mapping, which engages stakeholders to identify, select, and adapt strategies based on local needs and challenges, could play a key role in these efforts.[20]

In the context of these shifting and dynamic contexts, we found that some SSP staff were also uninterested in expanding HIV services, preferring to prioritize services they believed their staff were more qualified to deliver (e.g., overdose education and naloxone distribution, referrals to substance use disorder treatment). In some cases, organizational priorities have also shifted to focus on emergent health concerns impacting clients, especially in jurisdictions with lower HIV incidence. Additionally, like other frontline health care providers, SSP staff and services were significantly affected by the COVID-19 pandemic, which led to major shifts in service delivery.[21,22] Ongoing public health concerns (e.g., the overdose epidemic) may have similar effects, forcing programs to focus on their clients' acute needs.

Providing services in this way is considered more *recipient-centered*, which is a subconstruct of organizational culture in CFIR[12] and a fundamental tenet of harm reduction.[23,24] These programs could benefit more from resources to bolster linkages to off-site care (e.g., via peer navigation),[25,26] co-located services delivered on-site by external organizations, or through telemedicine services that connect SSP clients to prescribing physicians located off-site.[27,28] Some of these novel approaches are being tested in ongoing or recently completed clinical trials.[25,27,28] In contrast, programs interested in providing more direct services on-site will need significant investments to support clinical staff and physical infrastructure.

Importantly, most interviewees emphasized how their HIV services were "opt-in" and highly voluntary, with staff providing an overview of all available services, triaging clients to those best meeting their needs, and avoiding an overemphasis on HIV testing. This approach was common across our sample, with few programs offering HIV services during routine interactions. Offering HIV testing at initial and follow-up encounters through an "opt-out" model, along with bundling with other key services, could improve utilization and health equity. For example, when a Miami-based SSP offered routine "opt out" bundled HIV and hepatitis C testing, client uptake increased by 42%.[29] While these data demonstrate the feasibility and effectiveness of this approach in this setting, implementation in other SSPs will likely require a strong organizational champion and additional financial and staffing resources.

While this study provides key insights into HIV services delivery within SSPs, it has important limitations. Our sample is not intended to be representative, and additional HIV service delivery models may exist that were not captured in our findings. We also recognize that HIV services are constantly evolving within programs; in our one-time qualitative interviews, we did not systematically explore implementation determinants of service expansion or reduction, or why some SSPs offer certain clinical services and not others. Future research is needed to more deeply examine how SSPs incorporate PrEP and ART services to better understand opportunities, barriers, and models of integration and how those might differ between stand-alone SSPs and those embedded within health care institutions. This research is particularly important given studies establishing that SSPs are a preferred source of PrEP for PWID.[30] As another limitation, a large portion of our interviewees represented leadership and higher-level roles; incorporating additional perspectives of SSP clients and frontline, clinical staff could provide deeper insight into the day-to-day challenges of HIV services delivery within SSPs. Finally, while we present the four models from "most" to "least" comprehensive, this does not mean that one model is better than another. Our findings suggest that SSPs are implementing HIV services in accordance with their resources and clients' needs.

In conclusion, we found that SSPs face multi-level challenges to delivering HIV services while they strive to provide clients access to comprehensive care. For most SSPs, resource constraints required strong external partnerships with trusted agencies capable of delivering clinical care, as few of our participating agencies had the resources or infrastructure to do so themselves. While this research is helpful for understanding the basic components of each service model, services are highly variable and depend on unique SSPs' organizational priorities and resources. To optimize SSPs' HIV services delivery, research with additional local informants (e.g., funders, clients, frontline staff) and tailored implementation strategy development will be needed.

Acknowledgments

The authors would like to thank the participating SSPs.

Ethics Approval

The University of California San Diego and Drexel University Institutional Review Boards approved all study protocols.

Data Availability

Due to ethical considerations around our participants' confidentiality, raw data cannot be shared publicly, but de-identified data may be available from the corresponding author upon reasonable request.

Authors' Contributions

A.M.R. and A.R.B. were responsible for study conceptualization. A.M.R., A.R.B., and C.F.A. led instrument design. E.F., W.H.E., S.L.H., and R.L. led data collection and analysis. A.M.R. and E.F. wrote the initial draft of the article and contributed equally to this work as co-first authors. All authors reviewed and revised the draft and reviewed and approved the final article.

Author Disclosure Statement

A.M.R. reports receiving research funds from ViiV Healthcare; however, the company had no role in the conceptualization, design, or conduct of this research. All other authors report no conflicts of interest to disclose.

Funding Information

This research was supported by the National Institute on Drug Abuse (National Institutes of Health grants R01D056883 and R36DA061013). The funder had no role in study design, data collection and analysis, decision to publish, or preparation of the article.

