

BRIEF REPORT

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# Acceptability of supervised injection facilities among persons who inject drugs in upstate New York

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## Abstract

**Background:** Supervised injection facilities (SIFs) provide spaces where persons who inject drugs (PWID) can inject under medical supervision and access harm reduction services. Though SIFs are not currently sanctioned in most of the US, such facilities are being considered for approval in several Upstate New York communities. No data exist from PWID in Upstate New York, and little from outside major US urban centers, on willingness to use SIFs and associated factors.

**Methods:** This analysis included 285 PWID (mean age = 38.7; 57.7% male; 72.3% non-Hispanic white) recruited for a study on hepatitis C prevalence among PWID in Upstate New York, where participants were recruited from syringe exchange programs ( $n = 80$ ) and able to refer other PWID from their injection networks ( $n = 223$ ). Participants completed an electronic questionnaire that included a brief description of SIFs and assessed willingness to use SIFs. We compared sociodemographic characteristics, drug use/harm reduction history, healthcare experience, and stigma between participants who were willing vs. unwilling to use such programs.

**Results:** Overall, 67.4% were willing to use SIFs, 18.3% unwilling, and 14.4% unsure. Among those reporting being willing or unwilling, we found higher willingness among those who were currently homeless (91.8% vs. 74.6%;  $p = 0.004$ ), who had interacted with police in the past 12 months (85.7% vs. 74.5%;  $p = 0.04$ ), and who were refused service within a healthcare setting (100% vs. 77.1%;  $p = 0.03$ ).

**Conclusion:** Our results support SIF acceptability in several Upstate New York PWID communities, particularly among those reporting feelings of marginalization. A large proportion reported being unsure about usage of SIFs, suggesting room for educating PWID on the potential benefits of this service. Our results support SIF acceptability in Upstate New York and may inform programming for underserved PWID, should SIFs become available.

**Keywords:** Supervised injection facilities, Persons who inject drugs, Drug overdose, Harm reduction, New York State

## Background

Within the continuum of services for persons who inject drugs (PWID), there is an ongoing need for open minded, stigma-free medical programming in order to

address adverse health outcomes associated with drug use, particularly overdose [1, 2]. Supervised injection facilities (SIFs) provide safe, low-barrier settings in which PWID may inject under the supervision of trained staff, as well as access services that reduce drug-related harm such as safe injection education, naloxone and overdose prevention, fentanyl test strips, and sterile injection equipment [3, 4]. Furthermore, SIFs may provide referral services to clients interested in detox and substance use disorder treatment programs, as well

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as referral to other social, legal, and medical services [3].

The efficacy and safety of SIFs are supported by growing scientific evidence, particularly in international contexts. Since the first drug consumption site opened in Switzerland in 1986, additional facilities have become operational in countries including Australia, Canada, the Netherlands, Germany, Spain, and Norway [5]. Since establishment of these programs, numerous independent studies have demonstrated SIFs to be associated with decreases in overdose morbidity and mortality, decreases in HIV and injection-associated infections, enrollment in detoxification and rehabilitation services, decreases in outdoor injecting, reduction in equipment sharing, and delays in average onset of injection drug use [6–11]. In addition, multiple studies have observed community benefits related to the presence of SIFs, including decreases in criminal incidents related to drug use, decreases in publicly discarded injection equipment, decreases in average usage of ambulatory services, as well as overall cost-effectiveness [6, 12].

Aside from research demonstrating the benefits of SIFs, studies evaluating acceptance and perceptions of SIFs have been conducted among multiple stakeholder groups. Feasibility studies, particularly in Canadian contexts, have found that PWID commonly felt that SIFs increased their physical safety (i.e. decreased exposure to police interaction and criminal activity) and reduced risks associated with drug use (i.e. public injecting associated with rushed and unhygienic injecting practices) [12, 13]. In the US, varying degrees of acceptance from policymakers and community members exist regarding SIFs. Some research in the US context has assessed acceptability of such facilities among PWID in urban areas such as Philadelphia, Baltimore, Providence, and San Francisco, finding an overwhelming majority of PWID willing to use SIFs [14–17]. Though limited data exist on unsanctioned SIFs and their clientele, existing US studies focusing on anonymous, unsanctioned sites have observed multiple benefits, primarily related to their ability to access PWID who may typically engage in high-risk injecting practices [18, 19]. Legally sanctioned SIFs are largely nonexistent in the US, however such facilities have recently been piloted in New York City, and have been proposed in several New York State (NYS) locations. With calls for SIF approval at a state level, there is an urgent need to understand acceptability of such facilities by PWID in Upstate New York communities [20]. Such data is particularly vital given increases in fatal and non-fatal overdoses driven by the COVID-19 pandemic, as well as increasing

fentanyl-related morbidity and mortality [21]. This analysis aims to assess the acceptance of SIFs among PWID in Upstate New York and explore specific subgroups that may most benefit from such facilities.

