Syringe Service Program Use Among People Who Inject Drugs in Appalachian Kentucky

See also Kapadia and Landers, p. 15; and the *AJPH* Ending the HIV Epidemic section, pp. 22–68.

In Kentucky, opioid misuse has had serious health effects, including rates of neonatal abstinence syndrome, overdose-related mortality, and injection-related HCV infection that are much higher than the national average.[1] A recent analysis ranked eight counties in Appalachian Kentucky among the nation's top 10 most vulnerable to the rapid transmission of HIV and HCV among people who inject drugs (PWID) because of the persistent opioid epidemic in the region.[2]

KENTUCKY'S HARM REDUCTION RESPONSE

Responding, in large part, to the 2015 HIV outbreak among people who inject prescription drugs in southern Indiana, the Kentucky General Assembly authorized health departments to operate syringe service programs (SSPs) for the first time in 2015. SSPs are anonymous community-based programs designed to reduce disease transmission among PWID by providing access to sterile needles and syringes free of charge and facilitating safe disposal of used injection equipment. Since then, expansion of SSPs has continued, and as of July 2019, SSPs are operational in 52 counties throughout Kentucky, which is among the highest number of programs in any US state.[3] More than 70% of these SSPs are located in rural counties that face critical shortages in harm reduction and treatment services for PWID.[4] Local health departments are now providing harm reduction services through the implementation of SSPs.

GAPS IN EVIDENCE FOR RURAL HARM REDUCTION

Although SSPs in urban settings are extensively studied,[4] little is known about barriers to uptake in rural locations because of the historically low availability of such programs. We examined SSP uptake and SSP user characteristics in three geographically dispersed Appalachian Kentucky counties (Clark, Knox, and Owsley) that vary in population size and rural status. Rural Urban Continuum Codes designate Clark County as metropolitan overall, with rural census tracts, whereas both Knox and Owsley counties are entirely nonmetropolitan.

In 2018, we surveyed PWID who were users of their local health department SSP to examine multilevel barriers to SSP use. Because these SSPs were approved and designed for their local context, each participating SSP varied in its operational characteristics. As an example, Owsley County Health Department integrated SSP activities into their regular service operations and hours, whereas Clark and Knox counties health departments established separate hours one day per week exclusively for SSP services. Nevertheless, SSPs were similar in that each operated in one fixed location within the county health department facility.

All three SSPs were actively serving clients for at least nine months before study initiation. Eligible participants reported injection drug use in the past month and were at least 18 years old; participants were recruited through respondent-driven sampling techniques.[5] (For additional study details, see the Appendix, available as a supplement to the online version of this article at http://www.ajph.org.)

SYRINGE SERVICE PROGRAM UPTAKE

Between February and October 2018, 186 SSP participants were enrolled in the study across the three counties. Table 1 presents SSP participant characteristics. Methamphetamine was reported as the primary drug of injection by 45.2% of the sample overall, followed by nonprescribed buprenorphine at 25.8%, and heroin at 16.1%. Polysubstance injection was frequently endorsed; some 39.3% of primary methamphetamine injectors also injected an opioid in the month before the interview.

Of the 186 participants, 49 (26.3%) reported their first SSP visit at the time of interview. Among continuing participants (n = 137), 60.6% reported six or more visits in the prior six months.

Overall, the principal barrier to SSP use was transportation, reported by 18.3% of the participants, followed by limited hours of operation at 12.9%.

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TABLE 1—Participant Characteristics by Consistent Syringe Service Program (SSP) Use in Past Six Months: Appalachian Kentucky, 2018

	Total Sample (n = 186), No. (%) or Mean ±SD	Consistent SSP Use Unadjusted (n = 137),[a] OR (95% CI)	Consistent SSP Use Adjusted (n = 137),[a] OR (95% CI)
Demographics			
Age, y	37.5 ±9.4	0.99 (0.95, 1.02)	0.97 (0.93, 1.02)
Gender: female	87 (46.8)	0.86 (0.44, 1.72)	0.59 (0.26, 1.35)
Race/ethnicity: non-Hispanic White	172 (92.5)	0.90 (0.27, 3.00)	0.77 (0.20, 3.00)
Current Medicaid coverage	146 (78.5)	0.93 (0.34, 2.58)	. . .
Site			
Clark County (Ref)	86 (46.2)	1 (Ref)	1 (Ref)
Knox County	61 (32.8)	5.63 (2.39, 13.25)	4.76 (1.63, 13.91)
Owsley County	39 (21.0)	4.69 (1.81, 12.14)	3.84 (1.20, 12.32)
Primary drug of injection			
Heroin (Ref)	30 (16.1)	1 (Ref)	1 (Ref)
Methamphetamine	84 (45.2)	1.95 (0.61, 6.24)	0.60 (0.14, 2.50)
Nonprescribed buprenorphine	48 (25.8)	3.11 (0.89, 10.93)	0.66 (0.10, 4.32)
Nonprescribed opioids	21 (11.3)	1.60 (0.33, 7.85)	0.70 (0.15, 3.23)
Something else	3 (1.6)	2.67 (0.19, 36.76)	1.10 (0.05, 23.54)
Substance use disorder, moderate/severe, past month	130 (69.9)	1.76 (0.85, 3.67)	. . .
Barriers and supports for SSP			
Other sources of sterile injection equipment	89 (47.8)	0.29 (0.14, 0.60)	0.30 (0.13, 0.72)
Time to SSP, min	20.8 ±39.8	1.00 (0.99, 1.01)	. . .
Network members using SSP	15.8 ±21.8	1.03 (1.00, 1.05)	1.03 (1.00, 1.05)
Worry about police at SSP	44 (23.7)	1.99 (0.84, 4.70)	. . .
Barriers to SSP use			
Location	9 (4.8)	0.60 (0.14, 2.52)	. . .
Hours of operation	24 (12.9)	1.02 (0.37, 2.82)	. . .
Transportation	34 (18.3)	0.58 (0.25, 1.37)	. . .
Fear/mistrust/stigma	17 (9.1)	3.95 (0.84, 18.60)	. . .
Not enough syringes	10 (5.4)	2.01 (0.39, 10.37)	. . .

