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Capacity for sustainment of recently established syringe service programs in Appalachian Kentucky: The central role of staff champions

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Abstract

Introduction: Ensuring adequate harm reduction infrastructure in rural areas is imperative, as drug-related epidemics expand into them. Here, we explore the capacity for sustainment of syringe service programs (SSP) in Appalachian Kentucky.

Methods: We interviewed all staff (N=16) of all SSPs (N=7) in two Kentucky health districts in 2018–2019 using semi-structured one-on-one qualitative interviews; local departments of health (DOH) operated the SSPs. Interview domains encompassed: (i) SSP establishment; (ii) day-to-day operations, participation, and health impacts; (iii) perceived prospects for sustainment; and (iv) perceived influences on #i-#iii. We analysed verbatim transcripts using thematic analytic methods;

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Competing Interest Statement

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Schell's "capacity for sustainment" constructs were treated as sensitising concepts during the analysis.

Results: Most community members, law enforcement, and DOH staff opposed SSPs before they opened, because of stigma and concerns about enabling and needlestick injuries; DOH staff also opposed SSPs because they believed they lacked the capacity to operate them. Training, technical assistance, visible evidence of the programs' public health impact, and contact with SSP participants transformed DOH staff into program champions. As champions, SSP staff developed programs that had strong capacity for sustainment, as defined by Schell (e.g. visible public health impact, stable funding, political support). Staff reported that the SSPs had high prospects for sustainment.

Discussion and Conclusion: As in SSPs that opened in cities decades ago, staff in emerging SSPs in these rural areas appear to have become crucial champions for these controversial programs, and may serve as vital resources for expanding harm reduction programming more broadly in these underserved areas.

Keywords

syringe service programs; harm reduction; rural areas; sustainment

INTRODUCTION

Drug-related harms are escalating in many rural areas in multiple countries, including the US, Canada and Australia [1–4]. Harm reduction infrastructure has historically been exceptionally poor in rural areas globally [1]. As elsewhere, select governmental and non-governmental organisations in the US are mobilising to increase access to harm reduction programs to halt rural epidemics [4–7]. State and local departments of health (DOH) in Kentucky, a predominately rural state at the epicentre of multiple drug-related epidemics, have been at the forefront of this mobilisation: between 2015 and mid-2021, Kentucky DOHs opened 75 syringe service programs (SSP) in 63 of the state's 120 counties [4]. SSPs provide harm reduction supplies (e.g. sterile syringes, naloxone) and services, and linkage to health and social services in a setting that recognises the dignity and rights of people who inject drugs (PWID) [5,6]. SSP participation is associated with reductions in drug-related risk behaviour, and in HIV and hepatitis C virus (HCV) incidence and overdoses [4,5]. As a result, SSPs have a high "return on investment": the 1-year return on investment for urban SSPs ranges from $62.4–243.4 million, depending on policies and local epidemics [8].

Because of stigma and its codification in the War on Drugs, however, SSPs have faced significant opposition from multiple sectors internationally, including politicians, law enforcement, business leaders and local residents [7–11]. These opponents have forced SSPs to close or relocate to sites that are less accessible for PWID in the US and globally [7–10]. Closures have jeopardised rural SSPs even as they have expanded [7–11]. A grim example is the recent closure of the SSP in Scott County, Indiana [9], a county that recently experienced the fastest spreading HIV epidemic ever documented on US soil [10]. SSP closures have been followed by large increases in injection-related risk behaviours among

PWID, including increases in receptive syringe sharing, and in distributive syringe sharing by PWID with HCV [7–11].

Here, we apply qualitative methods to explore the capacity for sustainment of seven recently established SSPs in rural Kentucky. These programs operate in seven counties that are epicentres of the rural US opioid epidemic. Most counties were included in a 2016 CDC analysis of US counties that are most vulnerable to injection-related HIV and hepatitis C outbreaks [2], and federal Rural-Urban Continuum codes classify them as either "completely rural" or as non-metro counties with <20,000 urban residents [11]. As elsewhere, these new programs are precarious: political pressure recently closed a nearby SSP [11]. The analysis was guided by Schell *et al.*'s *capacity for sustainment* framework, which has identified nine "organisational and contextual factors that build the capacity for maintaining a public health program over time" [12, p. 2] (Table 1).

