

AN ASSESSMENT OF NEEDLE-SYRINGE PROGRAM FOR PEOPLE WHO INJECT DRUGS IN THE
KYRGYZ REPUBLIC

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ABSTRACT

Anna P. Deryabina: An Assessment of Needle-Syringe Program For People Who Inject Drugs in the
Kyrgyz Republic
(Under the direction of Sandra Greene)

The study aimed at 1) describing and assessing the scope and the quality of the NSP in the Kyrgyz Republic in comparison to international standards; 2) comparing effectiveness of facility, NGO and pharmacy based NSPs; 3) identifying barriers and facilitators that affect PWID uptake of services, and 4) developing recommendations to improve NSP implementation.

The study showed that although NSP implementation in the Kyrgyz Republic was supported by the national legislation, certain standards for NSP policy and legislation were overlooked and NSP funding was fully dependent on external aid. Geographical availability of NSP was limited. Non-injecting sex partners of PWID were rarely involved. Only a few NSP sites had formalized referral pathways to other health services and the existing referrals were poorly documented. The distribution of low dead space syringes recommended for distribution by NSPs was limited.

Although facility-based NSPs provided a greater number of clean syringes to a greater number of clients compared with other modalities, they were serving different PWID in different locations and therefore cannot be really compared. None of the NSPs were effective in providing and properly documenting HIV counseling and testing services to PWID and their sex partners. All NSPs were characterized as providing minimal or no linkage and referral of PWID in linking and referring PWID to other health services.

Access of PWID to NSP was limited due to fear of police encounters, inconvenient hours of operation, unfriendly attitudes by NSP staff and a limited menu of supplies available to clients. At the same time, availability of outreach services and provision of additional health services were

highly valued by PWID.

The findings suggest a need for further NSP services quality improvement and reduction of barriers that negatively affect PWID uptake of NSP services. To achieve decreases in HIV incidence, NSPs should ensure regular HIV testing of clients and serve as a referral mechanism for PWID access to substance use treatment and HIV care and treatment.

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LIST OF ABBREVIATIONS

ART	antiretroviral therapy
CDC	the US Centers for Disease Control and Prevention
CI	confidence interval
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
HBV	hepatitis B virus
HCV	hepatitis C virus
HDSS	high dead-space syringe
HIV	human immunodeficiency virus
HTC	HIV testing and counseling
IBBS	integrated bio-behavioral survey
IRB	institutional review board
IQR	interquartile range (midspread)
KPIS	Key Populations Implementation Science
LDSS	low dead-space syringe
M&E	monitoring and evaluation
MIS	management information system
MOH	Ministry of Health
NGO	non-governmental organization
NSP	needle-syringe program
OST	opioid substitution therapy
PDI	peer-driving intervention
PEPFAR	the U.S. President's Emergency Plan for AIDS Relief
PIU	project implementation unit
PLWH	people living with HIV
PWID	people who inject drugs

RAC	Republican AIDS Center
RNC	Republican Narcology Center
STI	sexually transmitted infections
SVM	syringe vending machines
TB	tuberculosis
TWG	technical working group
UNAIDS	the Joint United Nations Program on HIV/AIDS
UNDP	United National Development Program
UNODC	UN Office for Drugs and Crime
USAID	United States Agency for International Development
WHO	World Health Organization

CHAPTER I: INTRODUCTION

Background

The Kyrgyz Republic is located in Central Asia, one of the few regions in the world where the HIV epidemic is still growing. As of December 31, 2014 there were 5,504 cumulative HIV cases confirmed in the Kyrgyz Republic. According to the country-reported Global AIDS Response Progress Report data and Spectrum¹ estimates, there are more than 9,300 (7100-12,000) people living with HIV (PLWH) in the Kyrgyz Republic (UNAIDS, 2014).

Sharing of needles and syringes and drug preparation materials, as well as use of preloaded drug solutions are important risk factors for infection acquisition and transmission among PWID (CDC, 2012). Injection drug use is the reported mode of transmission for almost 60% of all confirmed HIV infections in the Kyrgyz Republic. Based on estimates from the Republican AIDS Center, in 2013, there were approximately 25,500 people who injected drugs² (PWID) in the Kyrgyz Republic, and the prevalence of HIV among PWID varied from 6% -17% in different regions of the country (Country HIV Program Progress Report – 2014, in Russian).

Availability of syringe distribution programs was shown to have a substantial impact in reducing unsafe injecting practices (Bluthenthal, Kral, Gee, Erringer, & Edlin, 2000). Among HIV-prevention interventions for PWID, Needle and Syringe Programs³ (NSP) are probably the most

¹Population projection software developed by the United Nations Program on HIV/AIDS (UNAIDS) Reference Group on Estimates, Models and Projections to support national estimates and projections.

²Refers to people who inject psychoactive substances, primarily opioids, but also amphetamine-type stimulants, cocaine, hypno-sedatives and hallucinogens, for non-medical purposes. Injection may be through intravenous, intramuscular, subcutaneous or other injectable routes.

³Refers to programs in which clean needle and syringes, and other injecting-related paraphernalia are provided to people who inject drugs free of charge.

studied models. Peer-review literature from the mid-1980s includes a large number of studies that noted a positive effect of NSP on reducing HIV risks from injections, thereby increasing safe injections (Abdul-Quader et al., 2013; Degenhardt et al., 2010; Des Jarlais et al., 2007; Palmateer et al., 2010).

The Kyrgyz Republic has supported implementation of various distribution points for clean needles and syringes through NSPs since 1999. In 2014, there were 40 needle and syringe distribution points in the country (MOH, 2014). Ten thousand PWID (39% of the estimated total number of PWID in the Kyrgyz Republic) received clean needles and syringes from these NSP at least once during 2013 (UNDP, 2013). According to the national Integrated Bio-Behavioral Surveillance (IBBS) of HIV conducted in 2013, 29.4% of the 904 PWID included in the survey reported having been reached at least once during the period of July 1, 2012-June 30, 2013 with a minimal package of prevention services that included distribution of clean needles and syringes, condoms and education on their use, and other informational materials. In addition, 33.5% of the interviewed PWID reported being tested for HIV in the last six months and were aware of their test results, whether positive and negative (RAC, 2014).

Although the Kyrgyz Republic has implemented NSP in a range of Global Fund for AIDS, Tuberculosis, and Malaria (GFATM)-supported settings, systematic efforts to track PWID from NSPs through the cascade of services are lacking. Furthermore, the NSP programs have never been externally evaluated for their quality and cost-effectiveness. Factors related to quality, such as information about the scope of NSP implementation in the Kyrgyz Republic, gaps in NSP service delivery, capacity building and funding needs, obstacles and factors that affect PWID uptake and coverage with NSP services, are not readily available.

Rationale

Since 2010, ICAP at Mailman School of Public Health at Columbia University (ICAP) has been funded by the President's Emergency Plan for AIDS Relief (PEPFAR) through the CDC to provide tailored technical support to the Ministry of Health of the Kyrgyz Republic to improve the quality of the national HIV program, with a primary focus on key populations, particularly PWID. During 2011-2014, ICAP completed assessments of the HIV care and treatment system, national opioid substitution/maintenance program (OST) program, and the national HIV monitoring and evaluation (M&E) system. Results of these assessments contributed to the development and implementation of nationwide, tailored quality improvement plans for adult HIV care and treatment services, OST programs, and the national HIV M&E system. Considering that NSPs are one of three core interventions of a comprehensive HIV prevention program for PWID (the others being OST and antiretroviral therapy), the Ministry of Health of the Kyrgyz Republic identified the need to conduct a comprehensive assessment of the NSP in the Kyrgyz Republic.

At the International AIDS Conference held in Washington, DC in July 2012, Secretary Hillary Rodham Clinton announced an investment of \$15 million to support Key Populations Implementation Science (KPIS) as part of the PEPFAR program. These funds were meant to support implementation science projects focused on providing knowledge necessary to implement the most effective HIV services for key populations. In the cascade of services described in the KPIS announcement as 'reach-test-treat-retain', community-level interventions were identified as key to facilitating PWID uptake and use of a range of services, starting with voluntary HIV testing and facility-based continuum of care services for HIV-positive PWID.

Community-based prevention core interventions such as NSP serve as a critical link between PWID and their access to additional services along the prevention-treatment continuum. These services can include but are not limited to linking and referring PWID to a cascade of services –HIV testing and counseling, OST, and antiretroviral therapy (ART). NSP are referred to as part of

the HIV prevention and care continuum for PWID to access a range of prevention, care and treatment services. The idea of the comprehensive assessment of needle-syringe programs in the Kyrgyz Republic was supported by the KPIS initiative. Data collected as part of the ICAP-led comprehensive assessment of needle-syringe programs in the Kyrgyz Republic were used for the secondary analysis within this study.

Purpose and Aims

The purpose of this study was to generate evidence that will support the Ministry of Health of the Kyrgyz Republic and local service providers in making decisions to improve implementation of the needle-syringe program in the Kyrgyz Republic. The specific research aims were:

- 1) Describe the national needle and syringe program in the Kyrgyz Republic and assess the extent to which it adheres to international standards on the National policy and legislation related to NSP and NSP service delivery quality specified by WHO, UNODC and UNAIDS.
- 2) Compare effectiveness of three NSP service delivery modalities (NGO-based, government medical facility based and pharmacy based) in the Kyrgyz Republic in:
 - a) reaching, engaging and providing PWID with the means to reduce HIV risks related to injecting and sexual behaviors;
 - b) ensuring regular HIV testing and counseling of PWID;
 - c) linking and referring PWID to STI, OST and ART programs.
- 3) Identify barriers and facilitators that affect PWID uptake of NSP services.
- 4) Develop recommendations for a plan for change that, if implemented, would increase the number of PWID who successfully access NSP in the Kyrgyz Republic.

CHAPTER II: LITERATURE REVIEW

The key objective of the literature review was to summarize information about existing international guidance and recommendations on NSP delivery, comparative effectiveness of different modes of NSP delivery in achieving better uptake and access of PWID to the HIV prevention, care and treatment continuum of services, as well as potential barriers and mediators that could affect access to NSP in the Kyrgyz Republic and around the world. Specifically, the literature review was used to answer the following questions about the NSP in the Kyrgyz Republic and around the world:

- What program elements influence NSP effectiveness in reducing risky injecting practices?
- What is the impact of different NSP modalities on access and coverage of PWID with HIV continuum of care?
- What are known barriers that affect PWID uptake of NSP services?

Description of an Effective NSP

The need for NSPs, their role in a comprehensive response to HIV among PWID and evidence for their effectiveness in reducing risky behaviors that lead to HIV infection can be found in many documents developed over the past decade by the UN and other organizations (CDC, 2012; Degenhardt et al., 2010; Tilson et al., 2007; WHO, 2007, 2014a). The quality of NSP implementation at service level has a direct impact on its impact on the HIV epidemic (Medlin, Balkus, & Padian, 2008). In 2007, WHO released a Guide to Starting and Managing NSPs that listed the following key elements that distinguish effective NSP: ensure broad coverage; conduct careful assessments of client needs; facilitate community mobilization and involvement; provide comprehensive range of easy to access services that include different models of NSP delivery, referrals to OST, voluntary HIV

testing, diagnosing and treatment of STIs and HIV management including ART; provide range of commodities tailored for local needs; involve sexual partners as an effective approach to promote sexual and drug HIV risk reduction among PWID (El-Bassel, Shaw, Dasgupta, & Strathdee, 2014); implement effective monitoring and evaluation system; provide community-based outreach services; ensure that all clients are treated with dignity and sensitivity for cultural and gender-based differences; use all opportunities to educate PWID about their risks; operate in an enabling environment; and is financially sustainable (WHO, 2007). This list was drawn mainly from 2005 'WHO Policy and programming guide for HIV/AIDS prevention and care among injecting drug users' and was prepared using information from key informants' interviews, literature review and examples of existing protocols and standards in use at that time. The idea behind this list was to switch the focus from only measuring and quantifying what has been implemented (outputs, for example: the number of syringes distributed) to understanding implementation processes that are linked to improved outcomes and impact (Medlin et al., 2008). In 2014, WHO used the mentioned above list of key elements that distinguish effective NSP to develop Consolidated guidelines on HIV prevention, diagnosis, treatment and care for key populations (WHO, 2014a). These guidelines bring together all existing guidance relevant to HIV interventions in key populations and serve as internationally accepted normative guidance for HIV programs among PWID, including NSP quality standards.

The importance of coverage is emphasized in the Universal Access approach adopted by WHO, UNAIDS and its other partner organizations. A wide range of definitions is used in the existing literature about coverage of interventions among PWID (Sharma, Burrows, & Bluthenthal, 2007). The definition of coverage often implies the number of PWID provided with NSP services and intensity of contacts between PWID and NSP, including the frequency and regularity of contacts and the number of services provided to each client. Earlier research had mixed conclusions about the relations between the regularity of NSP contacts and needle sharing behavior. Thus, a study

from Amsterdam showed that that regular clients of the syringe exchange, when compared with other injecting drug users, were less often than other users to share injecting equipment, but this difference was not statistically significant (Hartgers, van Ameijden, van den Hoek, & Coutinho, 1992). At the same time, a Monte Carlo simulation study showed that the increased frequency of NSP attendance had the largest impact on elimination of needle sharing behaviors (Raboud, Boily, Rajeswaran, O'Shaughnessy, & Schechter, 2003). This led to more discussions and research about the definition of coverage, which, if reached, could lead to substantial decreases in HIV prevalence. A modeling study by Vickerman et al. suggested that the threshold coverage largely depends on the frequency that PWID inject and (safely) reuse their syringes, and corresponds to less than four syringe-sharing events per PWID per month (Vickerman, Hickman, Rhodes, & Watts, 2006). WHO, UNODC, UNAIDS defines the coverage as the percentage of the estimated number of PWID who were reached by NSP at least once per month over the specified period and recommends that programs target to regularly reach at least 60% of the estimated number of PWID (WHO, 2012). This target was based on a retrospective analysis of coverage required to reverse HIV epidemics in high-income (Hyshka, Strathdee, Wood, & Kerr, 2012) and middle and low-income countries (Des Jarlais, Feelemyer, Modi, Abdul-Quader, & Hagan, 2013) and is accepted as the globally recommended threshold for effective NSP coverage.

Coverage depends on geographical availability of services. WHO Technical Guidelines recommend that NSP are present in at least 80% of all sites where injecting drug use occurs (WHO, 2014a). Research from other settings has showed that PWID who reside in close proximity to NSPs are more likely to consistently access services and are less likely to share injection equipment (S. Allen, Ruiz, & O'Rourke, 2015; Bruneau, Daniel, Kestens, Zang, & Genereux, 2008; Hutchinson, Taylor, Goldberg, & Gruer, 2000).

The levels of syringe distribution per each PWID per year also relate to coverage and has its impact on HIV transmission. Several studies showed that NSPs need to distribute on average 200

needles-syringes per PWID per year in order to be effective in decreasing HIV incidence (Abdul-Quader et al., 2013; Des Jarlais et al., 2013; Vickerman et al., 2006). This target was further accepted as the globally recommended standard for NSPs (WHO, 2012).

Not only the quantity, but also the type of syringes distributed to PWID is important to control the epidemic. Changing distribution from high dead space to low dead space syringes among PWID can reverse HIV epidemics (Vickerman, Martin, & Hickman, 2013; Zule, 2012; Zule, Desmond, & Neff, 2002). Thus, WHO recommends NSPs to provide syringes that retain on average 10 times less blood than conventional syringes (referred to as “low-dead space” syringes, or LDSS) (WHO, 2014a). This recommendation was made based on the results of laboratory experiments that simulated the process of injection and showed that high dead space syringes retained over 1000 times more blood than that retained by low dead space syringes (Bobashev & Zule, 2010) as well as the review of ecological data that showed relatively low HIV prevalence in cities where PWID predominantly used low dead space syringes (Vickerman et al., 2013; Walsh, Verster, Rodolph, & Akl, 2014).