Note. CI = confidence interval; OR = odds ratio.

[a]Among continuing participants, 83 (60.6%) reported consistent use, defined as six or more SSP visits in the prior six months.

Although transportation was the primary issue in both Clark and Knox counties, Owsley County SSP users reported concerns about stigma and lack of confidentiality as the most important barrier to uptake (15.4%). Nearly one quarter of the participants (23.7%) expressed apprehension about law enforcement activity as a potential concern when visiting the SSP, but only two individuals identified police activity as a direct barrier to program use.

After we excluded first-time SSP users and controlled for age, gender, race, and primary drug of injection, predictors of consistent SSP attendance in an adjusted logistic regression model included visiting the Knox County site and Owsley County site compared with Clark County, reporting the SSP as the sole access point for sterile injection equipment, and reporting other social network members using the SSP (Table 1).

SYRINGE SERVICE PROGRAM PRACTICE IMPLICATIONS

Participants in the more rural locations of Knox and Owsley counties were more likely to be consistent SSP users compared with participants from Clark County. The more consistent uptake in our rural sites may be indicative of higher residential stability than found in urban areas, differences in injection networks, and structural differences in SSP operations.

Regardless of site, the majority (61.3%) of SSP users we interviewed reported initial referral to the SSP by peers who inject drugs. Nevertheless, network differences may differentially affect ongoing use. Although Clark County SSP users reported larger injection networks than did either Knox County or Owsley County users, they indicated (1) fewer network members using the SSP and (2) lower engagement in secondary syringe distribution to their network members relative to the other two sites. The positive influence of social network members on consistent SSP uptake may warrant further examination, particularly with regard to the potential utility of network interventions targeting the adoption of health promotion behaviors and use of harm reduction services.

Operationally, Owsley County SSP had expanded hours relative to the other two sites, and Knox County SSP distributed significantly higher numbers of

needles and syringes per participant visit while operating during limited hours. In line with previous research,[6] we found that these operational factors appear to influence participant behaviors and program uptake substantially. Implementation of SSP operational policies that afforded participants greater access to sterile syringes was associated with more consistent use of the programs over time. Consistent SSP use also was related to having no alternative sources of access to sterile syringes, such as pharmacies and friends, which appeared to temper SSP attendance. Of note, Clark County SSP participants were more likely to report alternative sources than were participants in the two rural counties, highlighting the particular importance of these programs in rural locations with limited access points for sterile injection equipment.

STUDY LIMITATIONS AND CONCLUSIONS

Our data have limitations that should be considered, including reliance on participant self-report of SSP use and potential recall bias that may affect accurate reporting. Nevertheless, our findings suggest the need to consider expanding SSP delivery models to incorporate extended or nontraditional hours and increasing syringe distribution allowances to provide coverage for PWID with higher-frequency injecting behavior. The endorsement of transportation as a primary barrier to SSP attendance suggests that mobile distribution strategies are warranted in highly affected areas with inadequate access to reliable transportation. Mobile strategies also may reduce stigma associated with visibility at a fixed SSP location.[7]

Despite these challenges, our findings indicate a substantial level of consistent SSP attendance by high-risk PWID in the Appalachian setting, particularly in the more rural locations we examined. These results suggest a unique opportunity to use SSPs to bring high-need PWID into contact with the health care system, where they can be linked to other priority services, including treatment of substance use. Optimizing the reach of these programs through expanded mobile services and broader application of best practices for syringe distribution can improve public health response to the staggering health consequences of substance use in Appalachia. Within this context, commitment of resources for the continued expansion of SSP programming and services in Kentucky appears warranted. AJPH

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CONFLICTS OF INTEREST

The authors have no conflicts of interest to disclose.

REFERENCES

1. National Institute on Drug Abuse. Kentucky opioid summary. 2018. Available at: https://www.drugabuse.gov/drugs-abuse/opioids/opioid-summaries-by-state/kentucky-opioid-summary. Accessed August 5, 2019.

2. Van Handel MM, Rose CE, Hallisey EJ, et al. County-level vulnerability assessment for rapid dissemination of HIV or HCV infections among persons who inject drugs, United States. *J Acquir Immune Defic Syndr*. 2016;73(3):323–331.

3. Kentucky Cabinet for Health and Family Services, HIV/AIDS Branch. Kentucky Syringe Exchange Programs. Available at: https://chfs.ky.gov/agencies/dph/dehp/hab/Pages/kyseps.aspx. Accessed July 31, 2019.

4. Des Jarlais DC, Nugent A, Solberg A, Feelemyer J, Mermin J, Holtzman D. Syringe Service Programs for persons who inject drugs in urban, suburban, and rural areas – United States, 2013. *MMWR Morb Mortal Wkly Rep*. 2015;64(48):1337–1341.

5. Heckathorn DD. Respondent-driven sampling: a new approach to the study of hidden populations. *Soc Probl*. 1997;44(2):174–199.

6. Kral AH, Anderson R, Flynn NM, Bluthenthal RN. Injection risk behaviors among clients of syringe exchange programs with different syringe dispensation policies. *J Acquir Immune Defic Syndr*. 2004;37(2):1307–1312.

7. Strike C, Miskovic M. Scoping out the literature on mobile needle and syringe programs—review of service delivery and client characteristics, operation, utilization, referrals, and impact. *Harm Reduct J*. 2018;15(1):6–20.