METHODS

Recruitment

Because county health departments operated each SSP, we initiated recruitment by inviting district health directors (DHD; N=2) to alert staff at all SSPs (N=7) currently operating in their districts to the project's existence. All programs had been operating for 1–2 years at the time of data collection. Research staff then invited each staff member to learn more about the project. Interested staff participated in a consent process, which indicated that participation was voluntary, and neither information on participation nor transcripts would be shared with DHDs.

Data collection

Semi-structured interviews were conducted in person or via phone in December 2018-May 2019. Interviews were designed to be one-on-one; in one county, however, the SSP director requested that we interview all SSP staff (N=5) together.

Part of a broader implementation science study, interviews explored barriers and facilitators to SSP adoption, fidelity, reach, and sustainment. Guides were developed by reviewing past research on SSP implementation and by conferring with DHDs. Domains encompassed: (i) SSP establishment; (ii) evolutions in fidelity to best practices, day-to-day operations, PWID participation, and public health impact; (iii) perceived prospects for sustainment; and (iv) perceived influences on #1-#3. The guide is available in the online supplement. Interviews lasted 30–90 minutes, and were audiotaped. Participants (N=16) were offered a modest incentive ($20 US).

Analysis

We applied thematic analysis methods to analyse verbatim transcripts, following Braun and Clarke's structured process: immersion in the data, generation of initial codes through an open coding process, searching for themes, reviewing themes, and defining and naming themes [13]. Transcripts were double coded in NVIVO. We compared coded transcripts, and met to reconcile differences. During the analysis phase, we introduced Schell and

colleagues' *capacity for sustainment* constructs as sensitising constructs (i.e. concepts from the broader literature that can serve "as points of departure from which to study the data" [14, p. 515]) [12]. Specifically, we (i) compared our emerging themes and definitions to constructs in Schell *et al.*'s model; and (i) when Schell's model contained a construct we did not have, we re-reviewed transcripts and memos to ensure we had not overlooked it. We conducted a member check by seeking critical feedback from SSP staff on preliminary findings; member checks confirmed emerging findings. The Emory University Institutional Review Board approved study protocols.

RESULTS

Overview

Figure 1 provides a high-level overview of key themes. According to SSP staff, most community members, law enforcement officers and DOH staff members initially opposed SSPs before they opened. SSP staff members, however, transformed into SSP champions as they developed the programs. As champions, SSP staff developed programs that had strong capacity for sustainment, including visible *public health impact*, *perceived stable funding*, *communications*, *partnerships* and *political support,* all constructs from Schell's model. We have italicised these constructs throughout the results section.

Initial opposition: Stigma and perceived potential adverse public health impacts among community members and law enforcement officers

Community members—According to SSP staff, residents of all seven counties were concerned about drug-related epidemics in their communities before the programs were proposed. SSP staff observed that substance use disorders afflicted "every family" and that HCV and overdoses were commonplace. SSP staff observed that, before the SSPs opened residents perceived a high threat of needlestick injuries. They reported that residents felt that they frequently encountered discarded used syringes as they went about their daily activities, and that these syringes jeopardised children's play in playgrounds, parks and backyards:

> "*… kids couldn't go to the park. They couldn't even go in their* ***own*** *yard and play. Because people would just go by, throw their needles out* [into the yard]."

Staff also reported that adults feared needlestick injury during daily activities:

> "*People would stick their syringes on gas pumps, so people would get stuck* [when] *they picked* [the pump] *up… a lady that does a lot of walking… like miles of walking, she said she used to see 20 to 30 syringes on the side of the interstate for a five-mile period.*"

Staff reported that most community members were concerned that the proposed SSPs would *adversely affect their community's health*. SSP staff learned about this community opposition during community meetings convened by the health departments about the pending programs, and through routine discussions with family members, friends and DOH clients. First and foremost, community members worried that SSPs would sanction drug use. They were thus:

> "… *totally against it… totally against it*. ... [they believe that "SSPs were] *just enabling the problem. You're letting them shoot up; you're letting them do this."*