PWID are commonly discriminated, marginalized and have limited access to health services due to the illegality of drug use. Therefore, national laws and policies are critical enablers that influence effectiveness of HIV programs at different levels. WHO, UNODS and UNAIDS Technical Guide lists 18 standards and program features that need to be included into the national policy and legislation relating to NSP in order for the programs to be effective (WHO, 2012). This list has been developed through a process of consultations with international experts in the field and includes provisions on the legal status of NSP in the country, sustainability of its funding, involvement of community representatives and NSP clients in program planning, management and implementation, range of delivery models and client confidentiality issues.

Impact on Access and Coverage of PWID with HIV Continuum of Care

Distribution of needles and syringes is the primary role of NSP, however for many PWID needle and syringe distribution programs remain to be the first and sometimes the only point of contact to health care services, including substance use treatment and OST, diagnosing and treatment of sexually transmitted infections (STI) and HIV care and treatment (Cisneros, Douaihy, & Kirisci, 2009; M. M. Islam et al., 2013; Kidorf & King, 2008).

Continuum of HIV care for PWID includes timely and regular HIV testing and counseling (HTC), early enrollment in HIV care and initiation of ART for HIV-positive people and adherence to prescribed treatment regimen. Targeted periodic HTC and immediate ART combined with other interventions can improve the quality of life for PWID and lead to decreased HIV transmission (Kato et al., 2013). Although there is paucity of data on the efficacy of antiretroviral therapy (ART) for prevention in PWID, evidence from the general population shows that treating HIV-infected persons also significantly reduces their risk of transmitting the infection to sex partners who did not have the virus (Cohen et al., 2011; McNairy, Deryabina, Hoos, & El-Sadr, 2013). In addition, there is insufficient evidence that any single intervention is effective enough to guarantee HIV control but the aggregate effect of several interventions is suggested. Sterile needle and syringe availability has to be supported by a range of complementary measures, such as opioid maintenance therapy, ARV and effective HIV testing and counseling (Amundsen, 2006; Degenhardt et al., 2010).

The availability of published literature on the effectiveness of the needle and syringe programs to ensure better access of PWID to continuum of HIV care, including HIV testing and ART, was disappointing as only few studies reviewed discussed access of NSP clients to HIV testing and HIV care and treatment. A WHO review stated that there is reasonable evidence that NSP can increase recruitment into drug treatment and possibly also into primary health care (WHO, 2004). A study from Iran showed that outreach NSP model can be effective in increasing the rates of HIV

testing among PWID (Nazari et al., 2016). Training and active engagement of pharmacists in NSP activities was proven to be effective in increasing access of PWID to the healthcare system and HIV and STI testing and facilitating referrals of NSP clients to the methadone maintenance treatment program (Bonnet, 2006; Rudolph et al., 2010).

Comparative advantages of different NSP modalities were mixed and also not sufficiently discussed in the literature. Results of a systematic literature review that included evidence from two randomized controls trials to suggest that NSP setting does not affect injection risk behaviors (Jones, Pickering, Sumnall, McVeigh, & Bellis, 2010) as well as other studies showing that needle sharing depends on other factors, such as syringe supply and access, and PWID social network relationships ((Shaw, Shah, Jolly, & Wylie, 2007; Wood et al., 2002). A randomized controlled study in the US showed that PWID who attended a hospital-based NSP had improved access to health care services compared to those attending community-based NSPs (Masson et al., 2007). At the same time there was evidence that syringe distribution through vending machines or mobile exchange points are more effective approaches to reaching younger PWID and PWID with higher risks, who typically avoid NSPs and pharmacies (Jones et al., 2010; Kermode, Songput, Sono, Jamir, & Devine, 2012; McDonald, 2009; Obadia, Feroni, Perrin, Vlahov, & Moatti, 1999). A systematic review of three core reviews consisting of 43 primary studies from before 2007 conducted by Palmateer et al concluded that there is tentative evidence that pharmacy availability of sterile injecting equipment provides specific benefits in declining syringe sharing among PWID in addition to those derived from NSPs'. And while as mentioned above vending machines could be effective in reaching PWID, especially those who are younger, the study by Palmateer et al showed insufficient evidence of the effectiveness of vending machines in reducing injecting risk behaviors. Therefore, it is reasonable to state that pharmacy-based distribution, outreach services, including secondary exchange, and vending machines provide specific benefits in addition to those derived from fixed-NSPs and shall be considered as complementary to primary NSPs (Bryant et al., 2010; Irwin, Karchevsky, Heimer,

& Badrieva, 2006; M. Islam, Wodak, & Conigrave, 2008; Kral, Anderson, Flynn, & Bluthenthal, 2004; WHO, 2004). According to the report from one assessment of NSPs in Australia conducted by Health Outcomes International in 2007-2008 (*Communicable Disease Control Directorate (2008)*), the capacity of “stand-alone”/primary NSP to provide information, education and referral services is variable and highly depends on whether staff were trained to provide PWID-friendly services and the existing agreements between the NSP and local providers of health services.

Barriers that Affect PWID Uptake of NSP Services

Stigma, discrimination, and criminalization continue to pose significant barriers to HIV program access for PWID, in increasing access to healthcare (Ti & Kerr, 2013). Criminalization of possession of illicit substances and injecting equipment often forces PWID in many settings to hide their equipment and engage in unsafe injecting practices (Stoicescu, 2012) and was consistently reported as a common barrier to NSP utilization by several studies from around the world (Beletsky et al., 2014; Koo et al., 2015; Martinez et al., 2007; Rich, Strong, Towe, & McKenzie, 1999; Spicer et al., 2011; WHO, 2014a).

In many places, PWID also experience stigma and discrimination from healthcare workers, or receive services that are not delivered in a culturally sensitive and PWID-friendly way (Stoicescu, 2012). Even in countries with well-developed harm reduction policies and services, PWID are often reluctant to disclose their injecting and have limited access to health services due to the real perceived fear of stigma by health workers (M. M. Islam et al., 2013).

PWID have been reported to have heightened sensitivity to discrimination and notions of identity and legitimacy are inextricably bound with the stigmatization of drug use, shaping PWID experiences and trust in NSPs (Cattan, Bagnall, Akhionbare, & Burrell, 2009; Treloar, Rance, Yates, & Mao, 2015; Wilson, Brener, Mao, & Treloar, 2014). Lack of trust between clients and NSP staff that have no personal experience injecting drugs was reported as another significant obstacle for

the delivery of effective NSP services for people who inject drugs potentially leading to injecting risk practices (Wilson et al., 2014).

The literature search identified only one peer-reviewed publication with data from 2007 and 2008 that discussed multiple, interrelated access barriers that PWID face when trying to access different types of government and NGO-run HIV services including NSP and treatment and drugs treatment in the Kyrgyz Republic (Spicer et al., 2011). According to the study, barriers to accessing HIV services included: the interrelated problems of stigma and discrimination, compounded by poor levels of information about HIV/AIDS among PWID and society as a whole; the criminalization of drug use and discriminatory practices among law enforcement officers and service providers; and gaps in the regular supply of commodities. In the study, clients of HIV programs reported that client referrals were in practice inconsistently applied and frequently consisted of informal signposting rather than formalized referral across government and NGO providers.

Conclusion

The existing literature provides sufficient guidance on indicators that can be used to assess the overall quality of NSP implementation, including NSP related policy and legislation, as well as to compare effectiveness of different NSP modalities. Thus, key prerequisites of a successful NSP include:

Input

- The program has secured long-term funding
- The NSP implementation is supported by the national policy and legislation
- The NSP are present in at least 80% of all locations where drug injecting is known to occur.
- The NSP workforce is well trained and supervised

Process

- The program actively involves PWID in planning and delivery of NSP services
- The service regularly seeks anonymous feedback from clients
- The NSP is situated in a location known to be accessible to PWID
- The program employs a range of NSP service delivery models to maximize reach
- The NSP service maintains confidentiality
- The NSP service is low-threshold and does not require PWID to meet specific criteria
- The service provides a range of injecting equipment that is appropriate for local injecting practices and substances and includes low dead space syringes/needles.
- The program has no limits on the quantity of injecting equipment provided
- The NSP return of used injecting equipment is not a prerequisite for clients to receive new injecting equipment.
- The NSP services provide targeted information, education and communication, including prevention of HIV transmission during sex and overdose prevention and involves sex partners of PWID
- Formalized referral pathways between NSPs and other relevant service providers are established and NSP clients are referred to these services as appropriate

Output

- The NSP covers at least 60% of the estimated number of PWID in the catchment area with at least 200 needles/syringes and 100 condoms per PWID per year
- All NSP clients are tested for HIV
- All HIV-positive NSP clients are linked to HIV care and treatment programs

Comparative advantages of different NSP modalities were not sufficiently discussed in the literature. The overall conclusion from the literature review is that pharmacy-based distribution, outreach services, including secondary exchange, and vending machines provide certain specific

benefits in addition to those derived from fixed-NSPs and shall be considered as complementary to primary NSPs. The capacity of primary NSPs to provide information, education and referral services highly depends on whether staff were trained to provide PWID-friendly services and whether the NSP has formalized referral agreements with local providers of health services.

There were sufficient data about barriers that affect PWID access to NSP in different parts of the world. Key barriers include: criminalization of drug use and discriminatory practices by police, stigma and discrimination of PWID by healthcare workers, and lack of trust between PWID and NSP staff that had no personal experience injecting. However, there were no studies published that would describe or assess implementation of NSP programs in the Kyrgyz Republic, except for one study from almost 10 years ago that described barriers that PWID face when trying to access different types of government and NGO-run HIV services. The impact of NSP on access and coverage of PWID with HIV continuum of care is also not clear from the existing literature.

Considering this, there is a need to understand the potential impact of NSP on the ability of PWID to access HIV care, namely to undergo HIV testing and counseling, timely access to HIV care and treatment services, remain in HIV care, and adhere to ART. If found effective, these data on NSP impact on PWID access to HIV continuum of care can be used to advocate for broader availability of NSP, as well as to provide useful information for NSP managers to improve their programs and make them more effective in providing services to HIV-positive PWID.

HIV in Central Asia including in the Kyrgyz Republic is still primarily transmitted among people who inject drugs through sharing needles. Syringe distribution as an effective HIV prevention method is supported by a myriad of mainstream medical, scientific and government entities around the world and in the Kyrgyz Republic. A need exists in the literature to develop a complete understanding of the scope and effectiveness of needle and syringe programs in the Kyrgyz Republic. To ensure effectiveness of HIV prevention efforts, we need to significantly improve access of PWID to NSP services and other evidence-based effective HIV prevention

interventions, such as opioid substitution therapy and antiretroviral therapy. This would also require an understanding on how to utilize NSP not only to improve access of PWID to clean injecting equipment and basic HIV information, but also to facilitate their access HIV testing and treatment services.

CHAPTER III: METHODOLOGY

Study Design and Statistical Procedures

Summary Description

The study was conducted using a convergent parallel mixed methods study design (Creswell & Clark, 2011). The data were collected during July – November 2015 using the following data collection methodologies:

1. Review of relevant documents (NSP-related policies, other NSP-related program implementation and research reports and standard operating procedures);
2. Secondary analysis of data received during in-depth interviews with NSP program managers;
3. Secondary analysis of data received during focus-group discussions with PWID;
4. NSP programmatic data review.

As described earlier in the Introduction section above the purpose of this study was to generate evidence that will support the Ministry of Health of the Kyrgyz Republic and local service providers in making decisions to improve implementation of the needle-syringe program in the Kyrgyz Republic. The specific research aims were:

1. Describe the national needle and syringe program in the Kyrgyz Republic and assess the extent to which it adheres to international standards on the National policy and legislation related to NSP and NSP service delivery quality specified by WHO, UNODC and UNAIDS.
2. Compare effectiveness of three NSP service delivery modalities (NGO-based, government medical facility based and pharmacy based) in the Kyrgyz Republic in

reaching, engaging and providing PWID with the means to reduce HIV risks related to injecting and sexual behaviors; ensuring regular HIV testing and counseling of PWID; and linking and referring PWID to STI, OST and ART programs.

3. Identify barriers and facilitators that affect PWID uptake of NSP services.
4. Develop recommendations for a plan for change that, if implemented, would increase the number of PWID who successfully access NSP in the Kyrgyz Republic.

The use of mixed methods enabled me to adopt a pluralistic stance of gathering different types of data to best address four research aims listed above (Bamberger, Rugh, & Mabry, 2011). As one data source would have been insufficient to meet the research aims, qualitative and quantitative data were collected in the same phase to provide multiple perspectives and stance (unbiased NSP program statistics and qualitative data collected through interviews and focus group discussions). The use of mixed methods in this study was further justified by several reasons (Bryman, 2008), including:

1. Triangulation. This multi-pronged approach facilitated gathering of data from a variety of sources that were combined and triangulated to provide a truly comprehensive picture of NSP implementation in the country.
2. Offset: The use of mixed methods provided strengths that offset the individual weaknesses of qualitative and quantitative research. Thus, NSP program data review alone was unable to provide clarity about the context in which that data was collected. On the other hand, data from individual interviews and focus group discussions are usually prone to biases and is hard to generalize.
3. Process: Document reviews provided information on how systems and functions were expected to be in place. Data from in-depth interviews with NSP program managers contributed to understanding how the systems and functions are being implemented.

4. Different research aims: As shown above, this study included several different research aims that required the use of different data sources and methodologies.
5. Context: combination of methods was rationalized in terms of individual interviews and focus group discussions providing contextual understanding coupled with externally valid findings of program data and literature review.

Specifically, information received from the document review and in-depth interviews with key stakeholders and NSP program managers was used to address the first aim of the study and describe the existing NSP in the Kyrgyz Republic. NSP program data, data from the document review and information from the qualitative interviews and focus groups with PWID were used to compare effectiveness of three NSP types. Barriers and facilitators that affect PWID uptake of NSP services were assessed based on the information received from PWID during focus group discussions and in-depth interviews with NSP managers. Recommendations for a plan for change, that, if implemented would improve the quality of NSP implementation in the Kyrgyz Republic was developed based on the feedback received from key stakeholders, NSP managers and PWID who participated in the focus group discussions.

Study Settings

This study focused on facility and NGO-based fixed NSP sites, as well as pharmacy-based NSP located in the six largest purposefully sampled cities on the drug trafficking route in the south and north of the country (Bishkek city, Osh and Kara-Suu cities in Osh oblast, Kant, Kara-Balta and Sokoluk in Chui oblast). Because of logistical issues and a protracted process of entry approvals, NSPs located in penitentiary facilities were not included.

For the purpose of this study, a location was considered a “site” if the following conditions were met (adapted from WHO, UNODC, UNAIDS Technical Guide, 2012):

- ✓ It is a fixed site that has frequent (opened either daily or at least five days per week) and fixed hours of operation.

- ✓ Includes pharmacy sites providing needles and syringes at no cost to the client. Those that only sell needles and syringes were not included.

Across the three types of sites, a total of 19 NSP sites were assessed (Table 1). The three different types of NSP sites are NGO-based, government facility-based and pharmacy-based. Because all program data on pharmacy-based NSP were aggregated, all eight pharmacy-based NSP sites were included in the assessment, but considered as one site, thus resulting in a total of 12 NSP sites that were included in the assessment. The selected sites included all NSP sites located in Osh City (two sites) and Karasuu District in Osh Region (one site), as well as Kant City (one site), Kara-Balta City (two sites), and Sokuluk City (two sites) in Chui Region. In Bishkek, the assessment included one randomly selected site out of the two NGO-based sites, all seven sites that implemented pharmacy-based distribution of needles and syringes, and two sites randomly selected out of eight sites located at the Family Medicine Centers (FMC). Random sampling was performed using MS Excel.