## Methods

### Participants

Participants were drawn from the Upstate PWID Study for Infectious Disease Elimination (UPSIDE), a larger study that aimed to estimate the prevalence of Hepatitis C Virus (HCV) and Human Immunodeficiency Virus (HIV) infection among PWID in Upstate New York, investigate associated behavioral and social risk factors, and assess facilitators and barriers to accessing HCV and HIV care. Participants were recruited from three syringe exchange programs (SEPs) in Albany, Plattsburgh, and Norwich. Respondent-driven sampling was employed to recruit additional participants, where seed participants were asked to refer up to three peers who were also current PWID. Participants received up to \$50 in gift cards for their time to complete the study procedures and \$20 per referral of a peer, up to three peers. Study eligibility included those who were aged eighteen years and older, had injected drugs in the previous 12 months, were able to read and write in English, resided in selected counties that the collaborating SEPs generally served, and had no immediate plans for relocation. Participants who agreed and were eligible to participate completed a self-administered questionnaire, either on-site or on their own electronic devices. UPSIDE protocol was approved by University at Albany Institutional Review Board.

### Measures

Participants were given a brief description of SIFs and told that none were available in NYS. They were then asked the question, “If one was available, would you use such a safe injection facility?” with response options, 1=Yes, 0=No, and 9=Don’t know/not sure. Participants also answered questions about sociodemographic characteristics, drug use history, harm reduction behavior, sexual risk, healthcare-seeking behavior and experiences, experienced and perceived stigma, and mental health status.

### Analysis

Descriptive statistics were used to examine the distribution of characteristics among our analytic sample. Chi-square and Fisher’s exact tests were run in order to compare sociodemographic characteristics and drug use behaviors by acceptability of SIFs, at a significance level

of  $p < 0.05$ . All analyses were completed using SAS 9.4 software [22].

**Results**

This analysis included 285 PWID recruited for a study to assess the prevalence of hepatitis C among PWID in Upstate New York, with 80 participants recruited from SEP visits and 223 referrals recruited from their injection networks (Table 1). This study excluded 18 participants who were part of the larger UPSIDE study, but did not answer the SIF question. Our sample was majority male (57.7%) and non-Hispanic white (72.3%), with a mean age of 38.7 years ( $SD = 10.8$ ). A majority of our sample had at least a high school education (77.2%) and 26.1% of participants identified as homeless or unstably housed. Regarding drug use history and injecting behavior, 50.2% our sample injected daily, 79.3% most often injected in private, and 44.6% had ever overdosed.

Overall, 67.4% ( $n = 192$ ) of our analytic sample reported willingness to use SIFs, 18.3% ( $n = 52$ ) reported being unwilling, and 14.4% ( $n = 41$ ) reported being unsure of use. Among those reporting either being willing or unwilling, the proportion of PWID reporting willingness to use SIFs was greater among those who were currently homeless compared to those who were not currently homeless (91.8% vs. 74.6%;  $p = 0.004$ ), who had interacted with police in the past 12 months compared to those who had not had such interactions (85.7% vs. 74.5%;  $p = 0.04$ ), and who had been refused service within a healthcare setting compared to those who had not been refused service (100% vs. 77.1%;  $p = 0.03$ ).

**Discussion**

Our analysis points to strong acceptability of and willingness to use SIFs among several Upstate New York PWID communities. We also found significant associations between acceptance of SIFs and indicators of greater social need and marginalization within society, such as current homelessness, interaction with police in the past twelve months, and being refused service within a healthcare setting.