Community members were also concerned that SSPs would exacerbate needlestick injuries among the general public by increasing the volume of discarded used syringes that they felt already saturated the community. They were particularly outraged that the DOH would propose programs that they believed undermined community health:

> "… *this is disgusting. Why do you let this happen? Aren't you* [i.e. the DOH] *supposed to be taking care of people?"*

Anti-PWID stigma often undergirded concerns about SSPs' health impacts. According to SSP staff, such stigma was common. Some residents called PWID "junkies" and spoke of putting a bin of opioid analgesics in the center of town, and allowing people to overdose fatally on them. Others recommended a lifetime limit of three overdose reversals per resident. According to staff, some community members viewed PWID as "irresponsible people" incapable of doing "responsible things", who would be unable to return used syringes to the proposed SSPs.

Law enforcement—According to SSP staff, law enforcement officers in most counties opposed the SSPs when they were first proposed because they feared they would sanction illegal drug use, revealing an absence of *political support* from agencies entrusted with addressing drug use locally. Officers also worried that the SSPs would increase their risk of occupational needlestick injuries. As a result, officers testified that they were "completely and totally against" SSPs at community meetings convened by the DOH. Some also refused to meet with DOH staff as they sought to establish *partnerships* to support emerging programs. Others rebuffed SSP staff's early efforts to train officers in overdose response.

> "We tried to meet with the police department here, and we never did get in to have a meeting with them... It didn't happen... they probably thought we were enabling."

Exceptions to this opposition (e.g. one county's city police department supported the SSP from the outset) were rare.

DOH staff: From SSP opponents to champions

Within the SSPs' first months, almost all DOH staff travelled a transformative path from strongly opposing SSPs to championing them. We describe their initial opposition, the factors that seemed to support their transformation into champions, and possible reasons some did not experience this change.

Pre-adoption opposition—Rather than hiring new staff to lead the SSPs, existing DOH staff (e.g. nurses, other health professionals) were asked to expand their responsibilities to run the SSPs:

> "*And* [the new responsibility] *was kind of thrown at us. It was like, "OK we may be doing a needle exchange"."*

Because few nominated themselves to work in these new programs, SSP staff attitudes toward these programs initially paralleled those of the general community. Before programs

opened, staff held stigmatising beliefs about PWID, believing they were "homeless" and violent. They feared that SSPs would jeopardised community health by enabling drug use:

> "I was totally and completely against it… in my head I was thinking, "oh my gosh, we're going to be enabling. Enabling, enabling"."

Staff also felt they lacked the *capacity* to lead them:

> "Well when you first hear that you're going to be doing a needle exchange, that's a scary thing because you don't even know what to expect… I really didn't know anything other than I was going to be giving people needles."

Stigmatising beliefs could further undermine perceived capacity: staff worried that violent SSP participants would endanger DOH staff and other patients.

In contrast, some staff members were ambivalent about the programs. For these individuals, concerns about enabling were tempered by a belief that SSPs were indeed aligned with the DOH's public health mission, because they would prevent infectious diseases:

> "…you had to kind of decide, what is the need, even though it may go against all your moral compass. But there is a need for it from a public health standpoint, and we're all public health employees…"

Adoption and implementation: SSP staff become champions—Our analysis suggests that several factors transformed most SSP staff into champions: (i) *capacity-building* activities; and (ii) *tangible evidence of SSP's public health impact*, gleaned through early conversations with participants and evaluation metrics.

Capacity building

Capacity building, through trainings and technical assistance, was crucial to SSP staff's development into champions. Didactic trainings were organised by the Kentucky Department of Public Health, DHDs, local substance use disorder (SUD) programs and existing SSPs, and were typically videos and in-person trainings on the nature of SUDs, harm reduction and SSP operations. Trainings and technical assistance offered concrete information and supported the development of staff self-efficacy to open successful programs. The state health department, for example, helped SSP staff identify proper injection equipment to stock:

> "we had just called _____at the state…. he said "this is what you need to get"."

Staff of established SSPs, often operating out of neighbouring rural health departments, also offered technical assistance. SSP staff conferred with leadership at neighbouring programs to learn more about how to operate them:

> "the other syringe exchange programs in the state… were wonderful in sending information in how theirs were set up, how it was run, what worked the best for them, how they did it, and where they did it."