Table 1. Study sites

City	Implementing/managing partner
NGO-based NSPs	
Bishkek	NGO “Aman plus”
Osh	NGO “Parents against drugs”
Karasuu	NGO “Parents against drugs”
Kara-Balta	NGO “Aman plus”
Kant	NGO “Anti-stigma”
Government facility-based NSPs	
Bishkek	FMC #3
Bishkek	FMC #8
Osh	Interoblast Narcology Center
Kara-Balta	Oblast FMC
Sokuluk	FMC Sokuluk
Sokuluk	Group of Family Physicians “Manas”
Pharmacy-based NSPs	
Bishkek & Kant	8 sites managed as NGO “Sotsium”

Data Collection Procedures

Document review

The document review aimed to obtain information on the following: policy and legal environments, geographical availability of NSP and the spectrum of services available, funding, human, material and information resources available and used for the program, sustainability of resources, systems for procurement and supply management, including stock-out management, monitoring and evaluation system, decision making schemes as they relate to design and implementation of NSP services, service coverage, available capacity building resources, linkages and collaboration between programs.

Compliance of the national NSP policy and legislation to international standards was assessed using the National Policy Checklist developed by WHO, UNODC and UNAIDS (WHO, 2014a). The policy checklist has been developed collaboratively by the UN agencies through a process of consultations with international experts in the field.

In-depth interviews with NSP program managers

The study included a secondary analysis of qualitative data collected by ICAP at Columbia University through in-depth interviews with NSP staff using an interview guide shown in Appendix 1. Specifically, I have used de-identified transcripts of individual interviews with all NSP managers working in NSP sites selected for the study. The decision to limit the analysis to NSP managers only was justified by the fact that NSP managers are usually the most experienced and knowledgeable of NSP implementation aspects among all NSP staff and are in a position to make changes and take actions. Re-analysis of data from interviews with NSP managers allowed me to collect more detailed information on the NSP processes, program quality, staffing, including training on HIV issues and risk reduction, monitoring of program activities, availability of on-site services, such as HIV rapid testing, ART counseling and adherence support, social support services, linkages with HIV and other health services, and existing challenges. The idea behind the secondary analysis of

interviews with NSP managers was to learn what they need to have and to know to improve implementation of their NSP programs (Patton, 2015).

Focus-group discussions with PWID (NSP users and non-NSP users)

The study included a secondary analysis of qualitative data collected by ICAP at Columbia University during focus-group discussions with PWID residing in study sites using focus group discussion guide (Appendix 2 &3). The study included transcripts from five focus groups, including focus groups conducted in two largest cities (Bishkek in the north and Osh in the south) and two regional centers (Tokmok in the north and Kara-Suu in the in south) with both clients of NSP and those who do not use NSP services and a separate focus group conducted with female only PWID in Bishkek, both clients of NSP and those who do not use NSP services. Data from the focus group discussions with PWID were used to identify and discuss key challenges to access NSP services and quality of services provided at different NSPs, and factors that could improve access to NSPs.

NSP programmatic data review

Data from the UNDP-supported Management Information System (MIS) used for monitoring of NSP activities were reviewed to collect data on demographics, utilization, coverage and quality. Complete de-identified datasets covering the period of January 1, 2014 – June 30, 2015 were used to assess NSP effectiveness in reaching, engaging and providing PWID with the means to reduce HIV risks related to injecting and sexual behaviors; ensuring regular HIV testing and counseling of PWID; and linking and referring PWID to OST programs, TB screening and treatment, and ART programs. A dataset covering the period of January 1, 2014 – December 31, 2014 was used to collect information for all the annual indicators, including number of needles/syringes and condoms distributed per PWID in the last 12 months and number of PWID who were reached by an NSP at least once in the 12 months. Coverage and referral indicators were calculated based on the dataset for the period January 1, 2015 – June 20, 2015. Technical capabilities of the MIS did not allow extracting annual indicators for the period July 1, 2014 – June 30, 2015. An MS Excel

summary table (Appendix 4) developed for this study was completed for each NSP visited by abstracting data from the site-level aggregated client database or program reports. For analysis, all Excel data were transferred to Stata SE13.

Description of the Sample

Document review

As part of this study I have reviewed all available relevant written documents, protocols, reports and standard operating procedures (SOPs) relating to provision of NSP including:

- ✓ National policies related to NSP implementation;
- ✓ NSP program implementation manuals and reports;
- ✓ NSP program monitoring reports and official statistical reports of the Ministry of Health and the GFATM
- ✓ National reports on the results of the national IBBS and PWID population size estimation.

In-depth interviews with NSP program managers

The study included 14 interviews: 11 interviews with all NSP site-level program managers working in selected NGO and facility-based sites, an NSP coordinator at the Republican Narcology Center and two managers responsible for the pharmacy-based NSP at NGO “Sotsium”.

Focus-group discussions with PWID (NSP users and non-NSP users)

The total number of focus group participants was 53, including 20 females (38%) and 33 males (62%), some of whom were NSP clients, while others were not. The latter PWID typically purchased needles and syringes from local pharmacies rather than obtain them free of charge at NSP sites and were invited to participate in the focus group discussion by local NGOs working with PWID. Most (58%) of focus group participants had been injecting drugs for more than 10 years (Table 2).

During the past two months, most (78%) of focus group participants used NSP services, while 22% did not use any NSP services in the past two months and only purchased needles and syringes from the local pharmacies. During the two months prior to the focus group discussion, most PWID, regardless of whether or not they were NSP clients, either got their syringes from the outreach worker (54%) and/or purchased them from the pharmacy (44%) (Table 3).

Table 2. Demographic and behavioral characteristics of focus group participants (N=53)

Characteristic	N	%
Gender		
Male	33	62
Female	20	38
Age		
≤25	2	4
26-35	15	28
36-45	29	55
>45	7	13
Number of years injecting drugs		
<1	2	4
1-5	13	24
6-10	8	15
>10	30	57

Table 3. Sources of clean needles/syringes during the past two months among the PWID who were focus group participants

	Number of responses from focus group participants	Percentage of the total number of focus group participants (%)
Received syringes from an NSP located at the family health center	5	9
Received syringes from an NSP located at the NGO	17	32
Received syringes free of charge in exchange for the voucher in the pharmacy	4	7
Received syringes from the outreach worker	29	54
Purchased clean syringes from the pharmacy	23	44

NSP programmatic data review

Also, this study included collection and analysis of data aggregated across all individual client records included in the MIS used for monitoring of NSP activities in the Kyrgyz Republic since 2007. The aggregated dataset used for program review included 8,554 records of clients reached during 2014, 7,249 records of clients reached during the first six months of 2015, and covered all clients that received NSP services during 2014 (Table 4). It is important to note that since any NSP client could have received NSP services at more than one location, especially in Bishkek, the total number of clients could include duplicated users.

Table 4. Number of individual client records aggregated by site for program data review, by site

City	Implementing/managing partner	Number NSP clients reported as reached at least once during Jan 1, 2014 – Dec 31, 2014	Number NSP clients reported as reached at least once during Jan 1, 2015 – Jun 30, 2015
NGO-based NSPs			
Bishkek	NGO “Aman plus”	615	710
Osh	NGO “Parents against drugs”	2689	2019
Karasuu	NGO “Parents against drugs”	692	404
Kara-Balta	NGO “Aman plus”	483	472
Kant	NGO “Anti-stigma”	926	945
Government facility-based NSPs			
Bishkek	FMC #3	595	681
Bishkek	FMC #8	622	483
Osh	Interoblast Narcology Center	249	249
Kara-Balta	Oblast FMC	231	216
Sokuluk	FMC Sokuluk	300	359
Sokuluk	Group of Family Physicians “Manas”	145	111
Pharmacy-based NSPs			
Bishkek & Kant	8 sites managed as NGO “Sotsium”	1007	600
TOTAL		8554	7249

Human Subjects Protection and Confidentiality

The dissertation proposal was reviewed and approved by the University of North Carolina's Institutional Review Board (IRB) and the IRB at the Ministry of Health of the Kyrgyz Republic.

No personal information from respondents that participated in the focus group discussions or individual interviews with NSP managers was collected as part of this study. For the secondary analysis the study used transcripts of fully de-identified audio records. Program data review included analysis of aggregated program reports.

All data were stored on a password-protected computer. Destruction of the data collected for this dissertation will be conducted in accordance of federal guidelines for the maintenance of federal records.

Data Analysis

As stated above information was collected from different sources using a mix of methods. Considering the convergent design of the study qualitative and quantitative data were analyzed independently and two strands were mixed when drawing conclusions during the overall interpretation of the study results. During the final merging steps of the analysis, results received using different methods were interpreted to understand to what extent and in what ways results collected using different methodologies converge, diverge from each other, relate to each other or combine to create a better understanding of each study finding. Specifically, information was triangulated to describe the extent to which the overall NSP in the Kyrgyz Republic corresponds with the international recommendations (WHO, 2007, 2014b) and to identify factors that improve uptake and access of NSP for PWID, as well as coverage of HIV prevention services (HIV testing, linkage to OST, TB and ART).

Statistical data analysis of the quantitative data collected during programmatic data review was conducted in Stata SE13. Descriptive statistics and stratified analysis were conducted for the overall study and by modality. NSPs included in the assessment were classified into groups to

perform a one-way ANOVA test. If there was a statistically significant difference between groups, as determined by a one-way ANOVA, a Tukey post-hoc test was performed.

For analysis, qualitative data from individual interviews and FGDs were grouped into meaningful patterns and/or themes through content and thematic analysis using NVivo®, a software for computer-assisted qualitative data analysis. In the content analysis the data were coded for certain words or content, then patterns were identified and interpreted. Words, phrases or sections of the key informant interviews were reviewed and labeled (either using words or symbols). After the data were coded, they were sorted by code to look for patterns. In the thematic analysis, data were grouped into themes. To better analyze and understand each theme I used a three-step approach “Describe, compare, relate” (Bazeley, 2009). Conclusions were verified and data from qualitative individual interviews and FGD were either linked with data from the document review and program data collected as a part of this study to allow for multidimensional descriptions and explanations of the observed phenomena or integrated with each other to produce a fuller picture of NSP in the Kyrgyz Republic (Mason, 2006).

To make sure intended users and key stakeholders were engaged in interpretation of results, and increase users understanding and buy-in (Patton, 2015) preliminary findings were discussed with the wide range of national and international partners working with PWID in the Kyrgyz Republic.

CHAPTER IV: RESULTS

Results are presented in three sections below, by study aims. The first section describes the national needle and syringe program in the Kyrgyz Republic and how its planning and implementation adheres to international recommended minimum standards. The second section compares effectiveness of different NSP modalities, including NGO-based NSPs, NSPs run by the government medical facilities and pharmacy-based NSPs. The third section explores barriers and facilitators that affect PWID uptake of NSP services.

Aim 1: Describe the existing NSP in the Kyrgyz Republic and assess the extent to which it adheres to international standards.

The Needle and Syringe Program has been implemented in the Kyrgyz Republic since 1999. The first two NSP sites were NGO-based and opened in Bishkek and Osh with support from the Soros Foundation and UNDP. In 2000, the Government of the Kyrgyz Republic approved the establishment of NSP sites in penitentiary facilities. Since 2009, NSPs have been established at government medical facilities, primarily the Family Medicine Centers, as well as at local AIDS Centers and a TB clinic in Bishkek. PWID-friendly pharmacy-services or distribution of clean needles and syringes through the network of commercial pharmacies began in 2009.

National Policy and Legislation Related to NSP and Its Compliance to the WHO, UNODC, UNAIDS Recommendations

Implementation of the NSP in the Kyrgyz Republic is supported by the national legislation (both at the policy and regulatory levels) and are no legal limits to the number of syringes that may be purchased over-the-counter at pharmacies. Specifically, several key policy documents include provisions related to implementation of NSPs in the Kyrgyz Republic, including:

- Law on HIV/AIDS in the Kyrgyz Republic from August 13, 2005, article 149
- Decree of the Government of the Kyrgyz Republic on Endorsement of Antinarcotic Program of the Government of the Kyrgyz Republic, dated January 27, 2014, № 54
- National HIV/AIDS Program for 2012-2016

Further, the Kyrgyz Republic is the only country in Central Asia that officially endorsed and implemented NSPs in the penitentiary system (Law on Penitentiary System Facilities from August 12, 2003, № 196). Although the existing legislation of the Kyrgyz Republic unambiguously supports NSPs as legal entities for the distribution of injecting equipment, several stakeholders noted that it would be more sustainable if the Antinarcotic Program of the Government of the Kyrgyz Republic, including the NSPs, were endorsed by a Law and not the Decree signed by the Prime-Minister, which can be subject to change with the change in Government (see comment).

“If we had a Law on harm reduction services, or on assistance for drug addiction that included harm reduction programs, then that Law would have to be implemented. The Government would then be required to provide these [NSP] services to people.... If new people will come to power, they can cross out these [NSP] costs, and we will not have any funds” – staff of an organization that works with PWID.

In addition to the policy documents, the Kyrgyz Republic also has a number of regulatory documents related to NSP implementation. Specifically, on January, 21, 2014, an interagency Order on “HIV Prevention in the State Bodies of Internal Affairs (police), Drug Control and Penitentiary System” was signed between the Ministry of Internal Affairs, the Ministry of Health, the State Service on Drug Control under the Government of the Kyrgyz Republic and the State Penitentiary Service under the Government of the Kyrgyz Republic. This Order includes detailed instruction on the prevention of HIV-infection in state bodies of internal affairs (police), drug control and penitentiary system that work with vulnerable groups and define the role of the HIV Committee that coordinates implementation of HIV prevention activities in penitentiaries, including NSP services in prisons, and other law enforcement structures.

Also, on January 29, 2009, the Ministry of Health approved the Order #15 on “Opening a

Needle and Syringe Exchange Program in Medical Facilities” that included as an appendix the “Standards of Harm Reduction Programs and Services for People Who Inject Drugs” (hereafter referred to as “NSP Standards”) that are considered as National Guidelines on NSP implementation. The NSP Standards serve as national guidelines on NSP implementation and provide detailed recommendations on NSP staffing, supply planning and management, record keeping and other operational aspects. NSP Standards are not endorsed by any policy or regulation and, as such, cannot be considered as mandatory for implementation. The National Standards were developed under the leadership of the Ministry of Health with active participation of various stakeholders, including NGO networks and international organizations. Most stakeholders interviewed during this assessment considered the NSP Standards as an important step for the effective implementation of the NSP in the Kyrgyz Republic.

In general, the existing NSP policy and legislation in the Kyrgyz Republic could facilitate the delivery and effectiveness of NSP interventions. However, it was lacking several key standards and program features recommended by the WHO, UNODC and UNAIDS (Table 5).

Table 5. Compliance of the National policy and legislation in the Kyrgyz Republic with the WHO, UNODC, UNAIDS recommendations on the National policy and legislation related to NSP

(4 – fully compliant; 2– partially compliant; 0– does not comply with the recommendations).