Such results align with existing research. First, homelessness has been associated with negative aspects of drug use, such as increased risk of overdose, increased intensity of drug use, increased risk of relapse when in recovery, and greater participation in risky income-generating activity [23–25]. To this point, homeless PWID are often in need of more comprehensive services than those who are stably housed, and SIFs may be able to fulfill this need through referrals [23]. Furthermore, PWID commonly have negative interactions with law enforcement, and those who are homeless or living transiently

**Table 1** Selected characteristics of PWID assessed for willingness (no vs. yes) to use SIFs ( $n = 244$ )

Variable	No		Yes		p-value
	n = 52	(%)	n = 192	(%)	
Gender					
Male	27	(18.8)	117	(81.3)	0.42
Female	25	(25.3)	74	(74.8)	
Non-binary	0	(0)	1	(100.0)	
Education					
Less than high school	10	(17.5)	47	(82.5)	0.43
At least high school/GED	42	(22.5)	145	(77.5)	
Currently homeless					
No	46	(25.4)	135	(74.6)	0.004
Yes	5	(8.2)	56	(91.8)	
Drugs injected at least once in past 30 days					
No	28	(26.4)	78	(73.6)	0.09
Yes	23	(17.3)	110	(82.7)	
Injections per day					
1–2	22	(27.2)	59	(72.8)	0.07
3–4	20	(22.5)	69	(77.5)	
> 5	8	(11.9)	59	(88.1)	
Primary injecting location					
Private	42	(21.7)	152	(78.4)	0.66
Public	9	(18.8)	39	(81.3)	
Ever overdose					
No	28	(21.7)	101	(78.3)	0.93
Yes	24	(21.2)	89	(78.8)	
Visited SEP (past 12 mo)					
No	26	(22.8)	88	(77.2)	0.78
Yes	21	(21.2)	78	(78.8)	
Ever used naran					
No	34	(21.8)	122	(78.2)	0.62
Yes	15	(19.0)	64	(81.0)	
Interaction with police (past 12 mo)					
No	38	(25.5)	111	(74.5)	0.04
Yes	13	(14.3)	78	(85.7)	
Ever arrested or incarcerated (past 12 mo)					
No	16	(26.2)	45	(73.8)	0.26
Yes	35	(19.4)	145	(80.6)	
Given less attention than other patients in a healthcare setting					
No	47	(23.9)	150	(76.1)	0.05
Yes	5	(10.6)	42	(89.4)	
Treated with hostility by a healthcare provider					
No	44	(22.8)	149	(77.2)	0.27
Yes	8	(15.7)	43	(84.3)	
Refused service by a healthcare provider					
No	52	(22.9)	175	(77.1)	0.03
Yes	0	(0)	17	(100)	

Excludes those who were unsure about their acceptance of SIFs

are particularly at risk for police scrutiny [26, 27]. In line with existing literature, our results may point to SIFs having the potential to not only provide health benefits, but also act as safe spaces against discrimination experienced through over policing and place-based policing of PWID spaces [28].

In terms of treatment within healthcare settings, our results fall in line with existing literature on PWID experiences around healthcare utilization. PWID frequently avoid medical services when needed due to perceived and actual stigma from healthcare professionals, and this may result in worse health outcomes and need for eventual acute or emergency care [29, 30]. This highlights the need for non-judgmental, friendly medical services for PWID and may explain the greater acceptability of SIFs by those who are either given less attention in medical settings or refused medical services within our analytic sample.

To our knowledge, this analysis is the first to date assessing willingness of PWID to use SIFs in Upstate New York. Our study may be restricted by a few limitations. For instance, we sampled a hard-to-reach population, and given the lack of an available sampling frame, we may not have penetrated all subgroups of PWID within the larger community. Furthermore, we collected potentially sensitive information from study participants, and this may have introduced bias in data collection. However, measures were taken to mitigate concerns around confidentiality and trust, such as self-administration of the questionnaire and utilization of a peer recruitment strategy. Lastly, statistical power may be an issue for our findings, given this was a secondary, exploratory analysis.

Our results also suggest a few directions for future research on SIFs. For instance, a notable proportion of our sample reported being unsure about or unwilling to use SIFs. Given PWID do not universally support or adopt harm reduction interventions, it will be important to further explore factors that may influence their use, such as geographical setting, legality and political climate, and cultural norms. Understanding such nuances underlying responses among our sample may be warranted in order to establish effective interventions for SIF-hesitant populations. Finally, our results support SIF acceptability in Upstate New York PWID communities as a whole, and emphasize the need to provide comprehensive care to marginalized subpopulations. While this is an important observation, should SIFs become operationalized in communities outside of New York City, ongoing programmatic evaluation will be necessary in order to build on these findings and better understand SIF utilization patterns in practice, especially in light of the immediate and lasting effects of the COVID-19 pandemic on PWID populations.