Trainings and technical assistance also challenged stigma against SSPs and PWID. Didactic trainings offered a biomedical explanation for addiction instead of a stigmatising explanation

rooted in deviance and bad choices. Visits to neighbouring SSPs further challenged anti-PWID stigma. For example, during a visit one staff member at an existing SSP explicitly drew a parallel between the proposed contested services for PWID and existing contested service that DOHs already offered:

> "… [She] *said something that really stuck with me. She said… "one of the things that health departments do is offer birth control, and we do offer birth control to high-school age students. The parents are completely against it. They're gonna do it, you might as well tell them to be as safe as they possible can. It's the same thing with syringes. They're gonna do it regardless. Let them be as safe as possible." And once I thought about it that way, I was like, "that makes total sense"."*

Experiential trainings powerfully countered stigma. After visiting an SSP while it was operating, one SSP staff member noted that:

> "… *this is going to sound awful*, [but the visit to the established SSP showed me that PWID] *were normal people… Like it really surprised me that it was your everyday people… I expected to see homeless people…* [But] *most of them had jobs, most of them had private insurance. So that was a big eye opener for me."*

Humanising PWID allowed SSP staff to understand that PWID might effectively use the SSP once it was established:

> "… *The reservations I had at first went away…The more trainings and speakers I heard, the more I got into it, the more I realized that* [the SSP] *was a good thing, and* [PWID] *really do want to use a clean syringe. I mean they don't* ***want*** *to have to use a dirty needle."*

Tangible evidence of SSPs' public health impact

SSP staff's earliest discussions with their new participants reinforced the pressing public health need for the new programs:

> *"When you first start, your big concern is, "are you really helping them? Or are you enabling them…" But then you'll see*, [participants will] *come in and you'll talk with one who says, "you know, I need some clean needles because we're in a group situation right now and everyone's passing the same needle around," and you're kind of freaked out by that so you're like, "yeah, let me help"."*

Shortly after opening, SSPs generated visible evidence testifying to their public health impact. All programs had a "1–1" policy, requiring that participants return as many used syringes as they received, after their initial visit. SSP staff reported that, as a result of the "1–1" policy, PWID returned large numbers of used syringes to the programs. Participants' commitment to returning used syringes created a high *return rate* – a crucial *evaluation* metric – for most SSPs. Staff celebrated high return rates as evidence of SSP success:

> *"… we had an 86% return rate. So yeah, I think* [the SSP is] *definitely effective... they're going to bring these needles and they're going to get clean ones – we're doing something right."*

Moreover, staff at all seven programs reported witnessing a substantial decrease in discarded syringes in their communities, and interpreted this visible reduction in discarded syringes as powerful evidence of their programs' public health impact and overall community benefit:

> "[We are stopping] *the spread of disease and that is working. Syringes are coming in here off the streets… the statistics are showing that it's working."*

Capacity building, tangible evidence of SSP's public health impact, and strong evaluation metrics combined to transform almost all SSP staff from program opponents to strong champions. As one SSP staff member noted:

> "*We can handle the backlash* [to the programs]. *We know how to address it. That don't scare us. So no, we're not staying quiet about it."*

The few SSP staff who remained ambivalent about the programs reported receiving little training; they felt unprepared to lead the programs and continued to view PWID with distrust. Likewise, SSP staff in most counties reported that some of their DOH colleagues who did not work on the SSPs remained opposed, perhaps because they did not take part in capacity-building activities or have routine one-on-one contact with SSP participants.

Activities of SSP staff champions

As champions, staff advanced SSPs' capacity for sustainment, developing *funding streams*, *communicating* with community members about the program's positive *public health impacts*, and building *partnerships* with local stakeholders.

Securing funding—In several counties, SSP staff helped DHDs develop strategies to finance the programs. While staff salaries were funded through tax dollars that flowed to the health department, SSP staff and leadership were wary of using local tax dollars to fund the purchase of controversial harm reduction supplies (e.g. syringes, cookers). Identifying alternative stable sources of funds proved challenging, and delayed some SSPs' opening. At last, staff at one SSP secured alternative funding from a local substance use coalition that received annual funds from Kentucky's tobacco settlement. Once funds were secured, the program opened. Other SSPs used a similar funding structure. To further bolster their ability to secure controversial harm reduction supplies, staff at several SSPs also persuaded local physicians to donate syringes to the SSP.

