

# Implementation and evaluation of a syringe vending machine trial in Tbilisi, Georgia

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# Funding and partners

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- Partners:
- National Centre for Disease Control and Public Health
- Georgian Harm Reduction Network

# Background – SVM effectiveness

- Uninterrupted 24/7 access
- Reaching most hidden groups
- Improving geographical coverage
- Cost-effectiveness
- **Do not replace traditional NSP! Complement!**



# Aim

- Implement and evaluate (effectiveness and process) outcomes of introducing SVM in Tbilisi, Georgia.

# Formative stage – acceptability and willingness to use (among out-of-service PWID)

- Acceptability of SVM was extremely high (97%)
- The most highly endorsed features:
  - uninterrupted free access to sterile injection equipment
  - privacy
  - anonymity
- Acceptability of self-testing HIV kits was also high, including among PWID who have never been tested for HIV

Otiashvili, D., Kirtadze, I., Vardanashvili, I., Tabatadze, M., & Ober, A. J. (2019). Perceived acceptability of and willingness to use syringe vending machines: results of a cross-sectional survey of out-of-service people who inject drugs in Tbilisi, Georgia. *Harm Reduction Journal*, 16(1), 21. doi:10.1186/s12954-019-0292-8

# Methodology

Stepped wedge design and timeline of study events. **C** – pre-intervention data collection (control stage), **I** – SVM intervention.

Site 5	Formative stage: provider survey and FGs, PWID survey	C	C	C	C	C	C	C	I	I	Post-intervention assessment: provider survey and FGs, PWID FGs
Site 4		C	C	C	C	C	C	I	I	I	
Site 3		C	C	C	C	C	I	I	I	I	
Site 2		C	C	C	C	I	I	I	I	I	
Site 1		C	C	C	I	I	I	I	I	I	
Month		1-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	
April 2018		July 2019					April 2021				

RE-AIM framework to assess outcomes across four RE-AIM domains:

- reach
- effectiveness at providing syringe access
- adoption
- implementation

# Adaptation of SSVM model

- **Local adaptation to context** – serve different populations, located at pharmacy entrance
- **Hardware update** – RFID reader, LCD touchscreen, Raspberry Pi, internet modem
- **SSVM software** – real time data exchange and communication capabilities
- **SIGMA plastic cards**

Otiashvili, D., Kirtadze, I., Mgebrishvili, T., Beselia, A., Tabatadze, M., Otiashvili, N., Ober, A. J., & Iguchi, M. Y. (2021). Smart Syringe Vending Machines: Research Capabilities and Implications for Research Data Collection. *Journal of Studies on Alcohol and Drugs*, 82(6), 752-757. <https://doi.org/10.15288/jsad.2021.82.752>





Upper two shelves are for products for Sale, for general public

Lower 3 shelves are for HIV prevention materials for PWIDs and MSMs and are covered with poster





**Touch Screen** by default menu of products for sale



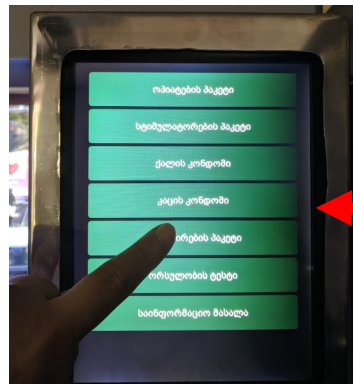
**Slot for money** to purchase goods from upper 2 shelves