Recommendation	Status	Comment
Legislation specifically supports the distribution of injecting equipment through NSPs	4	The distribution and collection of injecting equipment and the operation of NSPs are authorized under the law as described in the text above. Legislation is not ambiguous on the legal status of NSP or on the distribution and collection of injecting equipment.
National police guidelines and policy specifically support the operation of NSPs	2	The existing Police guidelines do not explicitly stipulate that police activities do not deter or prevent PWID from accessing NSPs or from being in possession of new or used injecting equipment. Nevertheless, police routinely receive training and education relating to drug use, HIV and harm reduction principals and services.
Legislation supports the provision of NSP services in	4	The existing legislation supports NSP in prisons. The country implements distribution of clean

Recommendation	Status	Comment
closed settings		needles and syringes by prison health staff.
National policy stipulates PWID be actively involved in the planning and the delivery of NSP services	0	There are no references or recommendations in the existing NSP Standard for NSPs to ensure active involvement of PWID in the planning or delivery of NSP services.
National guidelines stipulate that NSP services regularly seek anonymous feedback from clients	0	National NSP guidelines do not include any provisions about mechanisms whereby clients can confidentially /anonymously provide feedback on the service.
National guidelines outline training and supervision requirements for NSP workforce	4	The NSP Standards outline training and supervision requirements for the NSP workforce and recommend that medical facilities allocate sufficient funding for staff training and supervision. Staff members are required to be respectful towards PWID, have credibility with the target population and maintain a non-judgmental attitude towards drug users.
National guidelines stipulate that NSPs be located in areas known to be accessible to PWID	4	The NSP Standards also stipulate that NSPs be located in areas known to be accessible to PWID, located at an appropriate distance from police offices to improve acceptability by PWID.
National policy stipulates that NSPs maintain client confidentiality	4	NSPs are required to maintain client confidentiality and forego any requirement of PWID to provide identification or personal details in order to utilize services or obtain injecting equipment. According to the NSP Standards, client information shall not be shared with other services or law enforcement without client consent, unless required by law, for example, as part of a criminal investigation, and program data collection systems shall not contain any clients' personal or identifiable information.
National guidance outlines systems to prevent NSP commodity stock-outs	0	The NSP Standard does not discuss the need to implement a system to prevent commodity stock-outs.
National policy stipulates that NSP services are "low-threshold" and do not require PWID to meet specific criteria in order to access services or receive injecting equipment	4	The NSP Standards stipulate that NSP services are "low-threshold" and do not require PWID to meet specific criteria in order to access services or receive injecting equipment. Services do not restrict access on the basis of minimum age, proof of injecting status, proof of residence, gender, HIV status, citizenship status, residential status, incarceration or criminal history.
National guidelines stipulate that there be no limit on the quantity of injecting equipment provided	4	National NSP Standards also stipulate that there be no limit on the quantity of injecting equipment provided to individual clients. The Standards, however, provide the following recommendations on the optimal amount of supplies distributed to each PWID in order to ensure that PWID have the

Recommendation	Status	Comment
		means to use clean equipment during every instance of drug use: at least two needles/syringes per PWID day, or at least 730 syringes per PWID per year; at least two alcohol wipes per PWID per day, or at least 730 alcohol wipes per PWID per year. The guidelines limit the number of condoms distributed to each client to no more than 12 condoms per month or no more than 144 condoms per year.
National guidelines stipulate that the return of used injecting equipment is <i>not</i> a prerequisite for clients to receive new injecting equipment	2	The National NSP Standard does not specifically stipulate that the return of used injecting equipment as a prerequisite for clients to receive new injecting equipment, though NSPs are expected to ensure at least 20% return of used injecting equipment for fixed NSP sites and at least 50% for sites that have mobile units in addition to fixed sites.
National guidelines stipulate that NSPs provide targeted information, education and communication (IEC), including overdose prevention	2	The National Standards recommend that NSPs provide targeted information during mini-sessions to clients when they arrive at the NSP sites and other informational events with no specification on the topics of such mini-sessions.
National guidelines stipulates that NSPs provide a range of injecting equipment that is appropriate for local injecting practices and substances injected and that is acceptable to the target population	4	The National NSP Standard stipulates that NSPs provide a range of injecting equipment that is appropriate for local injecting practices and substances injected, and is acceptable to the target population.
National guidelines stipulate that formalized referral pathways between NSPs and other relevant service providers are established	2	Details on the provision of formalized referral pathways between NSPs and other relevant service providers are described in NSP Standards and the “Order of the Ministry of Health #206” from April 25, 2012. Referral services mentioned in the NSP Standards include: treatment for drug dependence and OST services; HIV, viral hepatitis B, and TB testing, and treatment and care; viral hepatitis vaccinations; and sexual health services (including STI testing and treatment).
National guidelines outlines monitoring and evaluation of NSP programs	2	The NSP Standard briefly outlines the need and suggested processes for monitoring and evaluation of NSPs. Specifically, the Standard requires all sites to record clients’ unique identifier code (UIC) and ensure proper entry of data into a list of program specific registers (clients register, supply management register, referrals register, etc.).

Quality of NSP Service delivery and Its Compliance to the WHO, UNODC, UNAIDS Recommendations

As discussed in the Literature review above, in 2014 WHO presented a list of quality standards that are explicitly linked to reduction of risky behaviors among PWID and decreased HIV incidence. Adherence of NSP program implementation in the Kyrgyz Republic to these internationally recommended quality standards at the service level is provided below and is summarized in the Table 7 below.

Standard 1: Long-term funding has been secured to ensure sustainability

As mentioned above, the initial funding for the opening of the first NSP sites in the Kyrgyz Republic was provided by the Soros Foundation. From 2002-2004, the program was cost-shared between the Soros Foundation and the first GFATM-funded HIV project in the country. Starting in 2004 and to date, most NSP funding, including procurement of supplies, is provided by the GFATM. In 2003-2004, municipalities of Osh Oblast and Bishkek allocated some of their own health care budgets for NSP implementation, which was an important step to demonstrate political commitment of the local governments to support NSPs. Until 2016, Bishkek municipality continued to allocate 400,000 soms (approximately USD \$5,700) annually for procurement of clean needles and syringes for NSP implementation. In February 2015, the Ministry of Health initiated the development of the multi-sectoral technical working group (TWG) to discuss the expansion of state funding for HIV prevention activities, including NSPs. The TWG developed a proposal to shift NSP funding to the national budget that is currently being considered by the Government. According to the 2014 Kyrgyzstan Country Report on Progress in Implementing the Global Response to HIV, the total recorded cost of NSPs in 2013 was USD \$1,275,822, which represents approximately 0.3% of the overall health expenditures for the same year. According to the developed proposal, in 2016, the Government is considering allocation of 20 million soms (approximately USD \$282,000) for HIV prevention programs, including two million soms (approximately USD \$28,000) for the procurement of clean needles and syringes for NSPs.

Adherence Status to Standard 1: Not compliant.

Standard 2: The program employs a range of NSP service delivery models to maximize reach

The Kyrgyz Republic employed a range of NSP service delivery models, including NSPs based in Family Medicine Centers⁴ (FMC), community-level NSP sites run by local NGOs, NSP sites located in penitentiary facilities and NSP sites managed by an NGO, but located in local pharmacies. NSPs located in FMC and NGOs also provided outreach services (distribution of clean needles and syringes in the community). For the pharmacy-based distribution, vouchers were distributed to PWID by outreach workers employed by an NGO “Sotsium”; these vouchers were then redeemed by PWID at participating private pharmacies in exchange for clean needles and syringes. As of October 1, 2015 there were 45 NSP sites, including 12 located at government medical facilities, ten managed by local NGOs, eight implemented by a local NGO through the network of participating pharmacies, and 15 sites located within the correctional system (prisons and jails). A majority (73%) of all syringe distribution during the first six months of 2015 was implemented by NGO-based NSPs (Table 6).

Table 6. NSPs in the Kyrgyz Republic by proportion of needle and syringe (N&S) distribution (Source: UNDP/GFATM PIU 2016)

NSP type	Number of outlets/site type	Percentage of N&S distribution (%)	Number of N&S distributed during Jan-Jun 2015
NGO-based	6	73	2,306,679
Facility-based	13	22	691,491
Pharmacy-based	8	1	27,735
Penitentiary -based	15	4	112,624
Total	42	100	3,138,529

At the time of the assessment, there were no mobile services or automated vending machines dispensing injecting equipment, and all of the services were provided either through

⁴Family Medicine Centers (FMC) are the government’s primary health care facilities that provide a wide range of medical services to the population residing in catchments areas.

fixed sites or outreach workers.

In addition to NSP sites where clean injecting equipment was available for free, all regions (*oblasts*) and districts (*rayons*) had pharmacies (mostly privately-owned), where needles and syringes were available for purchase.

Adherence Status got Standard 2: Partially compliant.

Standard 3: The NSP workforce has received appropriate training and is supervised

NSP staff included paid staff, paid outreach workers, and PWID volunteers. Minimal requirements for NSP staffing are described in the NSP Standards. According to the Standards, the number of staff depends on the size of the NSP catchment area and NSP coverage in terms of the number of clients. As such, one full-time nurse was recommended for each site that covers between 500-1000 PWID and one outreach worker was recommended for every 50 PWID. Additionally, for NGO-based NSPs, a site manager or coordinator position was also recommended.

The number of paid staff at NSPs assessed varied from four to 18. NSP managers or assistants (mainly nurses) were responsible for daily management of NSP operations, including recruitment and training of outreach workers, supply management and reporting of NSP data to donor organizations. All NSP managers said they received special trainings on PWID-friendly services and NSP management, either funded by GFATM/UNDP or PEPFAR/USAID. Most NSP manager interviewed said they did not have sufficient knowledge and skills to provide HIV care and treatment adherence support to HIV positive clients. Many of them also expressed the need for more trainings for NSP staff and outreach workers on working with sex partners of PWID and couple-based counseling.

Each NSP had a team of three to five outreach workers. Most NSP teams, although not all, included both males and females of different ages and ethnic backgrounds. All outreach workers either had personal experience injecting drugs or had close relatives who inject drugs. Most clients contacted NSPs through outreach workers, who distributed clean needles and syringes or vouchers

for these supplies in the case of pharmacy-based NSPs. Outreach workers were also responsible for collection of used equipment. NSP managers preferred working with outreach workers who were not PWID, as based on their experiences, PWID volunteers were more difficult to monitor and supervise in terms of adherence with the required document completion. Many NSP managers also voiced concerns about high rates of turnover among outreach workers, especially those who were PWID, requiring continuous training of newly recruited outreach workers. Active injecting drug use, low salaries and limited transportation compensation were reported by managers and outreach workers as key reasons for outreach worker attrition at NSPs. NSP sites also had one to two volunteers that worked primarily with outreach workers to supplement distribution and pick-up of needles and syringes to be distributed to other PWID (secondary distribution).

Adherence Status to Standard 3: Partially compliant.

Standard 4: NSPs are located in at least 80% of all cities and regions where PWID are present and are accessible to PWID

The total number of NSPs operating in the country during the past several years varied depending on the availability of funding. At the time of the assessment NSP located outside of prisons were available in three out of seven regions of the Kyrgyzstan Republic. Most NSPs (25 out of 45) were concentrated in the Chui Region and Bishkek City, areas with highest prevalence of drug use according to the latest UNDP/GFATM-funded PWID size estimation survey conducted by the Center for Healthcare Policy Analysis in 2014 (CHPA, 2014). Jalalabad Region, which is also known for high rates of injection drug use, with an estimated 650 PWID residing in the region (CHPA 2014) and is located on drug trafficking routes, at the time of the assessment had no functioning NSPs. During the assessment, there were also no NSPs noted in Talas, Batken and Naryn Regions which are believed to have very low injecting drug use prevalence, but lack clear evidence to support this perception. Considering the above, the access of PWID to NSP in the Kyrgyz Republic was low, as only 55% of regions had at least one NSP.

The minimum requirements for NSP location and working hours were described in the NSP Standards. Based on information from NSP managers, NSPs were not always located close to areas that were reported to have a high prevalence of drug use. This was especially true for facility-based NSPs given that, by definition, these were located within fixed health facilities. Nevertheless, most focus group participants reported NSP locations as being easily accessible.

Hours of operation for most facility and NGO-based NSPs were from 9 am – 6 pm on working days only, though some were open from 8 am - 4 pm and were opened on Saturdays. Pharmacy-based NSPs were open 24/7. Most PWID that participated in the focus group discussions found NSP hours of operation to be appropriate.

Adherence Status got Standard 4: Partially compliant.

Standard 5: The program actively involves PWID in planning and delivery of NSP services and regularly seeks anonymous feedback from clients

NGOs working with PWID are regularly consulted by the GFATM Project Implementation Unit at UNDP and the National Coordination Committee to determine the most appropriate and acceptable equipment for inclusion in GFATM proposals and procurement plans. PWID are routinely involved in NSP implementation as outreach workers and volunteers.

The anonymous feedback from clients on the quality and the range of supplies provided to them is mainly collected through outreach workers on an ad hoc basis and is not routinely documented or systematically analyzed.

Adherence Status to Standard 5: Partially compliant.

Standard 6: The NSP service is low-threshold and maintains confidentiality

NSP did not collect or record any personal information from their clients. Unique identified codes (UIC) consisting of the first two letters of clients' mother's and father's name, gender and the last two digits of year of birth were used to document PWID contacts with the program. PWID are never required to provide any personal information in order to receive services. PWID can be refused access to services only in the case of drug use at the site or violent behavior.

Adherence Status to Standard 6: Fully compliant.

Standard 7: The service provides a range of injecting equipment that is appropriate for local injecting practices and substances and includes low dead space syringes/needles.

According to NSP managers, all NSPs assessed provided a range of needles and syringes to PWID. National NSP Standard of the Kyrgyz Republic requires prioritizing procurement of single-unit low dead-space syringes. Recommendations on Universal Access of PWID to HIV prevention, care and treatment services approved by the Ministry of Health (order №532 from September 22, 2014) of the Kyrgyz Republic also included a recommendation for NSP to provide different size low dead-space syringes with detachable needles. The NSP included in the study had LDSS with attached needles (1ml single-unit insulin syringes) and detached high dead space syringes (HDSS) disposable needles and syringes. LDSS with detachable needles were not available. Based on PWID and NSP staff feedback, 2 ml and 5 ml syringes are the most commonly used syringe by PWID. Additionally, 10 ml syringes are in high demand, especially by those that use ephedrine and “hanka”⁵ as opposed to heroin. Separate needles from 1ml insulin syringes were also in high demand, especially by people that have damaged or collapsed veins and need to inject into smaller vessels or women who are trying to have less visible injection marks.

According to the focus group participants and NSP managers, most clients considered the range of injecting equipment provided by NSPs as fully appropriate for their injecting practices. NSP staff and PWID who participated in the focus groups also expressed satisfaction with the range of supplies available at NSPs. The only recommendation from both the clients and the NSP staff was to increase the number of alcohol wipes from one to three per each needle/syringe and provide separate small bore (“insulin”) needles.

In addition to needles and syringes, NSP sites provided male condoms and injecting-related paraphernalia, including alcohol wipes, tourniquets, single use acid sachets and naloxone. Alcohol

⁵Home-made poppy straw preparation/extract

wipes were in high demand among all PWID, according to the focus group participants and NSP staff. Condoms were mentioned by female PWID as an important commodity distributed by NSP. Naloxone is also in high demand, especially among outreach workers, who often serve as the first aid service for people that have overdosed. None of the sites assessed provided female condoms, filters, sterile water for injections or steel spoons to their clients.

Adherence Status to Standard 7: Partially compliant.

Standard 8: There are no limits on the quantity of injecting equipment provided and return of used injecting equipment is not a prerequisite for clients to receive new injecting equipment.

As per the national NSP Standards, there were no limits on the quantity of needles and syringes provided to one PWID. However, recommendations on the optimal amount of supplies distributed to each PWID from the national NSP Standards described above were sometimes interpreted by NSP staff as upper limits and PWID were only able to receive up to two needles/syringes per PWID day. The return of used injecting equipment was often a prerequisite for clients to receive new injecting equipment and outreach workers were expected to ensure that their clients return at least 50% of the distributed needles/syringes.

Adherence Status to Standard 8: Partially compliant.

Standard 9: The NSP services provide targeted information, education and communication (EIC), including prevention of HIV transmission during sex and overdose prevention

The range of EIC materials available at NSP sites was limited; many sites did not receive any EIC materials during the past 12 months and only had few brochures left to distribute to clients. Non-injecting sex partners of PWID were rarely involved in NSP activities.

Adherence Status to Standard 9: Partially compliant.

Standard 10: Formalized referral pathways between NSPs and other relevant service providers are established and NSP clients are referred to these services as appropriate

Only one NGO-based NSP site had formalized referral pathways (signed site-level Memorandums of Understandings or Referral Agreements) with local FMC to provide HIV testing

and TB and STI screening, testing and treatment services. Most FMC-based NSPs did not have any formal arrangements for their clients to receive different health services at the facilities. Most NSPs depended on informal and personal arrangements with managers or clinical staff of different health facilities. The existing referrals were poorly documented (please see more details under Aim 2 below).

Adherence Status to Standard 10: Not compliant.