Communicating with community members

SSP staff reported that community members were "not uneducated, but uneducated about the program", and so they engaged in daily efforts to teach them about the SSP. Educational efforts ranged from informal conversations to media engagement and advertisements. When DOH patients informally complained about the SSPs, SSP staff listened to their concerns and explained that the programs existed to reduce disease transmission and connect residents to services, often humanizing SSP participants in the process:

> "*My older generation* [of patients] *don't understand* [the SSP]… *and I just listen to them. And then I tell them, "this program is designed to pick up the syringes off the ground, is what it's for basically. And to get* [participants] *help if they want it… most of my [*SSP] *clients feel like they have nobody. And they feel safe coming*

here… They're bringing [the syringes] *back". And… the older gentleman said… "I didn't even look at it like that"."*

Staff also quietly engaged in community education during their off hours:

"*If someone brings it up to me* [in a social situation], *I really talk. I'm like, "you know this is a really good program. Listen to what all we're doing…""*

Several SSPs advertised their program through DOH flyers and on social media, normalising the program as simply another DOH service, advertised akin to vaccinations. One SSP staff member organised a radio interview to educate community residents about the program:

"I did a radio interview… He had come in to do a radio interview about another program. I said, "you need to hear about our syringe exchange also"."

Developing partnerships with local providers—In most counties, staff championed SSPs by building strong relationships with other health and social service providers. Most partnered with local SUD treatment programs that co-located a peer counsellor (i.e. a person in recovery/remission) onsite at the SSP:

"[They]*'ll just say "let's go across the hall"… They'll even take them* [to treatment] ... *Lots* [of SSP participants] *have been connected with outpatient treatment or counseling…"*

Some SSPs developed an agreement with peer counsellors' SUD treatment program that allowed the two organisations to exchange information about their shared patients to better serve them. Integration between the SSP and the co-located peer counsellor was so comprehensive that staff at one SSP remarked that "they're really, really a part of us".

SSP staff embedded their programs within strong collaborative referral networks of local health and social service providers. When speaking of serving homeless participants, one SSP staff member observed:

"All of us have different ties to the community and different partners in the community, so… somewhere we're going to find the resource they need. If this community offers it, we're going to do whatever we can to find it."

Building partnerships with law enforcement—SSP staff deployed several strategies to develop partnerships with law enforcement agencies and defuse their opposition. Education about the programs was a centrepiece of relationship building. SSP staff set up formal meetings to explain the SSP's purpose and operations to the officers and discuss participant rights. Several agencies that initially refused to meet with SSP staff became willing to do so after the programs opened. To further recognition of participant rights, some SSPs established formal memoranda of understanding with law enforcement agencies. In addition to these formal interactions, staff at two SSPs reported educating officers about the SSP during informal discussions during their off hours.

To further strengthen these relationships and underline SSPs' public health purpose, SSP staff trained officers in overdose response, distributed naloxone to them and provided them with sharps containers:

"We give them sharps containers… They know they can pop in any time, "Hi, can you dispose of these [syringes] for me?"."

Perceived capacity for sustainment

Despite initial, strong opposition to SSPs from community members, law enforcement and the very staff members entrusted with running these programs, the SSPs had been open for more than a year at the time of data collection, and SSP staff voiced high hopes for their future sustainment. When asked about whether the SSPs might be closed, almost all SSP staff reported that they were unconcerned ("I really don't have any concerns"; "I sure hope not. I don't sense that here, I really don't"; "I don't think they'd let it [happen]"). Indeed, some counties were contemplating adding a mobile program.

Tangible evidence of the programs' *public health impact* – specifically, its impact on discarded syringes, a salient community concern – was the primary reason given for these high hopes for sustainment.