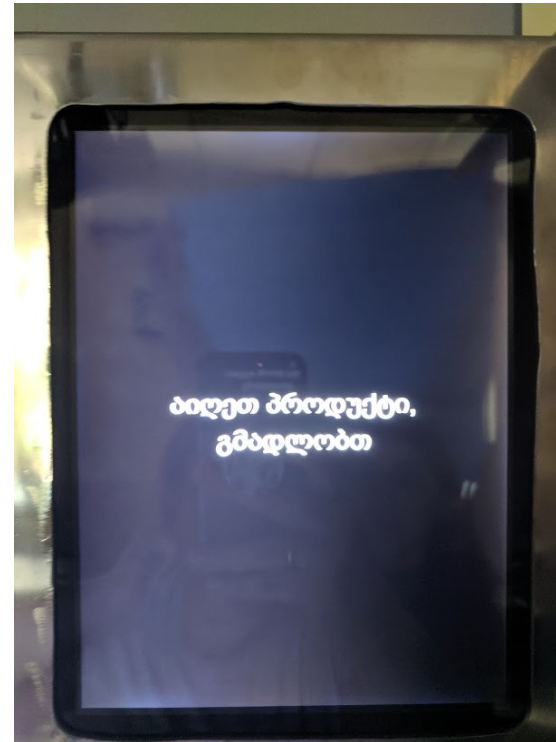
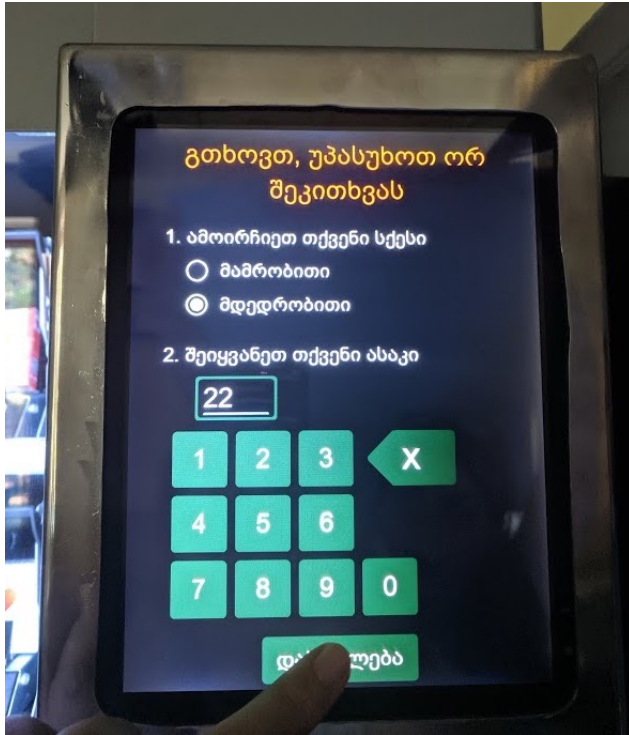
**RFID reader** for plastic cards



Plastic card for activation of HIV prevention menu distributed by the needle and syringe programs to PWIDs and MSM



menu with the list of HIV prevention packages - activated when plastic card is used



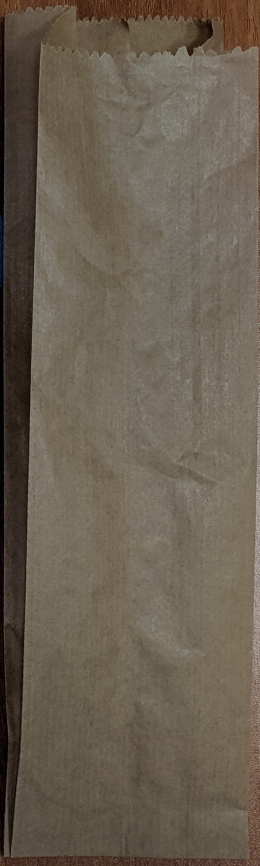
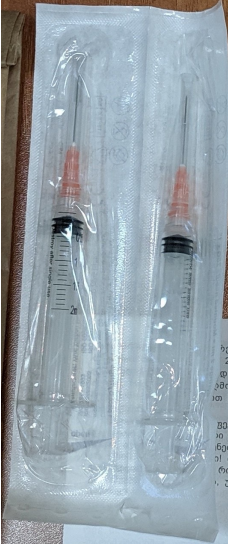
Small on-screen surveys are available for communication with clients:

1. To report gender and age (for secondary card holders)
2. To report HIV self-testing results

# HIV prevention packages dispensed via SVM

1. Package for opioid users (for group of 4)
2. Package for stimulant users (for group of 4)
3. Overdose prevention (naloxone) package
4. Male condom
5. Female condom (when finished the stock was replaced with HIV self-testing kit; from January 2021)
6. Pregnancy test kit
7. Informational brochure (was of low demand and was replaced with male condom with lubricants)





**INITIATIVE 5%**
  
 SIDA, TUBERCULOSE, PALUDISME

სანდორობაგორ მასალა გამოიშობა მოსამხრეგა მან ჩაქვალასი კაპონი ლაგონარეგა კოგის და არ არის ელვალულო. ისინიგა 5% ისოპროპილი ალკოჰოლით, სპირტიგაგაგა ელვალულო, საგარგდესი კაპონი და სპირტიგაგაგა სანდორობა. მუხრის ტერმინოლოგია და მინდორობის მინილის კლასიფიკაცი დონის პოგისა და მუხვალეგა.