#### Abbreviations

HIV: Human immunodeficiency virus; HCV: Hepatitis C virus; NYS: New York state; PWID: Persons who inject drugs; SIF: Supervised injection facilities.

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#### Author contributions

ED, TU, SS, and MB contributed to the design and implementation of study procedures. ED analyzed and interpreted data for the present analysis, and prepared the manuscript. TU provided guidance throughout analysis and preparation of the manuscript. All authors read and approved the final manuscript.

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#### Availability of data and materials

The dataset analyzed during the current study is not publicly available in order to protect study participant privacy.

#### Declarations

##### Ethics approval and consent to participate

Informed consent was obtained from all study participants. Participants were notified of all study aims and procedures prior to consenting. The study protocol was approved by the University at Albany Institutional Review Board in March 2019.

##### Consent for publication

Not applicable.

##### Competing interests

The authors declare that they have no competing interests.

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#### References

- Paquette CE, Syvertsen JL, Pollini RA. Stigma at every turn: health services experiences among people who inject drugs. *Int J Drug Policy*. 2018;57:104–10.
- Wogen J, Restrepo MT. Human rights, stigma, and substance use. *Health Hum Rights*. 2020;22(1):51–60.
- Armbrecht E, Guzauskas G, Hansen R, Pandey R, Fazioli K, Chapman R, et al. Supervised injection facilities and other supervised consumption sites: effectiveness and value; final evidence report [Internet]. Institute for Clinical and Economic Review; 2021. Available from: [https://icer.org/wp-content/uploads/2020/10/ICER\\_SIF\\_Final-Evidence-Report\\_010821-1.pdf](https://icer.org/wp-content/uploads/2020/10/ICER_SIF_Final-Evidence-Report_010821-1.pdf)
- Ng J, Sutherland C, Kolber MR. Does evidence support supervised injection sites? *Can Fam Physician*. 2017;63(11):866–866.
- European Monitoring Centre for Drugs and Drug Addiction. Drug consumption rooms: an overview of provision and evidence [Internet]. Lisbon, Portugal; 2018. (Perspectives on drugs). Available from: [https://www.emcdda.europa.eu/system/files/publications/2734/POD\\_Drug%20consumption%20rooms.pdf](https://www.emcdda.europa.eu/system/files/publications/2734/POD_Drug%20consumption%20rooms.pdf)