"*I think the extra perks that's come along with it, with not finding syringes at the playgrounds and on the side of the street… I think has really helped..."*

Tangible evidence of public health impact generated strong *political support* for SSPs. Board of Health members and elected leaders in most counties had become highly supportive of their local SSPs because of reductions in reported needlestick injuries among municipal workers and others:

"[our] *fiscal court…they employ the garbage people and they pick up the syringes and they was tired of getting stuck…. But since we've had this* [program, fiscal court says] *they've not had any accidents. Which is good*."

Evaluation data reviewed by local Boards of Health reinforced the SSPs' public health impact and garnered board support:

"*they* [were] *very impressed with my* [return rate] *numbers the last board meeting. And I think this* [next] *time they will be really impressed... they're amazed, because they thought nobody would come."*

SSP staff believed that the resulting political support from local leaders would help protect programs from future closures:

"[the Judge Executive has] *been a strong advocate…from day one. So I think that if people came in and wanted to try to close this down, I think we would definitely have his support."*

Staff efforts to embed their programs within existing health and social service *partnerships* also strengthened their capacity for sustainment. Doctors and mental health clinics posted flyers for the SSP in their waiting rooms, publicly signalling their support. In one county, these partnerships formed part of a broader "community effort" of local agencies to support harm reduction (e.g. universal screening for hepatitis C in the local emergency department), collective efforts which bolstered staff hopes for their SSP's future.

Law enforcement officers shifted from opposition to support, neutrality or ambivalence. Staff at some SSPs observed that officers appreciated the reduction in discarded needles in their communities, and attributed this reduction to the SSP:

> "… our sheriff has let us know that he can see the benefits of having a syringe exchange program".

In the wake of visible reductions in discarded syringes, combined with SSP staff's ongoing partnership efforts (e.g. offers to distribute sharps containers, ongoing meetings), some officers became strong advocates of the program. An officer who initially vocally opposed the SSP recently asked the SSP staff for program cards to distribute when responding to an overdose. Another county had a sheriff who was now "a huge supporter of the needle exchange and he's really wonderful to work with". In the main, however, officers' opposition had dwindled to neutrality or ambivalence:

> "*But* [a local law enforcement leader has] *come around now… I don't think he's still 100% for it, but I think … with not finding syringes at the playgrounds and on the side of the street – …those are the extra things that I think has really helped also."*

Visible reductions in discarded syringes, combined with ongoing SSP staff efforts to communicate the programs' health benefits, seemed to have calmed the initial outrage among community members. SSP staff reported that vocal resident opposition to the programs had subsided. Staff at most SSPs reported that community members were now ambivalent about the program, or that it had simply receded from public discussions.

The only persistent community opposition occurred within DOH buildings themselves. Some patients expressed indignation and anxiety about sharing a waiting room with SSP participants. They worried about needlestick injuries in DOH waiting rooms, and expressed irritation when people who they believed were SSP participants were seen by DOH staff before them:

> "*we've had patients that would not come in because they see them here coming in with their* [sharps] *containers. We've had patients actually get up and leave…we've lost some patients because of that…".*

SSP staff noted, however, that the patients voicing these concerns were not engaging in organised opposition.

Most staff reported that the sole possible reason for SSP closure would be funding cutbacks from the local coalitions:

> "*I think my board will keep it as long as the funding* [continues], *because they don't want the taxpayer to pay for it. Because that would be a mess if the taxpayers found out."*

One SSP stood in contrast to the others, and staff expressed concern about a possible closure. Here, sustainment was contingent on public health impact, assessed via evaluation:

"Oh yeah [closure is] *possible. Local board* [of health] *could do it, could shut it down, if they wanted to… They said they would let it go for a few more years just to say "hey we're studying it"."*

DISCUSSION

As drug-related epidemics expand into rural areas with historically poor harm reduction services [1,2], understanding the conditions for rural SSP sustainment is vital. In these seven Kentucky counties, SSPs initially appeared fragile: community members and law enforcement strongly opposed them, as did many of the very DOH staff entrusted with running them. Elsewhere, community and law enforcement opposition has successfully closed SSPs [7–11]. Contact with SSP participants, visible evidence of SSP's health impacts, and capacity-building trainings/technical assistance from peer programs and the DOH, however, transformed SSP staff into champions. Between 12–24 months after these programs opened, SSP staff reported high confidence in their future sustainment, a future that SSP staff appear to have been instrumental in creating. The staff's championing role in these new rural programs resonates with the historical role of SSP staff in US cities decades ago, when illegal SSPs were staffed by activists willing to risk arrest to provide harm reduction services to their communities [15,16]. SSP staff created conditions for sustainment by creatively crafting politically palatable strategies to fund controversial harm reduction supplies; leading formal and informal communication efforts; developing partnerships with health and social service agencies and defusing law enforcement opposition; and recording and publicising evaluation metrics (i.e. return rates). As of this writing, all seven programs have remained open for over two years, a temporal threshold often used to define sustainment.