**გაბხოვდეთ**

- არ მიხედო სოხე, სანამ გეონო მდერმარტიბაში, რომ არ დაიბნო.
- არ გაუკეთო წელს ან მაროლანი წელს ინექცი.

**თუ სასწრაფო სადორობო დახმარეგა გამოიბრებე მუხვალეგა სუნდეა,**  
 მიუკეთო ინსერტიკის

**კომპრეგა:** ალდვენს სისხლის მობრაბას

- დაიწვეთ გულ-მკერდის კომპრეგა (დანოლა) 100-120-გერ ნუთი.
- დარწმუნდით, რომ კომპრეგებს შორის გულ-მკერდი უბრედება პირამედულ მდგომარეობას (მოძრაობს ხეშით).

**სახუნძო გრების გასუფთვება:** საკგრო გზის გამოყენების მონაწილეობა, აწვეთო რეგანი ტვერთიდან ხეშით.

**გაბრძეღეთ გულ-ფილდეგს, რენიმიგია მანამ, სანამ არ არის მორბოლის მუგეგო რომიე ნიბი ან არ მოგე სასწრაფო-სამედიცინო დახმარეგა.**

მუხვალეგა სუნდეა, თუ დაბარალბული არ სუნდეგს ნორმალბული, დაიწვეთ პირთ-პირთ ხელოვნური სუნდეა 30 გულბერეგა კომპრეგა და 2 გამბარეგა სუნდეა. თივლეგა გულ-ფილდეგს რეგინ-მკერდს ერთ ცალკე, თივტიეფი ვრედლეგა რომ არ მოიშოფით ადორო მუხი დახმარეგა ან დონარბული სუნდეა.

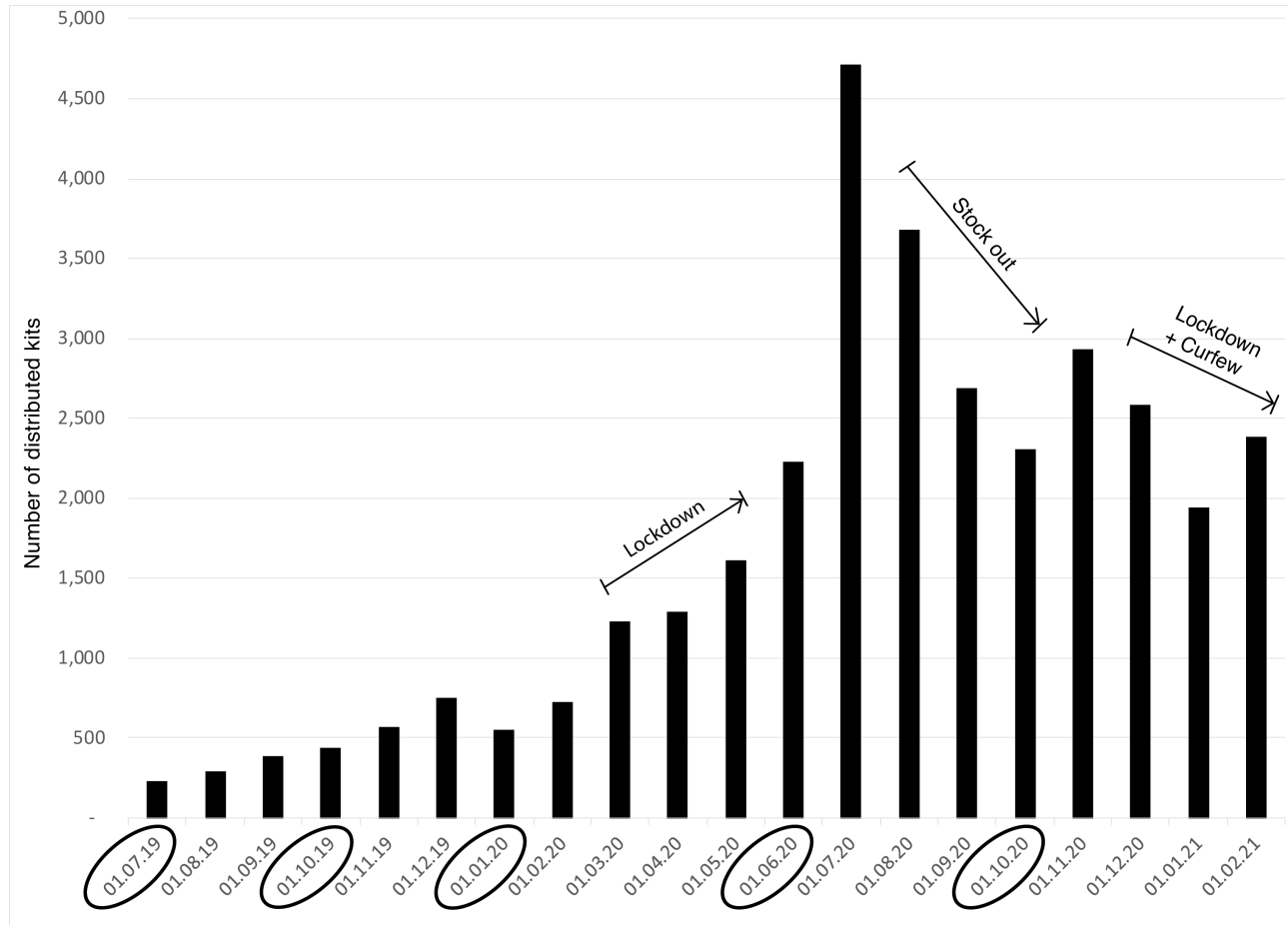
თუ არ ხართ ტრინირბული სასწრაფო დახმარეგის განეგაბე, გამოტოვეთ პირთ-პირთ ხელოვნური სუნდეგს ეგაბი და გააბრძელეთ გულ-მკერდზე კომპრეგა.