6. Kennedy MC, Karamouzian M, Kerr T. Public health and public order outcomes associated with supervised drug consumption facilities: a systematic review. *Curr HIV/AIDS Rep*. 2017;14(5):161–83.
7. Marshall BD, Milloy MJ, Wood E, Montaner JS, Kerr T. Reduction in overdose mortality after the opening of North America's first medically supervised safer injecting facility: a retrospective population-based study. *The Lancet*. 2011;377(9775):1429–37.
8. Wood E, Kerr T, Small W, Li K, Marsh DC, Montaner JSG, et al. Changes in public order after the opening of a medically supervised safer injecting facility for illicit injection drug users. *CMAJ*. 2004;171(7):731–4.
9. Wood E, Tyndall MW, Zhang R, Montaner JSG, Kerr T. Rate of detoxification service use and its impact among a cohort of supervised injecting facility users. *Addiction*. 2007;102(6):916–9.
10. Salmon AM, Van Beek I, Amin J, Kaldor J, Maher L. The impact of a supervised injecting facility on ambulance call-outs in Sydney, Australia: Impact of a SIF on ambulance utilization. *Addiction*. 2010;105(4):676–83.
11. van Beek I, Kimber J, Dakin A, Gilmour S. The Sydney medically supervised injecting centre: reducing harm associated with heroin overdose. *Null*. 2004;14(4):391–406.
12. Lange BCL, Bach-Mortensen AM. A systematic review of stakeholder perceptions of supervised injection facilities. *Drug Alcohol Depend*. 2019;197:299–314.
13. Mitra S, Rachlis B, Scheim A, Bardwell G, Rourke SB, Kerr T. Acceptability and design preferences of supervised injection services among people who inject drugs in a mid-sized Canadian City. *Harm Reduct J*. 2017;14(1):46.
14. Kral AH, Wenger L, Carpenter L, Wood E, Kerr T, Bourgois P. Acceptability of a safer injection facility among injection drug users in San Francisco. *Drug Alcohol Depend*. 2010;110(1–2):160–3.
15. Bouvier BA, Elston B, Hadland SE, Green TC, Marshall BDL. Willingness to use a supervised injection facility among young adults who use prescription opioids non-medically: a cross-sectional study. *Harm Reduct J*. 2017;14(1):13.
16. Harris RE, Richardson J, Frasso R, Anderson ED. Perceptions about supervised injection facilities among people who inject drugs in Philadelphia. *Int J Drug Policy*. 2018;52:56–61.
17. Park JN, Sherman SG, Rouhani S, Morales KB, McKenzie M, Allen ST, et al. Willingness to use safe consumption spaces among opioid users at high risk of fentanyl overdose in Baltimore, Providence, and Boston. *J Urban Health*. 2019;96(3):353–66.
18. Kral AH, Davidson PJ. Addressing the Nation's opioid epidemic: lessons from an unsanctioned supervised injection site in the US. *Am J Prev Med*. 2017;53(6):919–22.
19. Suen LW, Davidson PJ, Browne EN, Lambdin BH, Wenger LD, Kral AH. Effect of an unsanctioned safe consumption site in the United States on syringe sharing, rushed injections, and isolated injection drug use: a longitudinal cohort analysis. *JAIDS J Acquir Immune Defic Syndr*. 2022;89(2):172–7.
20. Young S, Eisenberg A. Lawmakers renew push for supervised injection sites. *Politico* [Internet]. 2020 Feb 28; Available from: <https://www.politico.com/states/new-york/newsletters/politico-new-york-health-care/2020/02/28/lawmakers-renew-push-for-supervised-injection-sites-332982>
21. CDC Health Alert Network. Increase in Fatal Drug Overdoses Across the United States Driven by Synthetic Opioids Before and During the COVID-19 Pandemic [Internet]. Centers for Disease Control and Prevention; 2020 Dec. Available from: <https://emergency.cdc.gov/han/2020/han00438.asp>
22. SAS 9.4. Cary, NC: SAS; 2013.
23. Shaw A, Lazarus L, Pantalone T, LeBlanc S, Lin D, et al. Risk environments facing potential users of a supervised injection site in Ottawa, Canada. *Harm Reduct J*. 2015;12(1):49.
24. Cheng T, Wood E, Nguyen P, Kerr T, DeBeck K. Increases and decreases in drug use attributed to housing status among street-involved youth in a Canadian setting. *Harm Reduct J*. 2014;11(1):12.
25. Baggett TP, Hwang SW, O'Connell JJ, Porneala BC, Stringfellow EJ, Orav EJ, et al. Mortality among homeless adults in Boston: shifts in causes of death over a 15-year period. *JAMA Intern Med*. 2013;173(3):189–95.
26. Rhodes T, Singer M, Bourgois P, Friedman SR, Strathdee SA. The social structural production of HIV risk among injecting drug users. *Soc Sci Med*. 2005;61(5):1026–44.
27. Beletsky L, Heller D, Jenness SM, Neaigus A, Gelpi-Acosta C, Hagan H. Syringe access, syringe sharing, and police encounters among people who inject drugs in New York City: a community-level perspective. *Int J Drug Policy*. 2014;25(1):105–11.
28. Collins AB, Boyd J, Mayer S, Fowler A, Kennedy MC, Bluthenthal RN, et al. Policing space in the overdose crisis: a rapid ethnographic study of the impact of law enforcement practices on the effectiveness of overdose prevention sites. *Int J Drug Policy*. 2019;73:199–207.
29. Kendall CE, Boucher LM, Mark AE, Martin A, Marshall Z, Boyd R, et al. A cohort study examining emergency department visits and hospital admissions among people who use drugs in Ottawa, Canada. *Harm Reduct J*. 2017;14(1):16.
30. Muncan B, Walters SM, Ezell J, Ompad DC. "They look at us like junkies": influences of drug use stigma on the healthcare engagement of people who inject drugs in New York City. *Harm Reduct J*. 2020;17(1):53.

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