We found considerable overlap between our emerging findings and Schell *et al.*'s sustainment framework, including the salience of funding stability, political support, partnerships, organisational capacity, communications and public health impact. The latter – and in particular, visible reductions in discarded used syringes in public spaces – was a particularly vital condition for sustainment of these new rural programs. Staff often credited the 1–1 exchange policy for this reduction, a policy that required participants to return as many used syringes as they hoped to receive, after their first visit. Several staff, however, expressed concern that this policy undermined participants' harm reduction efforts, a policy that was often added during the local SSP approval process to placate opponents. Staff observed that the number of syringes participants might need could increase, when their addiction escalated, drug quality or availability changed, or someone stole their syringes. Evidence supports these concerns: SSPs with 1–1 exchange policies are less effective at curbing receptive syringe sharing than need-based SSPs [5]. As SSPs continue to expand into rural areas, several strategies can help remove used syringes from public spaces, above and beyond 1–1 exchange requirements. In addition to distributing sharps containers to participants (as these programs did), programs can establish syringe disposal sites throughout communities, permitting free and safe disposal of used syringes for all members of the public who inject (e.g. people with diabetes, PWID) [17]. They can organise outreach efforts to safely dispose of syringes discarded in public spaces, staffed by properly-equipped individuals trained in hazardous waste removal. SSPs can also

endeavour to expand the public's understanding of programs' public health impact beyond syringe disposal, to include reducing the community-wide suffering and economic costs that overdoses and HIV and HCV outbreaks bring.

Schell's framework, however, omits stigma, and yet anti-PWID social stigma threatened sustainment initially. Diminishing stigma among SSP staff helped transform them into program champions, and they in turn helped counter stigma among DOH patients, law enforcement and community members. The explicit absence of stigma from Schell's framework is unsurprising: this framework is embedded in implementation science, which has been criticised for its poor engagement with factors external to programs [18,19]. Social stigma is, however, vital to determining whether SSPs and other public health programs serving PWID are sustained [7–11]. If implementation science – including its sustainment frameworks – is to be relevant to SSPs and other harm reduction programs, its conceptual models need to more comprehensively engage with social stigma, and explore the pathways through which stigma – and anti-stigma interventions – might shape sustainment over time.

Law enforcement officers in these rural areas powerfully opposed SSPs initially. The War on Drugs has followed opioid epidemics into rural Appalachian counties: a recent publication found that incarceration rates in the 12 counties in the DHD's 2 health districts now exceed those for the 12 most populous urban US counties [12]. As in cities globally [13–16], consistent SSP staff engagement with these powerful agencies appears to be a vital condition for continued program sustainment.

Findings should be considered in light of several limitations and strengths. We audiotaped all interviews and transcribed the audiofiles verbatim, steps designed to strengthen descriptive validity [20]. One interview was conducted as a focus group with all SSP staff present, instead of one-on-one interviews; staff might have been inhibited from sharing the full range of their views when co-workers were present. This inhibition would have undermined descriptive validity [20]. We conducted a member check with SSP staff, to enhance interpretive validity [20]. The sample size was small, which might reduce theoretical validity [20], but we found striking consistency in themes across transcripts. Consistent though they are across participating SSPs, generalisability is limited to other rural SSPs, given heterogeneities in rural contexts [2]. Though we interviewed SSP participants in this study, we chose to focus this sustainment analysis on staff, given their in-depth knowledge of program operations. We recognise, however, that SSP participants ensure sustainability through their engagement.