თუ არ ხართ ტრინირბული სასწრაფო დახმარეგის რენიმიგია მანამ, სანამ არ არის მორბოლის მუგეგო რომიე ნიბი ან არ მოგე სასწრაფო-სამედიცინო დახმარეგა.

ერთი ცალკე = 30 კომპრეგა + 2 დახმარე სუნდეა.  
 ბალ-ფილდეგს რენიმიგია  
**5**  
 აბიეი ცალკე = 280  
**30:2**

# Results

Number of SVM kits dispensed per month (July 2019- April 2021).



52% of transactions occurred during non-working hours and holidays

Otiashvili, D., Kirtadze, I., Mgebrishvili, T., Beselia, A., Tabatadze, M., Vardanashvili, I., & Ober, A. J. (2022). Implementation and evaluation of a syringe vending machine trial in Tbilisi, Georgia. *International Journal of Drug Policy*, 103, 103649. [doi:https://doi.org/10.1016/j.drugpo.2022.103649](https://doi.org/10.1016/j.drugpo.2022.103649)

# Results

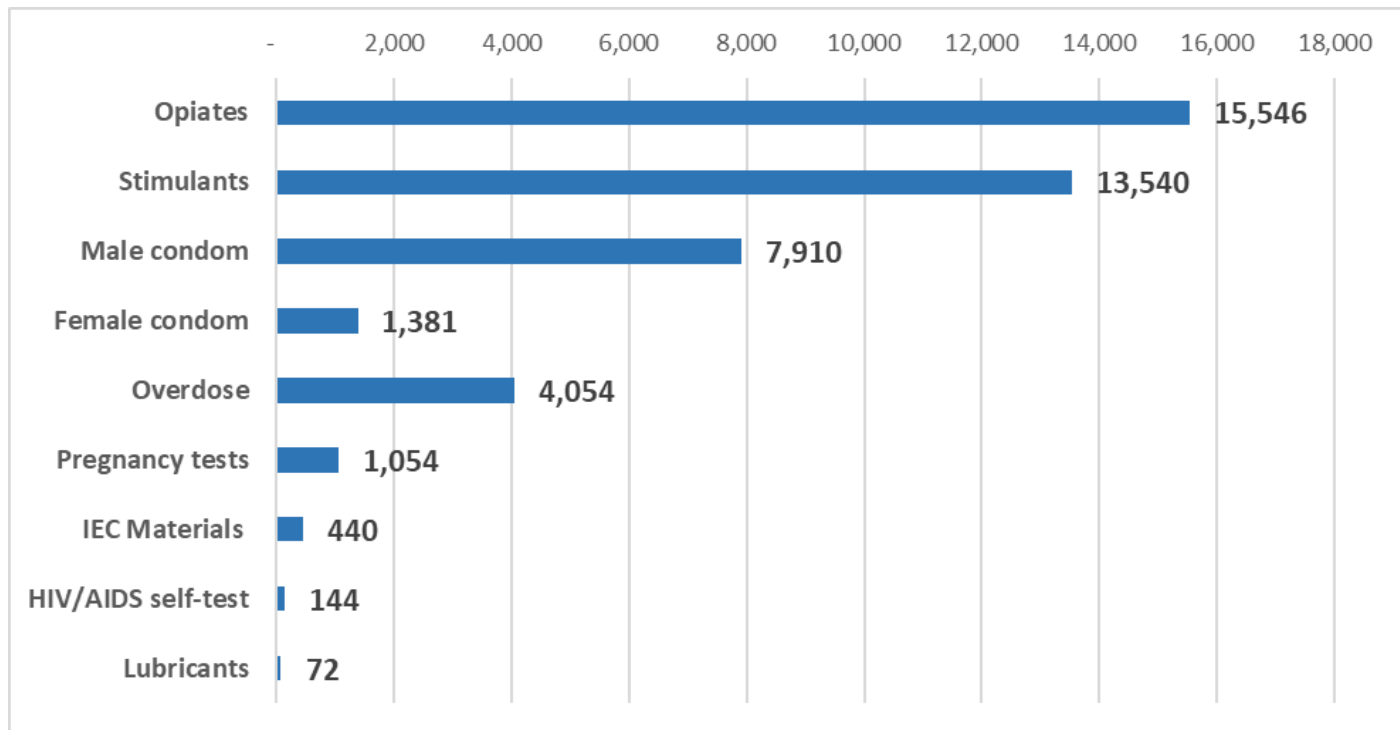
- **Reach.** 1,846 SVM access cards given to PWID. SVM reached 8% of the target population. Expectations on reaching out-of-service PWID not met.
- **Effectiveness at Providing Syringe Access.**
  - SVM dispensed 14% of all syringes distributed by HIV prevention services.
  - Using SVM was associated with PWID receiving more sterile syringes from HIV prevention outlets.
- **Adoption.** All HIV prevention sites (N=5) invited to implement SVM agreed to participate. 61% of PWID who received SVM access cards used SVM at least once. Women and young PWID were more likely to use SVM compared to other PWID.
- **Implementation.** At some sites adherence of the outreach staff to the operational protocol was suboptimal.

Variable	Pre-SVM period	SVM period	
Average number of syringes/month received by PWID who <b>use SVM</b> ; (N=130)	31.1	52.6	diff. between diff.  p < 0.014
Average number of syringes/month received by PWID who <b>did not use SVM</b> ; (N=1,000)	24.2	35.8	