Standard 11: The NSP program implementation includes routine monitoring, evaluation and quality assurance

UNDP as the prime recipient of the GFATM-HIV grant was responsible for NSP monitoring using the list of project-specific indicators approved as part of the country HIV proposal to the GFATM and described in the project M&E Plan. All NSPs were monitored on quarterly basis by staff from the GFATM Project Implementation Unit (PIU) at UNDP using the GFATM-supported Management Information System (MIS) data and during scheduled site-monitoring visits. Upon the request from the GFATM, the Local Fund Agent – an organization that is contracted by the Global Fund to assess arrangements for implementation, and endorse requests for disbursements, also conducts annual on-site verification visits to check the accuracy of data reported to the GFATM. Implementation of the facility-based NSPs was additionally monitored by the Republican Narcology Center (RNC) as the sub-recipient of the GFATM grant. On a monthly basis, M&E specialists from the RNC reviewed data entered by staff of facility-based NSPs into the MIS and conducted quarterly on-site monitoring visits.

According to all stakeholders interviewed, M&E of NSP in the Kyrgyz Republic was one of the biggest weaknesses of the program. At the time of the assessment, a national comprehensive monitoring and evaluation plan to track coverage and outcomes of NSP service delivery was not available. National NSP coverage (number of PWID reached by HIV prevention activities), outcome (use of clean needles and syringes) and impact (HIV prevalence) were included in the National Plan to Monitor Implementation of the National HIV/AIDS Program from 2012-2016. Collection of data

on those indicators was done during the biannual integrated bio-behavioral surveillance surveys (IBBS) among PWID. In addition, the National Plan specifies that data collected using the MIS managed by GFATM could be used to verify indicators collected through the IBBS.

Based on the feedback received from the NSP staff and key stakeholders, the accuracy of information entered into the MIS from the standard client contact registration forms developed by GFATM and distributed to all NSP completed by the outreach workers was difficult to verify and required improvement. Unique identified code (UIC) that is assigned to each client and recorded into the MIS to track the client's interaction with the program can easily be changed by clients themselves or falsified by outreach workers to increase the reported number of clients served. The MIS does not allow tracking of duplicate clients that receive similar services in different NSPs.

Limited information exchange and data sharing between the Government structures mandated to coordinate HIV prevention activities among PWID, namely the Republican Narcology Center and the Republican AIDS Center and the NGOs working with PWID, was of concern to key stakeholders and was considered an obstacle to increasing effectiveness of NSP implementation and country ownership of the program.

Adherence Status to Standard 11: Partially compliant.

Table 7. Compliance of NSP implementation in the Kyrgyz Republic with the WHO, UNODC, UNAIDS recommendations on quality standards at the service level

(4 – fully compliant; 2– partially compliant; 0– does not comply with the recommendations).

Recommendation	Status	Comment
Long-term funding has been secured to ensure sustainability	0	As described above, NSP funding is primarily dependent on external aid through the GFATM-funded HIV project that is approved up to 2018.
The program employs a range of NSP service delivery models to maximize reach	2	As described above, there were facility-based NSPs health, community-level NSP sites run by local NGOs, NSP sites located in penitentiary facilities and NSP sites managed by an NGO, but located in local pharmacies. NSPs located in FMC and NGOs also provided outreach services. No mobile services or automated vending machines dispensing injecting equipment.
The NSP workforce has received appropriate training and is supervised	4	NSP staff, including outreach workers are routinely trained in different topics.
NSPs are located in at least 80% of all cities and regions where PWID are present and are accessible to PWID	2	As described above, NSPs were not always located close to areas that were reported to have a high prevalence of drug use, however most PWID considered them as accessible.
The program actively involves PWID in planning and delivery of NSP services and regularly seeks anonymous feedback from clients	2	NGOs working with PWID are regularly to determine the most appropriate and acceptable equipment for inclusion in procurement plans. PWID are routinely involved in NSP implementation as outreach workers and volunteers. The anonymous feedback from clients on the quality and the range of supplies provided to them is not routinely collected or systematically analyzed.
The NSP service is low-threshold and maintains confidentiality	4	NSP did not collect or record any personal information from their clients. PWID are not required to provide any personal information in order to receive services. PWID can be refused access to services only in the case of drug use at the site or violent behavior.
The service provides a range of injecting equipment that is appropriate for local injecting practices and substances and	2	NSPs provided a range of syringes/needles, including LDSS with attached needles (1ml single-unit insulin syringes) and high dead space syringes (HDSS) disposable syringes (2ml, 5ml and 10ml)

Recommendation	Status	Comment
includes low dead space syringes/needles.		with detachable needles, male condoms, alcohol wipes and naloxone. Few provided tourniquets. Most clients considered the range of injecting equipment provided by NSPs as fully appropriate for their injecting practices. NSP included in the study had LDSS with detachable needles were not available. NSP had no female condoms, filters, sterile water for injections or steel spoons to their clients.
There are no limits on the quantity of injecting equipment provided and return of used injecting equipment is not a prerequisite for clients to receive new injecting equipment	2	Recommendations on the optimal amount of supplies distributed to each PWID from the national NSP Standards were sometimes interpreted by NSP staff as upper limits and PWID were only able to receive up to two needles/ syringes per PWID day. The return of used injecting equipment was often a prerequisite for clients to receive new injecting equipment and outreach workers were expected to ensure that their clients return at least 50% of the distributed needles/syringes.
The NSP services provide targeted information, education and communication, including prevention of HIV transmission during sex and overdose prevention	2	The range of EIC materials available at NSP sites was limited; many sites did not receive any EIC materials during the past 12 months and only had few brochures left to distribute to clients. Non-injecting sex partners of PWID were rarely involved in NSP activities.
Formalized referral pathways between NSPs and other relevant service providers are established and NSP clients are referred to these services as appropriate	0	Most NSPs depended on informal and personal arrangements with managers or clinical staff of different health facilities. Referrals were poorly documented.
The NSP program implementation includes routine monitoring, evaluation and quality assurance	2	Routine monitoring is implemented by UNDP. No National M&E for NSP implementation.

Aim 2: Compare effectiveness of three NSP service delivery modalities (NGO-based, government medical facility based and pharmacy based) in the Kyrgyz Republic

Success of the three NSP delivery modalities (NGO-based, medical facility-based and pharmacy-based) in reaching specific short-term outcomes was compared during this study using the existing data routinely collected and stored in the GFATM-managed MIS database (see table 8 for a short summary). The short-term outcomes compared across modalities were as follows:

1. reaching, engaging and providing PWID with the means to reduce HIV risks related to injecting and sexual behaviors;
2. ensuring regular HIV testing and counseling of PWID;
3. linking and referring PWID to OST programs, TB screening and treatment, and antiretroviral therapy (ART) programs.

Reaching, engaging and providing reached PWID with the means to reduce HIV risk related to injecting and sexual behaviors.

According to the NSP managers and participants of the focus group discussions conducted with PWID, provision of clean needles and syringes is the most useful service that NSPs, across all three modalities, although most PWID often purchase their syringes at local pharmacies. PWID population size estimates were not available for individual sites in the Kyrgyz Republic, therefore this assessment was not able to collect necessary data and draw any definitive conclusions about the coverage of PWID in a particular geographical area by a particular type of NSP. Overall, the coverage level equal to 45% of the estimated population of PWID reported by UNDP during the first six months of 2015 on its own was not sufficient to achieve significant decrease in HIV infections.

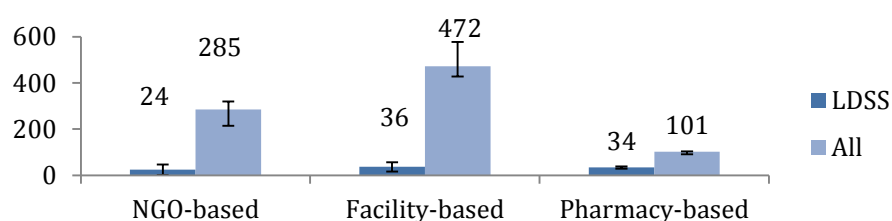
Number of needles/syringes distributed per PWID in the last 12 months.

According to the international guidelines this indicator should be measured as the number of needles and syringes distributed per PWID out of the total estimated number of PWID in the catchment area. PWID population size estimation data was not available for the catchment areas of different NSP types or individual NSPs, therefore this indicator was measured as the number of

syringes/needles distributed per one client. According to UNDP data all NSPs distributed 5,021,630 clean needles and syringes to the estimated 25,500 PWID during 2014, which provides an average of 201 syringes per PWID per year.

The total number of needles/syringes distributed by different NSPs included in this study during 12 months (from January 1, 2014 to December 31, 2014) ranged from 85 to 581, with a median of 214 needles/syringes per PWID per 12 months for all the sites assessed (interquartile range (IQR): 100-437). On average, NGO-based NSPs distributed 285 (IQR: 214-320) needles/syringes, facility-based NSPs distributed the maximum, namely 472 (IQR: 427-578) needles/syringes, and pharmacy-based NGOs distributed the least, namely 102 (IQR: 91-103) needles/syringes (Figure 1). There was a statistically significant difference between groups in the mean number of needles and syringes distributed per PWID during 12 months ($p = 0.001$). The mean number of needles and syringes distributed during 12 months was statistically significantly higher among the NSPs located in government health facilities compared both to NSPs run by NGOs (186.4 ± 45.3 , $p = 0.002$) and NSPs operated through pharmacies (370.1 ± 40.4 , $p = 0.000$).

Figure 1. Mean number of needles/syringes and IQR (all and low dead space syringes (LDSS)) distributed per PWID during January 1, 2014 to December 31, 2014, by type of NSP



The number of low dead space syringes distributed to PWID was statistically significantly lower ($p = 0.000$) than the number of high dead space syringes distributed to PWID at all NSP modalities during the 12 months with no statistical differences between the modalities ($p=0.08$).

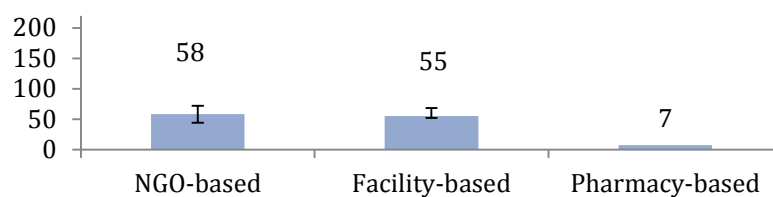
Both participants of the FGDs and NSP staff reported that often NSP clients collect syringes for other people that inject drugs, and that NSPs rarely collect information and document final

recipients of needles and syringes that they provided to secondary exchangers, a term used to describe PWID who collect clean injecting equipment from NSPs and redistribute them to other PWID, sometimes at a cost, also known as “role holders”.

Number of condoms distributed per PWID in the last 12 months.

The total number of condoms distributed per PWID by different NSPs during January 1, 2014 to December 31, 2014 ranged from 7 to 95, with the average of 52 condoms per PWID per year for all sites assessed (IQR: 44-71). On average, NGO-based NSPs distributed 58 condoms (IQR: 44-72), facility-based NSP distributed 55 condoms (IQR: 52-68) and pharmacy-based NGOs distributed 7 condoms per one PWID reached. There was no significant difference ($p=0.08$) in the number of condoms distributed to each PWID reached by NGO and facility-based NSPs. Pharmacy-based NSPs distributed significantly less condoms ($p=0.002$) (Figure 2).

Figure 2. Mean number of condoms and IQR distributed per PWID during January 1, 2014 to December 31, 2014, by type of NSP.



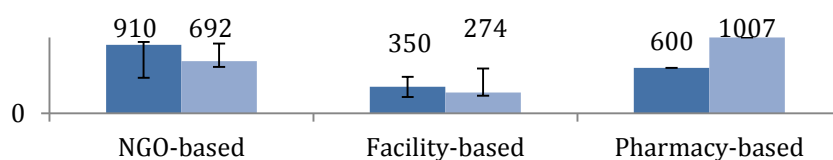
Number of PWID who were reached by an NSP at least once in the past 12 and six months.

It is estimated that there are 25,000 PWID in the Kyrgyz Republic (CHPA, 2014). According to the UNDP/GFATM progress report 11,405 PWID were reached at least once by NSP programs during the first six months of 2015, which represented 45% of the estimated number of PWID in the country.

During the 12 months of 2014 the assessed sites had from 145 to 2689 clients, with a median of 605 clients (IQR: 274-809). There was no statistically significant difference between the

mean number clients by NSP modality ($p=0.2$). During the first six months of 2015, the assessed sites had from 111 to 2019 clients, with a median of 477 clients (IQR: 304-695). There was no statistically significant difference between the mean number clients by NSP modality ($p=0.192$) (Figure 3). Males constituted 87% of all the clients and there was no statistically significant difference between the mean number of clients among male and female clients by NSP modality ($p=0.447$). Pharmacy-based NSP were reaching younger PWID compared to NGO and facility-based NSPs ($p=0.000$). Thus, people younger than were less than 25 years of age represented on average 50% (95%CI:42-57%) of all clients reached by pharmacy based NSP during 2014. The proportion of young PWID among clients of NGO and facility-based NSPs was 6% (95%CI: 3-9%) and 3% (95%CI: 0.1-6%) accordingly.

Figure 3. Mean number of PWID reached by an NSP at least once during January 1, 2014 – December 31, 2014 (in dark blue) and January 1, 2015 – June 30, 2015 (in light blue), by NSP type, with IQR.

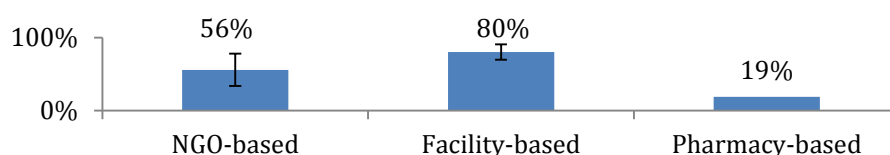


Percentage of PWID who were regularly (at least once per month) reached by an NSP over a six month period

The percentage of NSP clients who accessed an NSP on a regular basis (at least once per month during January 1, 2015 – June 30, 2015) out of those who used NSP services at least once during the same six months, ranged from 19% to 99%. On average, the percentage of regular clients was statistically higher among clients of facility-based NSPs compared to NGO-based NSPs ($p=0.045$) and pharmacy-based NSPs ($p=0.007$). Thus, regular clients comprised 56% (95%CI: 34-78%) of clients reached through NGO-based NSPs, 80% (95%CI: 69-91%) of clients reached through facility-based NSPs, and 19% of clients reached by pharmacy-based NSPs (Figure 4). There was no statistically significant difference between the proportion of regular clients among male and

female clients by NSP modality. A linear regression analysis did not establish any statistically significantly relationship between the overall number of clients served by an NSP site of any modality during the past six months and the regularity of contacts.

Figure 4. Percentage of NSP clients who were regularly reached by NSP over January 1, 2015 – June 30, 2015, by NSP type, with 95%CI.



Ensuring regular HIV testing and counseling of PWID.

Only a few of the NGO-based NSP sites (three out of 12 NSP sites) included in the assessment were offering HIV testing and counseling using HIV rapid tests, including one that used oral fluid-based testing. Two sites were providing HIV counseling services and collected blood that was then sent for HIV testing to the local AIDS Center. All sites reported referring patients for HIV testing to local health facilities and/or CDC-supported mobile HIV counseling and testing points (vans equipped with HIV rapid tests).

Percentage of eligible NSP clients tested by NSP on-site for HIV during the last six months.

As mentioned above, on-site HIV testing was reported by three NGO-based NSPs. In these three sites, only 7% of clients who received services during the past six months were reported as being tested for HIV using rapid HIV test kits.

Percentage of NSP clients referred by NSP for HIV testing and counseling (HTC) during the last six months.

All sites reported referring their clients for HTC. The proportion of clients referred for HTC as reported in the MIS during January 1, 2015 to June 30, 2015 ranged from 5-70%. NGO-based NSPs reported that 15% (95%CI: 2-28%) of clients reached during January 1, 2015 to June 30, 2015 were referred for HTC, while at facility-based NSPs this indicator was for 34% (95%CI: 7-60%) of clients and 40% at pharmacy-based NSPs. There was no statistically significant difference between

the percentages of NSP clients referred for HTC by different NSP types as reported through the MIS, the NSP program monitoring database managed by GFATM ($p=0.3$).