As drug-related epidemics expand into rural areas, it is vital that harm reduction programs also extend their reach outside metropolitan areas. Newly established SSPs in rural areas can, however, be highly precarious. This research suggests that SSP staff can play as vital a role in creating conditions for sustainment in rural areas as they did when SSPs were first implemented in cities.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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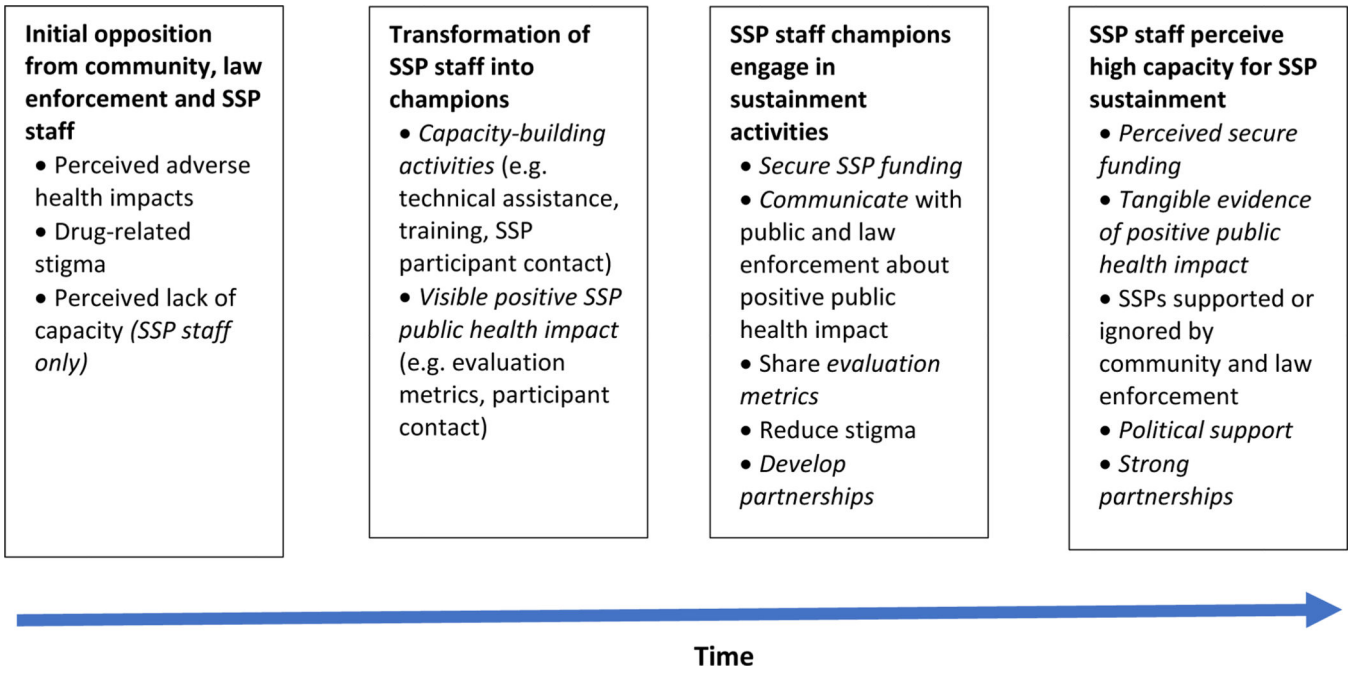

Figure 1.
Overview of themes (Constructs from Schell *et al.*'s model are *italicised*). SSP, syringe service program.

Table 1.

Schell *et al.*'s conceptualisation of organisational and contextual characteristics that shape sustainment of public health programs [12]

Concept	Definition
Funding stability	Make long-term plans based on a stable funding environment
Political support	Internal and external political environment which influences program funding, initiatives and acceptance
Partnerships	The connection between program and community
Organisational capacity	The resources needed to effectively manage the program and its activities
Program adaptation	The ability to adapt and improve in order to ensure effectiveness
Program evaluation	Monitoring and evaluation of process and outcome data associated with program activities
Communications	The strategic dissemination of program outcomes and activities with stakeholders, decision makers and the public
Public health impacts	The program's effect on the health attitudes, perceptions and behaviours in the area it serves
Strategic planning	The process that defines program direction, goals and strategies