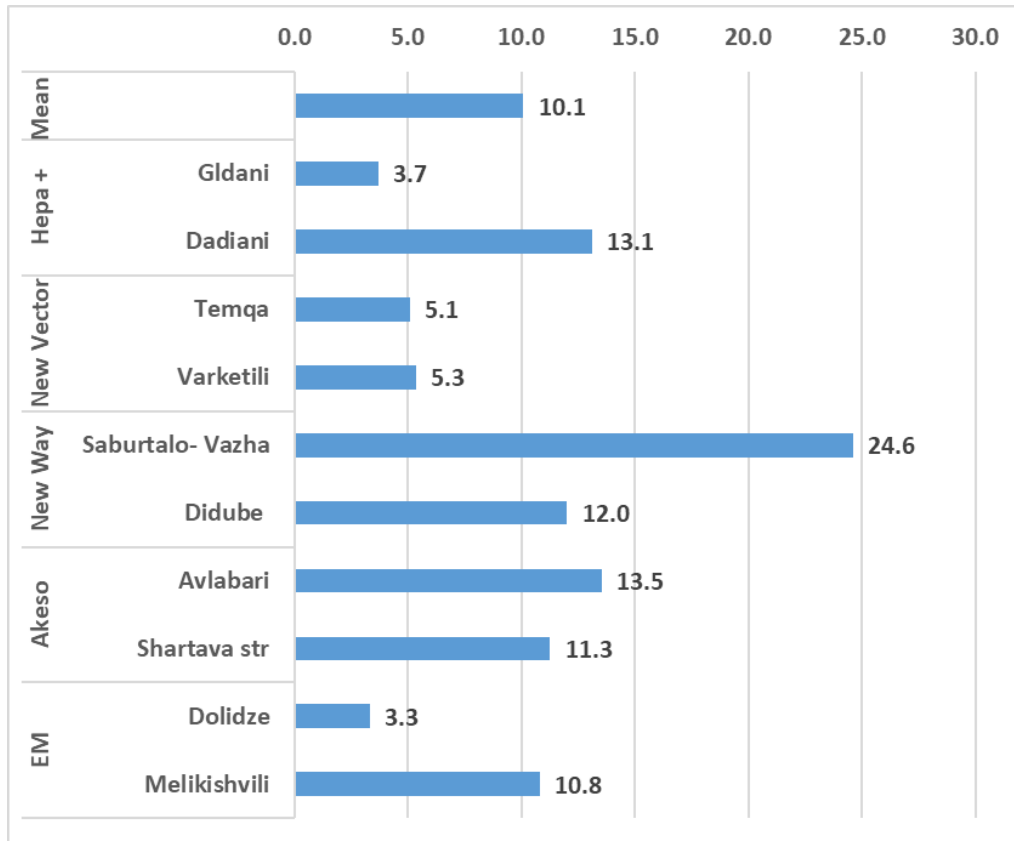
# Transactions by the types of packages

Most demanded products:

- ✓ Opiates packages;
- ✓ Stimulants packages
- ✓ Male condoms



# Daily transactions (mean) by SVM location



**Locations matter!**

**There is a potential for optimization**



# Reporting HIV test results

Alternative ways for reporting were offered to beneficiaries:

- Brief questionnaire on the SVM touchscreen
- Brief questionnaire on the SIGMA web-portal
- QR code
- SMS / text message
- Landline telephone
- Viber /WhatsApp

	# self test	Unique beneficiaries
HIV tests dispensed	183	163
Completed brief questionnaire	135 (74%)	110 (67.5%)
Responded on the SVM screen	120	96
Web-portal	15	14



# Economic evaluation (July 2019-December 2020)

- Financial data from the project to estimate fixed (staff time, start-up costs, equipment, running costs, and consumables) and variable (harm reduction kits) costs.
- Calculated the full economic cost of the SVM intervention, cost per user, cost per additional syringe accessed by SVM users, and cost per kit distributed, compared to no implementation of SVM, in 2020 Euro values.

## **Results:**

- the largest cost component was staff costs - 51%
- consumable costs - 28%
- equipment - 10%
- start up, recurrent costs, and overheads - 5% or less each
- the cost **per user** was €66/year
- cost **per transaction** was €7, of which approximately €5 was fixed costs and €2 consumables
- if the monthly number of transactions increased from the average of 1,622 per month to the highest monthly usage (4,714), the fixed costs per transaction would decrease to less than €1.

Walker JG, Kirtadze I, Tabatadze M, Vickerman P, Otiashvili D. (2023). Economic evaluation of syringe vending machines in Tbilisi, Georgia. *Under review*

# Limitations

- SVMs were installed only in the capital city – generalizability?
- Observed stock outs may have had negative influence on generating the trust of PWID for SVM services
- Measuring fidelity – challenge
- Due to deliberate contamination, cluster-based data could not be analysed

# Conclusions

- SVM were **accepted** by the majority of staff of implementing organizations and by the clients, they **reached** a notable share of potential beneficiaries, and they were actively **utilized** by them
- SVM **improve access** to sterile injection equipment for PWID and using SVM was associated with **receiving more syringes** compared to receiving syringes from HIV services other than vending machines
- SVM are **economically feasible**
- Potentially, can be used to deliver **various services** to **different groups** (OAT, PrEP, HIV and HCV self-tests)

## **Future research needs to examine:**

- (1) how to **motivate field staff** to better promote SVM among clients in order to reach more PWID
- (2) what specific strategies can **facilitate engagement of PWID** who are not in contact with prevention services.

# Thank you

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