Linking and referring of reached PWID to other health services

According to the WHO, UNODC, UNAIDS recommendations, NSPs should aim to facilitate access of PWID to HIV testing, HIV treatment, care and support services and to other health and welfare services.

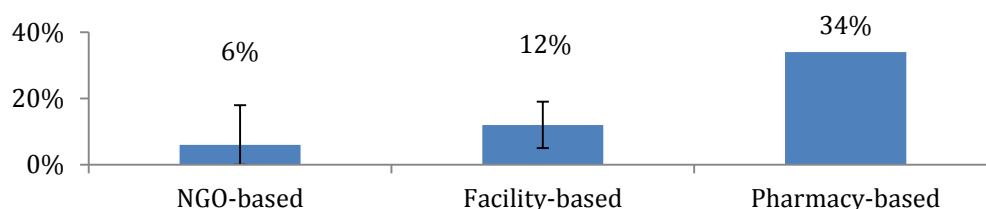
Percentage of NSP clients referred by NSP to Opioid Substitution Therapy (OST) services during the last six months

During individual interviews, almost all NSP managers rated poorly their own referrals of PWID to OST. According to the program data review, only six out of the 12 sites assessed reported referring clients to OST. Out of the total number of NSP clients reached by NSPs during the first six months of 2015, less than 2% were referred to OST programs. The referral rates did not statistically differ by NSP types ($p=0.8$). The unfavorable reputation of OST among PWID and absence of sufficient trainings on OST for NSP staff were cited as key barriers to more effective referrals of NSP clients to OST.

Percentage of NSP clients referred by NSP to STI services during the last six months

None of the sites reported screening clients for STI symptoms on-site. Out of 7,249 clients reached by NSPs included in the assessment, 698 (13%) were referred for STI screening and testing (Figure 5). Pharmacy-based NSPs were referring more patients to STI services than NGO-based NSPs ($28\% \pm 8.8\%$, $p = 0.03$). The differences between facility-based NSPs and NGO-based NSPs and facility-based NSPs and pharmacy-based NSPs was not statistically significant ($p=0.5$ and $p=0.07$ respectively).

Figure 5. Percentage of NSP clients referred by NSP to STI services during January 1, 2015 to June 30, 2015



Percentage of HIV-positive NSP clients enrolled in HIV care

There was no information on the percentage of HIV-positive NSP clients referred to or enrolled in HIV care in the NSP program database. This information is not routinely collected or recorded by sites. Many NSP staff reported not feeling empowered or trained enough to counsel HIV-positive clients.

Table 8. Comparison of effectiveness of three NSP service delivery modalities (NGO-based, government medical facility based and pharmacy based), by select indicators

Indicator	Study results	Comment
Reaching, engaging and providing reached PWID with the means to reduce HIV risk related to injecting and sexual behaviors.		
Average number of needles/syringes distributed per PWID in the last 12 months	NGO-based: 285 (IQR: 214-320) Facility-based: 472 (IQR: 427-578) Pharmacy-based: 102	Facility-based NSPs distributed significantly higher number of syringes per PWID per year.
Number of condoms distributed per PWID in the last 12 months.	NGO-based: 58 (IQR: 44-72) Facility-based: 55 (IQR: 52-68) Pharmacy-based: 7	Pharmacy-based NSPs distributed the lowest number of condoms per PWID per year.
Number of PWID who were reached by an NSP at least once in the past six months	NGO-based: 910 (IQR: 472-945) Facility-based: 350 (IQR: 216-483) Pharmacy-based: 600	No statistically significant difference between the mean number clients by NSP modality.
Percentage of PWID who were regularly (at least once per month) reached by an	NGO-based: 56% (95%CI: 34-78%) Facility-based: 80% (95%CI: 69-	The percentage of regular clients was statistically higher

Indicator	Study results	Comment
NSP over a six month period	91%) Pharmacy-based: 19%	among clients of facility-based NSPs.
Ensuring regular HIV testing and counseling of PWID.		
Percentage of eligible NSP clients tested by NSP on-site for HIV during the last six months.	NGO-based: 7% (95%CI: 0-17%) Facility-based: 0% Pharmacy-based: 0%	Rapid HIV tests were available at three NGO-based NSPs only.
Percentage of NSP clients referred by NSP for HIV testing and counseling (HTC) during the last six months	NGO-based: 15% (95%CI: 2-28%) Facility-based: 34% (95%CI: 7-60%) Pharmacy-based: 40%	No statistically significant difference between the percentages of NSP clients referred for HTC by different NSP types.
Linking and referring of reached PWID to other health services		
Percentage of NSP clients referred by NSP to Opioid Substitution Therapy (OST) services during the last six months	NGO-based: 2% (95%CI: 0-7%) Facility-based: 0.4% (95%CI: 0-0.8%) Pharmacy-based: 0%	No statistically significant difference between NGO and facility-based NSPs. Pharmacy-based NSP were not referring patients to OST.
Percentage of NSP clients referred by NSP to STI services during the last six months	NGO-based: 6% (95%CI: 0-14%) Facility-based: 12% (95%CI: 4-19%) Pharmacy-based: 34%	Pharmacy-based NSPs were referring more patients for STI screening and treatment.
Percentage of HIV-positive NSP clients enrolled in HIV care	NGO-based: 0 Facility-based: 0 Pharmacy-based: 0	There was no information on the percentage of HIV-positive NSP clients referred to HIV care

Aim 3. Identify obstacles and facilitators that affect PWID's uptake and coverage of NSP services for each modality of NSP delivery

Barriers and facilitators that affect PWID uptake of NSP services were identified based on the information received during the focus group discussions with PWID.

Key barriers that affect uptake of NSP services by PWID

Fear of police

According to PWID and NSP staff, fear of police pursuits is the key factor that prevents PWID from accessing NSP services as seen in this comment:

“...we are afraid of the police. They can follow us around the NSP and detain us...” - female, Bishkek

Many participants in the FGDs voiced that they think police follow people that enter NSP sites. A significant proportion of PWID that participated in the FGDs said they have either experienced themselves or heard about policemen detaining NSP clients in the immediate proximity around the NSP sites. Several NSP staff mentioned that they often get complaints from the clients about police, and that clients do not want to come to the NSP because they are afraid to be seen at the NSP and detained by the police. According to the FGD participants, storing and carrying used syringes to exchange them for clean syringes made PWID more vulnerable to arrests. According to them, police could test washouts from used syringes for traces of drugs and arrest them on the grounds of drug possession. A number of FGD participants also claimed that they were arrested by the police only on the basis of the injection marks on their body parts.

Limited geographic presence

Limited geographical presence of NSP sites and lack of funds to cover transportation costs also prevents PWID from using services. Outreach workers work in established catchment areas and usually only serve a group of clients that reside close to their own place of residence. Considering that the overall number of outreach workers is small, they are unable to capture all PWID that reside in the administrative district that is assigned to a certain NSP.

Stigma around drug use

The phrases “lack of trust” and “fear to be known as a drug user” were used frequently when describing obstacles for PWID uptake of NSP services. According to the FGD participants, PWID do not trust people around them, including other PWID:

“...they [PWID] have had a lot of [bad] experiences. They don't trust anyone, and its not just about pharmacies, they [PWID] don't even trust each other.” – male, Bishkek

In the Kyrgyz Republic, there is a procedure to officially register people with drug dependence (narcological register). People are entered in the registry by a substance use specialist upon diagnosing mental and/or behavioral disorders related to drug use. According to the information received during focus groups and interviews with NSP managers, registration with narcology services often leads to registration in the police register, which may have negative consequences, such as withdrawal of the patient’s driving license. This discourages many PWID from using NSPs. PWID fear that if they are seen at the NSP site or use NSP services or frequently buy syringes at the same pharmacy, their information will be disclosed to police or others (employer, parents, spouses, relatives). In addition to potential police pursuits, the fear of becoming known as a person who injects drugs was likely related to high social stigma related to drug use.

“I know it myself, for the first five years [of injecting] I didn’t even consider that I was a drug addict. That wasn't in my head. I was always telling that this is nonsense, I can always stop.” - male, Osh.

Focus group participants stated that if someone finds out about their drug injecting habits, they could be fired from their workplace, blamed by their family and neighbors, and treated poorly by medical personnel when seeking health services. Related to the stigma around drug use, some respondents said that the younger and less experienced people who use drugs deny the fact that they are addicted to drugs and, therefore, do not want to associate themselves with NSP, as these are considered a last resort for those injecting drugs.

“They [young PWID] are afraid to be exposed, if one of their relatives or friends will find out [about injecting], they will start talking.” - staff of an organization that works with PWID.

When asked about the obstacles related specifically to females that use drugs, many focus group participants mentioned “shame” or “embarrassment”. Women who inject drugs, according to the focus group participants, experience much higher rates of social stigma, even from their injecting male spouses. This is the reason why many women prefer to inject alone or with their male sexual partner, but avoid going to NSPs or using outreach services in order not to disclose their injecting status.

“First of all, they [female PWID] are afraid of publicity. No one knew, no one had seen. For women it is easier to do it [inject drugs] quietly, secretly, so that no one would even suspect” - female, Sokuluk

“We [women] are treated differently. We are wives, mothers, homemakers. And imagine they learn that I am a drug addict. So I am forced to hide everything.” - female, Bishkek

Participants of focus group discussions also mentioned that they sometimes experience an unfriendly attitude from NSP staff and do not prefer to use the services. Because NSP staff do not include people who have individual experience using drugs, PWID do not trust them and fear that their information might be shared with police.

“.. sometimes they [NSP staff] are not nice, and treat us with contempt. Just get you syringes and get lost” – female, Bishkek

Lack of motivation

Lack of motivation and “laziness” of PWID are also factors for the low uptake of NSP services. Since fixed NSPs are only available in select locations, PWID are not willing or do not have extra money and time to travel to the sites to pick up clean needles and syringes. Several PWID said that if they have money to buy heroin, they will most likely find three soms to buy a clean needle/syringe at a local pharmacy, which are available “on almost every corner” and are open 24/7.

Lack of information

Lack of information about NSP was mentioned by NSP staff and PWID as another potential barrier for more PWID using NSP services. PWID, especially those that are younger, those with less experience, and those who only communicate with a small network of people, have no information about availability of NSP services and therefore do not use them.

Key facilitators that could improve uptake of NSP services by PWID

Free distribution of wide range of supplies

Although, many PWID noted that syringes are available for purchase at all local pharmacies and most PWID are able to afford buying them, free distribution of clean injecting equipment remains to be an important factor attracting PWID to NSP services, especially long-time injectors and PWID that have no employment and no family support.

“A syringe they can purchase. It is available and inexpensive. Every drug addict will find three or five soms to buy himself a syringe” – male, Osh

“...and when everything ends, there is no longer a father, a mother, no money, no car, no apartment ... then he [PWID] enters the program. Because there is nowhere else to go. No money to buy syringes Because of despair” – male, Bishkek

Availability of a wide range of injecting equipment, including different size of needles and syringes, cotton, water for injections and alcohol swabs provided in unlimited quantities would facilitate increased use of NSP services. Availability of other supplies, including naloxone and wound care supplies (antibacterial solutions and ointments, dressings), could, in the opinion of focus group participants, also make NSP services more attractive to PWID.

Availability of outreach

Availability of wide-network outreach services was considered as another key factor that could facilitate regular use of NSP services by PWID. Many focus group participants said that they prefer getting clean syringes and needles from an outreach worker, as it is more convenient for them than traveling to an NSP site. NSP staff also confirmed that they primarily work with clients through outreach. PWID had different opinions about the ways outreach services were provided to

them: some preferred when an outreach worker brought clean needles and syringes to their home, some were afraid that their relatives or neighbors would see an outreach worker carrying syringes and, therefore, preferred to meet with an outreach worker somewhere else. A few PWID said it is easier for them to come to an NSP themselves, especially if the working hours of an NSP site are extended until at least 3 pm, rather than wait for an outreach worker. Most PWID agreed that the combination of different service provision modalities – through outreach workers, at fixed NSP sites, using mobile NSP and through pharmacies - would cover the needs of most PWID.

Other free-of-charge services

FGD participants and NSP staff also suggested that PWID would use NSP services more if the programs would provide additional free-of-charge services (preferably provided on-site), specifically dental services, wound care services, HBV and HCV testing and social and legal support services.

Better information

Also, a number of focus group participants and NSP staff said that NSPs would attract more PWID if fixed NSP sites would periodically organize group informational sessions, distribute quality information materials, show short educational films, provide tea and light snacks and allow PWID to socialize (see comment). In every focus group discussion, at least one person cited that PWID lack a safe place to receive information and communicate with each other, and NSPs could provide this opportunity.

“Now there are no problems with syringes, but we need more information. It is important to inform youth about consequences. And [also important for] people to have a chance to talk to each other” – male, Osh

CHAPTER V. DISCUSSION

Aim 1. Describe the existing NSP in the Kyrgyz Republic and assess the extent to which it adheres to international standards.

The assessment showed that implementation of the NSP in the Kyrgyz Republic was supported by the national legislation. The existing NSP-related regulations were mostly in line with the international standards for NSP policy and legislation, although certain recommended program components were overlooked. Specifically, the existing NSP Standards did not include any provisions about mechanisms whereby clients can confidentially /anonymously provide feedback on the service. Also, the existing policies did not include any systems or specific plans to prevent NSP commodity stock-outs. Some of the international recommendations were only partially reflected in the national policy and legislation. For example, the mentioned above Order on HIV Prevention in the State Bodies of Internal Affairs, Drug Control and Penitentiary System that endorsed NSP implementation in penitentiaries did not explicitly stipulate that police activities do not deter or prevent PWID from accessing NSPs or from being in possession of new or used injecting equipment.

The quality of the NSP implementation was also only partially aligned with the existing international recommendations. Thus, the funding for the NSP program was only sufficient to cover basic NSP services and was primarily dependent on external aid, although there were some indications that the Government of the Kyrgyz Republic might consider funding the program using internal resources. Until the decision to allocate sufficient national resources to NSP implementation is finalized, the sustainability of the program is questionable considering the complete reliance on external donor funding. Geographical availability of NSP services was low.

The country did not have a comprehensive monitoring and evaluation plan and effective tools that would allow systematically tracking NSP performance indicators and assess its effectiveness.

NSPs in the Kyrgyz Republic were mainly located in urban and semi-urban areas, predominantly within Bishkek metropolitan area, limiting the ability of PWID that reside outside of larger Bishkek metropolitan area to access NSP services. Due to limited geographical availability of NSPs, especially in more rural areas at a district level, not all PWID had access to sterile injecting equipment through the established NSPs. It is likely that access was even more limited during winter due to difficult road conditions (S. T. Allen, Ruiz, Roess, & Jones, 2015). Similar to the findings from a number of UK-based studies (Cattan et al., 2009), this study found that many PWID prefer buying equipment from pharmacies or other PWID rather than obtaining it from fixed site NSPs and such factors as the immediate availability of a syringe, even if it was previously used by someone else, when drugs are available, could play a more important role than the availability of an NSP.

At the time of the assessment, the NSP in the Kyrgyz Republic utilized a range of service delivery modalities, but the majority of NSP contacts in the Kyrgyz Republic was through outreach workers, which is similar to other NSPs around the world (Hebert et al., 2008). Females constituted 13% of all NSP clients, which corresponds to the estimated proportion of female PWID (12%) and is slightly higher than the proportion of females among officially diagnosed patients with opioid dependence (7%) in the Kyrgyz Republic (CHPA, 2014). Aside from pharmacy-based distribution of syringes, no other service delivery models, like syringe distribution through vending machines or mobile exchange points, existed that were tailored to specific needs of young PWID or women (Conner, 2015; Frank et al., 2015; WHO, 2015)(Jones et al., 2010; Kermode et al., 2012; McDonald, 2009; Obadia et al., 1999).