References

1. Lyss SB, Zhang T, Oster AM. Brief report: HIV diagnoses among persons who inject drugs by the urban-rural classification—United States, 2010–2018. J Acquir Immune Defic Syndr 2021;88(3):238–242.
2. U.S. Centers for Disease Control and Prevention. Estimated HIV incidence and prevalence in the United States, 2018–2022. 2024.
3. Joint United Nations Programme on HIV/AIDS. Health, Rights and Drugs—Harm Reduction, Decriminalization and Zero Discrimination for People Who Use Drugs. UNAIDS: Geneva, Switzerland; 2019:1–68.
4. Broz D, Carnes N, Chapin-Bardales J, et al. Syringe services programs' role in ending the HIV epidemic in the U.S.: Why we cannot do it without them. Am J Prev Med 2021; 61(5 Suppl 1):S118–S129.
5. Lambdin BH, Patel SV, Humphrey JL, et al. Program and Operational Characteristics of Syringe Services Programs—Data from the National Survey of Syringe Services Programs (Anonymized), 2023 [Dataset]. RTI International; 2023; doi: 10.5281/zenodo.14018958
6. Bayani A, Ghiasvand H, Rezaei O, et al. Factors associated with HIV testing among people who inject drugs: A meta-analysis. J Addict Dis 2020;38(3):361–374.
7. U.S. Centers for Disease Control and Prevention [CDC]. HIV Surveillance Special Report: HIV Infection Risk, Prevention, and Testing Behaviors Among Persons Who Inject Drugs National HIV Behavioral Surveillance, 20 U.S. Cities, 2022. 2024. Available from: https://stacks.cdc.gov/view/cdc/150464
8. U.S. Department of Health and Human Services (HHS). Guidance on Testing and Counselling for HIV in Settings Attended by People Who Inject Drugs: Improving Access to Treatment, Care and Prevention. WHO; 2009.
9. Behrends CN, Nugent AV, Des Jarlais DC, et al. Availability of HIV and HCV on-site testing and treatment at syringe service programs in the United States. J Acquir Immune Defic Syndr 2018;79(2):e76–e78.
10. Ray BR, Humphrey JL, Patel SV, et al. Comparing harm reduction and overdose response services between community-based and public health department syringe service programmes using a national cross-sectional survey. Lancet Reg Health Am 2024;34:100757.
11. Akiba CF, Smith J, Wenger LD, et al. Financial barriers, facilitators, and strategies among syringe services programs in the U.S., and their impact on implementation and health outcomes. SSM Qual Res Health 2024;5:100421.
12. Damschroder LJ, Reardon CM, Widerquist MAO, et al. The updated Consolidated Framework for Implementation Research based on user feedback. Implementation Sci 2022;17(1).
13. CFIR Research Team – Center for Clinical Management Research. The Consolidated Framework for Implementation Research – Technical Assistance for Users of the CFIR framework. CFIR Guide. 2022. Available from: https://cfirguide.org/ [Last accessed: August 18, 2025].
14. Palinkas LA, Horwitz SM, Green CA, et al. Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. Adm Policy Ment Health 2015;42(5):533–544.
15. North American Syringe Exchange Network (NASEN). The NASEN Directory. 2025. Available from: https://nasen.org/
16. U.S. Centers for Disease Control and Prevention [CDC]. HIV Surveillance Report, 2018 (updated 2020). 2020.
17. Beebe J. Rapid Qualitative Inquiry: A Field Guide to Team-Based Assessment. 2nd ed. Rowman & Littlefield: Lanham, Maryland; 2014.
18. Simoni JM, Beima-Sofie K, Amico KR, et al. Debrief reports to expedite the impact of qualitative research: Do they accurately capture data from in-depth interviews? AIDS Behav 2019;23(8):2185–2189.
19. Gale RC, Wu J, Erhardt T, et al. Comparison of rapid vs in-depth qualitative analytic methods from a process evaluation of academic detailing in the Veterans Health Administration. Implementation Sci 2019;14(1).
20. Sridhar A, Olesegun O, Drahota A. Identifying methods to select and tailor implementation strategies to context-specific determinants in child mental health settings: A scoping review. Glob Implement Res Appl 2023;3(2):212–229.
21. 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.
22. 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.
23. Substance Abuse and Mental Health Services Administration. Harm Reduction Framework: Center for Substance Abuse Prevention, Substance Abuse and Mental Health Services Administration;2023.
24. Saloner B, Heller D, Davis CS, et al. Harm reduction: The neglected pillar of US drug policy. Annu Rev Public Health 2025;46(1):369–387.
25. Bazzi AR, Bordeu M, Baumgartner K, et al. Study protocol for an efficacy trial of the "PrEP for Health" intervention to increase HIV PrEP use among people who inject drugs. BMC Public Health. 2023-03-17 2023;23(1):513.
26. Iryawan AR, Stoicescu C, Sjahrial F, et al. The impact of peer support on testing, linkage to and engagement in HIV care for people who inject drugs in Indonesia: Qualitative

perspectives from a community-led study. Harm Reduct J 2022;19(1):16.
27. Tookes HE, Oxner A, Serota DP, et al. Project T-SHARP: Study protocol for a multi-site randomized controlled trial of tele-harm reduction for people with HIV who inject drugs. Trials 2023;24(1):96.
28. Bartholomew TS, Plesons M, Serota DP, et al. Project CHARIOT: Study protocol for a hybrid type 1 effectiveness-implementation study of comprehensive tele-harm reduction for engagement of people who inject drugs in HIV prevention services. Addict Sci Clin Pract 2024;19(1):21.
29. Bartholomew TS, Tookes HE, Serota DP, et al. Impact of routine opt-out HIV/HCV screening on testing uptake at a syringe services program: An interrupted time series analysis. Int J Drug Policy 2020;84:102875.
30. Roth AM, Ward KM, McDowell E, et al. "The Simplest Way to Go": An exploration of why women who inject drugs chose long-acting injectable cabotegravir instead of daily oral PrEP. AIDS Behav 2025:10.1007/s10461-025-04833-5.

Address correspondence to:
Alexis M. Roth, PhD, MPH
Dornsife School of Public Health
Drexel University
3215 Market Street
Room 454
Philadelphia, PA 19104
USA

E-mail: amr395@drexel.edu