All NSP modalities included in this assessment provided a wide range of syringes, but distributed significantly lower quantities of low dead-space syringes compared to high dead-space

syringes. Lower demand of 1ml insulin LDDS syringes with fixed needles among PWID was mainly explained by the fact that PWID participated in the assessment preferred to get larger volume syringes with detachable needles, which is consistent with findings from other similar studies conducted in Tajikistan (Zule et al., 2015) and Lithuania (Gyarmathy et al., 2010) and corresponds with the fact that a significant portion of PWID in the Kyrgyz Republic use ephedrine and home-made drug preparations as opposed to just heroin (RAC, 2014). Also, there was no information that was systematically provided to PWID or NSP staff, especially outreach workers, to educate them about LDSS preventive advantages over conventional syringes to reduce the risk of HIV associated with sharing syringes. Experience from other countries with high rates of HIV among PWID, like Vietnam, show that high coverage of PWID with social marketing interventions that promote the benefits of LDSS use to PWID and availability of larger volume LDSS play an important role to increasing access to and the use of LDSS for PWID (Huong et al., 2015).

Similar to results from other countries, including Russia and Tajikistan (Panda & Sharma, 2006; Sarang, Rhodes, & Platt, 2008), many PWID included in this assessment relied on purchasing clean syringes from the widely available network of commercial pharmacies. And, unlike in other regions of the world, for example countries of Southeast Asia and Australia (Lenton, Bevan, & Lamond, 2006; Panda & Sharma, 2006), the market price for clean syringes in the Kyrgyz Republic was considered affordable for most PWID.

NSP services in the Kyrgyz Republic were “low-threshold” and did not require PWID to meet any specific criteria in order to receive injecting equipment. The return of used injecting equipment was often a prerequisite for clients to receive new injecting equipment and outreach workers were expected to ensure that their clients return at least 50% of the distributed needles/syringes. Although flexible, this exchange requirement was considered an obstacle by some PWID who were reluctant to carry used syringes, and expectedly led to decreased NSP coverage (Small, Glickman, Rigter, & Walter, 2010).

PWID, especially those with unsafe injecting practices, also engage in risky sexual practices magnifying the risk of HIV infection (Broz et al., 2014; Chikovani, Goguadze, Bozicevic, Rukhadze, & Gotsadze, 2013; Mazhnaya et al., 2014; Strathdee & Sherman, 2003; Suohu et al., 2012). Current models of NSP implementations in the Kyrgyz Republic focus primarily on providing PWID with condoms to protect themselves and their partners from sexual exposure to HIV. Non-injecting sex partners of PWID were rarely involved in NSP activities. Further linkage to HIV services and referrals for STI services are limited at NSP.

Aim 2. Compare different models of NSP service delivery currently in use

Reaching, engaging and providing reached PWID with the means to reduce injecting risks and HIV infection.

The assessment identified the following differences in program implementation outputs between three NSP types: the percentage of regular clients who used NSP services at least once per month over the six months and the mean number of needles and syringes distributed per PWID during 12 months. Thus, regular clients comprised 56% of clients reached through NGO-based NSPs, 80% of clients reached through facility-based NSPs, and 19% of clients reached by pharmacy-based programs. As discussed in the Literature review, earlier research had mixed conclusions about the relations between the regularity of NSP contacts and needle sharing behavior, therefore it is hard to conclude whether the observed difference in the regularity of contacts between three NSP modalities could have had any influence on their overall effectiveness to decrease HIV incidence.

NSPs located at governmental medical facilities on average distributed the most syringes per client per year (472), while pharmacy-based NSPs distributed the least (102). Both facility-based and NGO-based NSPs on average distributed more than 200 syringes per client per year which could be considered as sufficient to potentially have an impact on HIV transmission among PWID using NSP services. However, high number of syringes distributed per each PWID could be explained by a wide-spread practice of “secondary exchange” that could broadly be defined (Lenton

et al., 2006) as PWID acquiring clean injecting equipment from NSPs, and redistributing them to other PWID by selling them, trading them, or giving them away. All NSP types distributed lower than 100 condoms per PWID per year, which is considered as 'medium' according to WHO Technical Guidelines (WHO, 2014a) .

Ensuring regular HIV testing and counseling of PWID

On-site HIV rapid testing was available at NGO-based NSPs, but the coverage of clients tested for HIV at the NSP was 7%. Approximately 30% of NSP clients were recorded as being referred for HTC and this assessment revealed no statistically significant difference between the percentage of NSP clients referred for HTC by different NSP types.

Despite low rates of documented on-site HTC and referrals, results of the national IBBS surveys and the survey among NSP clients, show that most PWID (approximately 90%), including NSP clients are reporting having been tested for HIV (Deryabina, 2016; RAC, 2014). Considering the high number of clients using NSP services through outreach, high rates of HIV testing among NSP clients in the Kyrgyz Republic could indicate that NSP outreach workers were effective in increasing the rates of HTC testing among their clients but failed to properly document and track HTC referrals. If true, this finding would have been consistent with the results of a study from Iran that showed the effectiveness of outreach NSP model in increasing the rates of HIV testing among PWID (Nazari et al., 2016). This makes the availability of and ease of access to outreach workers all the more important for PWID as this was found to be a limitation in this study. All assessment participants considered the implementation of mobile "trust points" equipped with HIV rapid tests as an effective way to attract PWID to HTC and NSPs.

Linking and referring reached PWID to other services.

NSPs included in the study did not sufficiently facilitate the uptake of other services by PWID, including access to HIV care and treatment. Pharmacy-based NSPs were referring more patients for STI screening and treatment, which could be because their clients were generally younger and sexually more active. The assessment was not able to determine any statistically significant differences between different modes of NSP delivery in linking and referring PWID to HIV care and treatment services. Also, none of NSP modalities included in the study were effective in facilitating entry into drug dependence treatment, in particular OST. Pharmacy-based NSPs reported no referrals to OST; pharmacists participating in the NSP program were not trained or encouraged to motivate and refer clients for OST.

Although, the results of this study showed that facility-based NSPs were more effective in engaging and providing reached PWID with the means to reduce injecting risks and HIV infection, NSPs included in this study were serving different PWID in different locations and therefore cannot be really compared. Pharmacy-based NSPs were used by younger PWID. Overall, none of the NSPs were effective in providing and properly documenting HIV counseling and testing services to PWID and their sex partners. Also, all NSPs were ineffective in linking and referring PWID to STI, OST and ART services and there were no differences between different modes of NSP delivery.

Aim 3. Identify obstacles and facilitators that affect PWID's uptake and coverage of NSP services for each modality of NSP delivery.

Assessment revealed several layers of obstacles that negatively impact PWID uptake of NSP services, including social, institutional and interpersonal barriers.

Criminalization of possession of illicit substances and injecting equipment often forces PWID in many settings to hide their equipment and engage in unsafe injecting practices (Stoicescu, 2012). Findings from this assessment also suggest that the existing *de facto* criminalization of drug use, punitive approach and arrests of PWID by the law enforcement personnel, including

surveillance of NSP programs and using possession of clean or used syringes and needles to justify detentions of PWID, as well as high level of social marginalization of PWID, limited the uptake of NSP services by PWID. Fears of breached confidentiality and police surveillance and interference around NSP sites were uniformly reported among all interviewees. Possession of used syringes was reported as a factor that may increase vulnerability of PWID to police harassment, thus, making the requirement for syringe exchange an obstacle to more people using NSP services. These findings are not unique to the Kyrgyz Republic, as criminalization of drug use and possession of syringes and needles was consistently reported as a common barrier to NSP utilization by several other studies conducted earlier in the Kyrgyz Republic (Spicer et al., 2011) and elsewhere (Beletsky et al., 2014; Koo et al., 2015; Martinez et al., 2007; Rich et al., 1999; Spicer et al., 2011; WHO, 2014a). Similarly to other countries, in the Kyrgyz Republic, PWID reported heightened sensitivity to discrimination and notions of identity and legitimacy that were closely linked to the stigmatization of drug use.

Lack of trust between clients and NSP staff who had no personal experience injecting drugs was reported as another significant obstacle for the delivery of effective NSP services for people who inject drugs. For this reason the secondary exchange was preferred and used by many PWID because it relieved the fear of exposure or possible police encounter. This further supports the need to ensure active involvement of PWID in implementation of NSPs, especially considering that stigma, discrimination, and criminalization continue to pose significant barriers to HIV program access for PWID, in increasing access to healthcare (Ti & Kerr, 2013).

Similar to many other countries (Cattan et al., 2009; Holt, 2014; Malinowska-Sempruch, 2015; van Olphen, Eliason, Freudenberg, & Barnes, 2009), deep-rooted conservative attitudes towards women's roles in society and high level of stigma against women who use drugs at all levels in the Kyrgyz Republic, even among PWID themselves, prevents them from using NSP services.

At the institutional level, inconvenient working hours, unfriendly attitudes by NSP staff and limited menu of supplies available to clients made NSP less attractive to PWID.

Availability of outreach services was highly valued by PWID in this study. The also study showed that additional services, such as naloxone distribution, on-site HIV testing and provision of surgical wound care, dental services and medicines could facilitate increases utilization of NSP services, which was similar to findings from other countries (Cattan et al., 2009).

Study Limitations

This assessment included 19 out of 30 NSP sites located outside of the penitentiary system in the Kyrgyz Republic. Although nearly a third of the sites were excluded from the assessment, based on discussions of preliminary results with the wide range of national partners organized during a national conference of current HIV issues held in March 30, 2016 it may be reasonable to assume that the results of this assessment can be applied to all NSP sites in the Kyrgyz Republic. That said, differences may be expected among PWID who are institutionalized and situated in different living conditions within a penitentiary compared to those who live as free citizens.

The ability of the study to draw definite conclusions about the effectiveness of NSP implementation in ensuring appropriate coverage of PWID with NSP services in a particular geographical area by a particular type of NSP was limited by the lack of site-level PWID size estimation data. Another limitation relates to the use of secondary data collection from an existing database. As described in the Methods section, aggregated site-level program data routinely entered into a Management Information System (MIS) were used in the assessment. These data are entered into the MIS by staff of the NSPs at the individual client level from reports completed by NSP staff, including outreach workers. The MIS does not allow tracking of duplicate clients that receive similar services in different NSPs. Also, there is a possibility for one person to be recorded into the MIS under the different unique identifier codes, thus leading to the inflated number of clients served by each site. Data quality checks for accuracy of the data in the MIS are routinely

conducted by the UNDP and the GFATM during on-site data verification visits. Thus, the assessment assumes accuracy of the data entered into the MIS, but may not accurately represent the actual coverage and quality of program implementation.

Also, a small number of NSPs included into the study, particularly pharmacy-based NSPs, have limited the ability to identify differences between NSP modalities that may have existed.

Further, the study relies on data reported by PWID during focus-group discussions, which may be subject to social desirability bias and over- or under-estimation of various factors measured.

CHAPTER VI. RECOMMENDATIONS AND A PLAN FOR CHANGE

Despite the limitations of this assessment, the study is among the first to be conducted in the Kyrgyz Republic, which underscores the importance of these results. The assessment allowed evaluating both the “forest” (national NSP policies, NSP budget, procurement supply systems, etc.), as well as the individual “trees” (implementation of national policies at the service-delivery level, PWID needs and obstacles to NSP access, staff capacity building needs, site-level infrastructure, etc.) (Mella, 2012).

Considering the comprehensiveness of the study that assessed NSP outside the penitentiary system, a number of policy-level recommendations can be offered to improve implementation and effectiveness of NSP implementation in the Kyrgyz Republic based on the findings (Table 9).

Table 9. Key weaknesses of the NSP program in the Kyrgyz Republic and key recommendations.

#	Identified gap	Recommendation
1	Limited sustainability of NSP program implementation	<p>To discuss the feasibility and the need to revise the Law #66 on Narcotics, Psychotropic Drugs and Precursors from May 22, 1998 (revision #40 dated March 2, 2010) to include provisions of anonymous NSP services for people with drug dependence into articles #38-39 on voluntary drug treatment.</p> <p>To develop a clear national strategy to secure long-term and sufficient levels of funding to ensure sustainability of NSPs and the achievement of other quality standards. Long-term government funding should be committed to the ongoing operation of NSPs and detailed contingencies for funding gaps should be determined. Funding levels must be adequate to ensure high-quality NSP services, with high levels of access and coverage, including no restrictions on the quantity of equipment that can be distributed, as well as appropriate compensation schemes for outreach workers, including reimbursement of transportation costs.</p>

#	Identified gap	Recommendation
2	Limited geographical availability of services	To scale up the number of NSP sites to ensure they are available at least in larger residential areas of every oblast. Mobile NSP can compensate for the absence of fixed NSP sites in more rural areas. To ensure cost-effectiveness, NSP functions can be included into the scope of work for the already existing mobile HIV counseling and testing points that already exist and work with PWID in some areas.
3	No comprehensive monitoring and evaluation plan	To develop and officially approve a comprehensive monitoring and evaluation plan to track coverage and outcomes of NSP service delivery. The plan must list measurable outcomes, measurement tools, frequency of data collection, responsible entities, and targets. The plan must be supported by a sufficient budget and staff capacity building plan, as well as clearly describe distribution of responsibilities for data collection and data quality assurance and control at the national and sub-national levels, as well as clear and inclusive data dissemination plan.
4	Lack of systems to collect anonymous feedback from clients	It is important to add to the National NSP Standards the requirement for NSP to introduce and properly document regular collection of anonymous feedback from clients. Mechanisms should be in place whereby clients can confidentially and anonymously provide feedback on the NSP services. NSPs should be responsive to this information.
5	Limited access of PWID to health services due to stigma	To remove compulsory registration of all people with diagnosed substance use disorders. To institutionalize training into establishment of PWID-friendly services into the routine training of NSP staff, health professionals and police forces with the aim to ensure that the drug use is treated as a health condition and less as a moral behavior, and more generally to focus efforts on stigma reduction among health providers, law enforcement, and the community at large. To be effective, the trainings need to include direct contacts of trainees with PWID (Livingston, Milne, Fang, & Amari, 2012).
6	Low utilization of low-dead space syringes	To expand availability and use of low-dead-space syringes. Informational sessions for NSP staff, especially outreach workers, and pharmacy workers that participate in NSP on the benefits of LDSS use must be conducted to ensure NSP staff have sufficient knowledge of LDSS and are able to motivate PWID. It is also important for NPS to develop short and illustrative educational and informational materials, motivating PWID to shift from HDSS to LDSS. To improve acceptability of LDSS among PWID it is also important to

#	Identified gap	Recommendation
		ensure procurement and dissemination of larger volume (2 ml) syringes with detachable needles, and separately different length low-dead space needles that could be used with HDSS.
7	Lack of established referral pathways between NSP and other relevant health services	To link NSP programs to OST and ART programs for PWID in order to achieve decrease in HIV incidence. NSP staff should be properly trained and encouraged to actively refer their clients for OST programs. They should also be trained on HIV status disclosure and HIV care and treatment adherence support. Education and communication materials on OST and ART must be developed and made available for outreach workers and NSP clients. Referrals to OST and ART should be documented, tracked and reported to encourage integration of services
8	Limited HIV testing of NSP clients	To significantly increase the coverage of PWID that use NSP services with HIV testing and counseling. NSPs should use any opportunity to counsel PWID about HIV testing and either conduct on-site HIV rapid testing, draw blood for ELISA testing if rapid tests are not available, or ensure assisted referral of their clients for HIV testing. On-site HIV rapid testing should be promoted and supported. It is also important that the HTC data is properly documented by NSP staff to facilitate program monitoring, track performance of outreach workers and encourage service improvements.
9	Limited activities to prevent sexual transmission of HIV among PWID	To utilize couple-based approaches to HIV prevention in order to ensure effective prevention of HIV sexual transmission among PWID and their partners. PWID and their sex partners should be provided with information regarding effective HIV prevention methods. Providers, including outreach workers must be trained on facilitated disclosure and encouraging PWID to refer their sex partners for HIV testing. PWID should be encouraged to engage their sex partners in HIV programs which may include regular HIV testing, information on prevention methods, supportive counseling and condom use promotion.
10	Limited network of trained outreach workers	To establish an appropriate compensation scheme, including reimbursement of transportation costs, and increase the number of outreach workers per NSP as outreach workers are essential for the effective implementation of the NSP in the Kyrgyz Republic.

In order to transform the listed-above recommendation into meaningful policy and service delivery change, it will be important to first establish a sense of urgency and form a powerful guiding coalition that will work towards creating and communicating a vision of NSP program improvement and empower others to act on the developed vision (Kotter, 1996). The proposed below activities aim at establishing a sense of urgency and creating such coalition.

Activity 1 – Comprehensive Assessment Report. In order to disseminate findings of this report and create urgency I will develop a comprehensive assessment report in Russian and English that will be disseminated to all organizations that work with PWID in the Kyrgyz Republic. Specifically, the distribution list will include the Ministry of Health, key donor organizations that fund NSP activities (the GFATM and the PEPFAR team (USAID and CDC)), multilateral organizations (UNAIDS, UNODC and WHO), as well as PWID-servicing NGOs and government NSP service providers. The hope is that these groups would use the results and recommendations from the report to reach and influence the policymakers and funders and advocate for removal of the existing barriers to PWID uptake of services, namely the compulsory registration of all PWID with narcological services.

Also, I hope that the NSP service providers will implement specific recommendations of this study that don't require additional funding or policy change to improve the quality of their services. For example, NSP service providers can change NSP working hours, institute programs or trainings to sensitize NSP staff to PWID needs and build their capacity to provide more user friendly services, utilize couple-based approaches to HIV prevention and increasing HTC and referral efforts. Also, the Republican AIDS Center has agreed to place a copy of the assessment report on its website which demonstrates political commitment of the Kyrgyz Government to improve NSP program.

Activity 2 – Dissemination of tailored presentations. I will develop summary presentations tailored to various audiences on the process, findings and recommendations of this study. The arrangements have already been made to present key results of the study during the

national roundtable on “Current issues of HIV program implementation in the Kyrgyz Republic” that will be organized by the Ministry of Health together with ICAP at Columbia University in May 2016. A separate presentation will be delivered to the Central Asia PEPFAR team during the internal Regional Operations Plan (ROP) planning meeting to justify allocation of funds for enhanced technical assistance. The summary findings will also be presented to the National Technical Working group.

Activity 3 – Support to the National Technical Working Group (TWG). Active involvement of key stakeholders in the discussion of study findings and development of a specific "road map" on how to implement recommendations from this study and improve quality of NSP programs in the country is vital to ensure country ownership and institutionalizing of recommended changes. ICAP will technically and financially support the work of the national TWG, that will include representatives from the entities under the Ministry of Health mandated to work on HIV prevention among PWID (Republican Narcology Center and Republican AIDS Center), representatives of the national networks of local NGOs that work with PWID (NGO Partnership Network and the Public Association on Social Development and Human Adaptation) and representative of the Public Health Department within the Ministry of Internal Affairs. Staff from the international and donor organizations, including UNDP/GFATM, CDC and USAID, will also participate in the work of the national TWG. The goal of the TWG would be to use recommendations from this assessment to develop a comprehensive quality improvement and capacity building plan. The plan should describe the specific responsibilities of different stakeholders involved in NSP and funding options. This plan will be submitted to the Ministry of Health for further endorsement and enforcement. Implementation of the “road-map” recommendations will be tracked and regularly presented during relevant partner meetings and the Country Coordination Mechanism meetings to ensure appropriate follow-up actions.

Activity 4 – Trainings for Healthcare Workers. In order to address limited access of PWID to health services due to stigma, ICAP will collaborate closely with CDC and the Kyrgyz University for Continuous Medical Education on the development and implementation of the national sensitization trainings for health care providers, including physicians and nurses. The overall goal of the trainings will be to address barriers PWID face when trying to access healthcare services by sensitizing health care providers to the unique context and needs of key populations in general and PWID in particular. Key objectives of the training will include:

- Sensitize health care providers to deliver HIV and HIV-related services to all clients, particularly to PWID, in a non-stigmatizing and competent manner
- Increase competency of healthcare workers at providing comprehensive, non-stigmatizing services to PWID
- Increase quality of care by tailoring services to specific PWID needs, ultimately resulting in increased use and retention

In addition to the proposed above policy-level activities, I will also work to secure funding and pilot a model of improved NSP implementation that will include:

1. Supplement one of the existing facility-based NSP with distribution of clean syringes and needles, including LDSS, through a syringe vending machine (SVM) which will allow 24/7 access of PWID to free-of-charge clean needles and syringes;
2. Active utilization of couple-based approaches to HIV prevention in order to ensure effective prevention of HIV sexual transmission among PWID and their partners.
3. Implementation of on-site HIV rapid testing in order to increase the coverage of PWID that use NSP services with HIV testing and counseling.
4. Improved linkages and an established referral system between the NSP and various health services, including HIV care and treatment, OST, STI, and tuberculosis diagnosing and treatment.

As part of the pilot an SVM will be installed outside of the entrance to the one of the existing facility-based NSPs in Bishkek city located in the area known for high concentration of PWID. The objective of the SVM would be to allow PWID that do not want to use commercial pharmacies or fixed NSP sites to get clean injecting equipment after hours. To use SVM PWID would require special tokens that will be distributed at the NSP sites. In order to ensure regular face-to-face interactions with trained NSP staff, NSPs will provide their clients with up to 30 tokens at every visit. SVMs dispense packs will contain sterile injecting equipment and a small disposal container. The type of injecting equipment to be included in the dispense packs will be defined based on the information received during focus groups with PWID. Packs dispensed will also include swabs, water ampoules, condoms and educational materials.

Also, PWID and their sex partners will be provided with information regarding effective HIV prevention methods. Providers, including outreach workers will be trained on facilitated disclosure and encouraging PWID to refer their sex partners for HIV testing. PWID will be encouraged to engage their sex partners in HIV programs which may include regular HIV testing, information on prevention methods, supportive counseling and condom use promotion. The pilot will include targeted promotion of NSP activities, including the SVM, and active engagement of PWID in NSP services through outreach workers and using peer-driven intervention (PDI) approach. The PDI model is based on the theory of “group-mediated social control” (Heckathorn, 1990) that has been proven as an effective approach to reaching larger and diverse sub-populations of PWID with HIV prevention efforts in different settings (Broadhead et al., 1998; Smyrnov, Broadhead, Datsenko, & Matiyash, 2012; Tun et al., 2013). The pilot will include comprehensive monitoring and evaluation. In case of the successful piloting, I will advocate to the Ministry of Health and the GFATM to allocate resources for scaling up of the pilot intervention to other NSP sites.

APPENDIX 1: INDIVIDUAL IN-DEPTH INTERVIEW GUIDE FOR NSP PROGRAM MANAGERS

Date of Interview	
Name/location of NSP	
Gender	
Number of years working in NSP programs	

1. Can you describe the process that is used by your NSP to inform decisions about the location, operating hours, commodities provided and services provided at this site?
2. Do you solicit regular feedback from your clients and involve them in program planning and improvement? Do you solicit regular anonymous feedback from clients? Please describe the process.
3. Do you involve PWID in the delivery of NSP services? If Yes, please explain how and how do you ensure appropriate training WPID that you involve in service provision? If not, please explain why.
4. Do you tailor your services to needs of any specific sub-group of PWID, for example female PWID? If yes, how? If not, why?
5. Did you and other staff currently working at this NSP receive any special training related to NSP implementation? If yes, please describe the training received (where, who, what topics were covered).
6. Do you feel there is a need for any additional training or professional development for you or your staff to better perform functions at the NSP? If yes, in what areas?
7. Can you describe what commodities are available at your site? And how do you know that the available commodities are appropriate and acceptable for your clients?
8. How do you manage procurement and supply of injecting equipment? Who is responsible for the forecasting and planning? What do you do to prevent stock-outs? Did your site experience any stock-outs during the past year?
9. Do you have any specific written guidelines for distributing needles and syringes to consumers?
 - a. Please describe the process for distributing needles and syringes and other commodities to consumers at this site.
 - b. Do you charge consumers for any of the commodities you distribute? If yes, how much and for what?
 - c. Do you have any set limits on the quantity of injecting equipment provided to one client?
 - d. Do you allow for secondary distribution/exchange? If yes, how do you record the number of PWID reached through the secondary distribution?
 - e. Do you have outreach services to disseminate commodities? How many outreach workers do you have? How do you recruit outreach workers? What are the key challenges related to implementation of outreach services?
10. Do you have any specific policies or guidelines on used needle and syringe return? Do you collect used needles and syringes, if yes, how? What are your disposal practices?
11. How do you ensure confidentiality of your clients?

12. Please describe the referral processes your NSP have to link consumers with other health services. Are those referrals formalized by any agreements between the NSP and the services providers that you refer your clients to? Do you verify if clients referred have been enrolled/received services referred to? If yes, describe how you do this? Do your clients need to pay for any of the referral services, please specify.
13. Do you feel services to which clients are referred are sensitive, supportive and easily accessible to your clients?
14. How do you support, follow-up and track referrals?
15. Please rate and comment on how effective you think your NSP is in engaging people who inject drugs:
 - ◇ Very effective
 - ◇ Effective
 - ◇ Not effective
 - ◇ Somewhat effective
 - ◇ Don't know

Comments: _____

16. What factors make it difficult for your NSP to engage people who inject drugs? And how do you think you could improve the access for PWID?
17. Please rate and comment on how effective you think your NSP is in engaging sex partners of people who inject drugs:
 - ◇ Very effective
 - ◇ Effective
 - ◇ Not effective
 - ◇ Somewhat effective
 - ◇ Don't know

Comments: _____

18. What do you think are the key features of an effective NSP service?
19. What are the internal barriers to operating an NSP that impact on service demand and the types of services provided?
20. What are the external barriers to operating an NSP that impact on service demand and the types of services provided?
21. What are the strengths and weakness of your NSP service? Describe any improvements needed.
22. What additional resources are needed for your NSP to enhance the quality of services?
23. How effective on the scale from 1 – 5 where 1 is not effective and 5 is very effective is your NSP in
 - Promoting safer injecting practices _____
 - Ensuring regular frequent HIV testing _____
 - Ensuring regular TB screening _____
 - Making sure customers know their HIV test results _____
 - Linking HIV-positive PWID to HIV care services _____
 - Referring your clients to MAT services _____
 - Improving adherence of HIV-positive PWID to HIV care and treatment _____
 - Promoting safe sexual behavior _____

APPENDIX 2: GUIDE FOR THE FOCUS GROUP DISCUSSIONS WITH PWID

Introduction: *People who inject drugs are at high risk of acquiring HIV infection. Syringe distribution is an effective HIV prevention method. Syringe and needle programs have been implemented in The Kyrgyz Republic since 2002. We are conducting this assessment to understand what works and what does not work with the current implementation of the program and what needs to be done to make needle and syringe programs more accessible and effective for people who inject drugs.*

ICE-BREAKER QUESTIONS (up to 5 minutes per question)

1. What services are provided by the needle- syringe exchange program? Probe:
 - a. Free of charge needles and syringes
 - b. Free condoms
 - c. HIV counseling and testing
 - d. Referral to other health services
2. What services provided by the needle- syringe exchange program do you think are the most useful for PWID?

KEY QUESTIONS (up to 12 minutes per question)

3. What do you think are the most significant reasons why some drug users choose not to use needle and syringe programs? Probe:
 - e. What is the attitude of law enforcement personnel/police towards PWID using NSP?
 - f. What are the criteria for PWID to access services set by NSP?
 - g. Range of syringes and needles available?
 - h. Confidentiality concerns?
4. Do you know women PWID that do not use NSP services? Why are they not using NSP services?
5. What can be done to improve the quality of needle and syringe distribution programs and access to HIV services uptake?
 - a. Location?
 - b. What are the most convenient open hours?
 - c. What modalities are the most convenient for you? Mobile services, pharmacy-based distribution?
 - d. Secondary needle and syringe distribution?
6. Can you think of anything else you would like to share with the group on this subject, that hasn't already been covered?

APPENDIX 3: SURVEY FOR THE FOCUS GROUP PARTICIPANTS

For the purpose of our research, we need to describe who participated in our focus groups. Please help us by answering the following questions. DO NOT include your name. Your responses to the survey are completely private and confidential.

1. Date _____

2. UIC |__|__|__|__|__|__|__|

3. Gender (Check one)

___ Male

___ Female

4. Age:___

5. Number of years injecting drugs

___ None

___ 1-5 years

___ 6-10 years

___ more than 10 years

6. During the past two months I have used the following sites to receive clean needles and syringes

1. ___ needle- syringe program located at the family health center

2. ___ needle- syringe program located at the NGO

3. ___ received them free of charge in exchange for the voucher in the pharmacy

4. ___ received them from the outreach worker

5. ___ purchased them from the pharmacy

6. ___ other, please specify _____

APPENDIX 4: NSP PROGRAMMATIC DATA REVIEW FORM

Measurable outcome	level of disaggregation	site 1	site 2	site 3	site 4	site 5	site 6	site 7	site 8	site 9	site 10	site 11	site 12
Total number of sterile injecting units (1 needle and 1 syringe) distributed in the last 12 months	male	80483	77877	386400	97508	267596	169406	64011	114489	105318	215514	652727	95295
	female	29943	25543	32007	30548	76210	48358	2189	19767	3467	5916	46931	11340
	≤18 years	0	0	0	0	0	0	0	0	0	0	0	45
	>18 and <25 years	9724	3973	24840	2355	4629	18733	242	1290	4745	3770	29728	58590
	≥ 25 years	100702	99447	393567	125701	339177	199031	65958	132966	104040	217660	669930	48000
	HDSS	98729	96217	384890	120459	322309	206489	55700	127156	100093	187554	696658	71090
	LDSS	11697	7203	33517	7597	21497	11275	10500	7100	8692	33876	3000	35545
Total number of PWID who accessed an NSP at least once over a 12 month period	male	477	331	836	225	467	479	140	199	241	669	2491	916
	female	138	152	90	75	128	143	5	32	8	23	198	91
	≤18 years	0	1	0	0	0	0	0	0	0	0	0	1
	>18 and <25years	71	24	56	8	7	53	2	2	9	12	136	497
	≥ 25 years	544	458	870	292	588	569	143	229	240	680	2553	509
	HDSS	390	272	960	297	595	621	145	231	214	641	2386	891
	LDSS	341	203	925	278	595	400	144	230	186	601	911	891
Number of PWID who were reached by an NSP at least once in the past 6 months	male	589	322	841	275	542	381	108	187	241	387	1892	528
	female	121	150	104	84	139	102	3	29	8	17	127	72
Number of PWID who accessed an NSP at least once per month (regular reach) over a 6 month period	male	289	137	665	212	422	299	107	121	185	272	820	93
	female	72	38	77	72	108	77	3	26	12	10	50	20
Number of eligible PWID tested for HIV by NSP on-site during the last 6 months	male	0	0	171	0	0	0	0	0	0	28	66	0
	female	0	0	27	0	0	0	0	0	0	5	11	0
Number PWID referred by NSP for HIV testing and counseling during the last 6 months	male	152	28	51	83	86	106	53	61	74	27	124	205
	female	23	27	9	28	24	37	2	17	4	4	14	33
Number PWID referred by NSP to MAT during the last 6 months	male	0	0	81	2	0	1	0	1	3	0	8	0
	female	0	0	4	0	0	0	0	0	0	0	0	0
Number PWID referred by NSP to STI services during the last 6 months	male	138	0	1	40	65	65	0	16	39	18	21	172
	female	22	0	0	16	16	20	0	5	2	7	3	32
Number of condoms distributed by an NSP per PWID during the last 12 months	male	16768	15831	81632	7598	42938	15003	8226	13962	10751	48206	104496	6353
	female	6094	5238	6781	2392	12177	3966	296	2408	342	1864	7690	756

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