

Original Article

Social Network Strategy improves access to HIV testing and harm reduction programs for PWID and their partners in Kazakhstan

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Abstract

Introduction: The region of Eastern Europe and Central Asia has a growing HIV epidemic. Kazakhstan is a country in Central Asia with an estimated 33,000 people living with HIV. The new HIV infections have increased by 29% since 2010. Evidence suggests that HIV testing strategies focused on social networks are effective methods to identify more people with undiagnosed HIV. We conducted a study to describe the optimized HIV case finding (OCF) intervention for people who inject drugs (PWID) and their partners in Kazakhstan.

Methodology: The OCF is based on recruitment of the extended risk social networks of HIV-positive PWID, using a two-step recruitment algorithm.

Results: There were 5,983 PWIDs and their partners tested for HIV, of those 149 (2.5%) received HIV-positive test results and the majority 145 (97%) were newly identified HIV-positive. The characteristics which had a statistically significant positive association with HIV-positive test results included: age group 15-19 (OR 4.12, 95% CI 1.44-11.7); age group 20-24 (OR 1.97, 95% CI 1.03-3.8); age group 50+ (OR 2.45, 95% CI 1.48-4.1); male sex (OR 1.78; 95% CI 1.2-2.6), participants who have previously received harm reduction services (OR 1.48; 95% CI 1.0-2.2); partners from “other groups” (OR 2.31, 95% CI 1.3-4.2).

Conclusions: Low-threshold HIV testing and harm reduction services, like OCF using directly assisted self-testing and social network strategies are essential in reaching key populations with HIV prevention, increasing access to HIV testing and care.

Key words: Social network strategy; people who inject drugs; PWID; harm reduction; HIV; Kazakhstan.

J Infect Dev Ctries 2023; 17(3):397-403. doi:10.3855/jidc.16611

(Received 24 March 2022 – Accepted 08 August 2022)

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Introduction

There are 275 million people worldwide using drugs according to the 2020 World Drug Report. More than 11 million people are injecting drugs/opioids and around 1.4 million of them have HIV [1]. Around 30 million people who use drugs have drug use disorders. Criminalization of drug use increases the marginalization of people who use drugs, which subsequently influences access to healthcare services as well as harm reduction programs [2]. Stigmatization, marginalization, and risky behaviors in drug use significantly increase the vulnerability to HIV infection and influence the health care outcomes [1,3]. People who inject drugs (PWID) are vulnerable to HIV and are 22 times more likely to acquire HIV infection compared to the general population. It is estimated that one in ten new HIV cases is caused by sharing injection equipment. Data suggests that 25% of all new HIV

cases outside sub-Saharan Africa occur among PWID. Approximately 13% of all PWID are living with HIV worldwide. Despite the recent decline in HIV incidence by 22% from 2011 to 2017, new HIV cases are still raising in PWID [4].

The region of Eastern Europe and Central Asia on the other hand has a growing HIV epidemic. Data from the region shows a 29% increase in new HIV infections between 2010 and 2017, and 39% of new HIV cases occurred among PWID [5]. Kazakhstan is a country in Central Asia with an estimated 33,000 people living with HIV (PLWH), of whom only 26,000 (77%) know their status, 18,000 (77%) are on ART and 14,000 (42%) have suppressed viral loads [5]. The following key populations are most affected by HIV in Kazakhstan: sex workers (SW), with HIV prevalence of 1.4%; men who have sex with men (MSM), with HIV prevalence of 7.9%; PWID, with HIV prevalence of

8.5%; prisoners, with HIV prevalence of 3.6%. The new HIV infections have increased by 39% since 2010 and AIDS-related deaths have increased by 32% [5].

The Sustainable Development Goals (SDGs) aim to end the global HIV/AIDS epidemic by 2030, which can be reached by improving coverage and access to HIV testing and harm reduction services for key populations including for PWID [6].

In order to improve access to HIV testing, linkage to care, and harm reduction services, the project “Model of low-threshold access to HIV testing and treatment for PWID and their sexual partners – Optimized HIV case finding (OCF) and Community Initiated Treatment Intervention (CITI)” was introduced by Public Foundation «AIDS Foundation East-West in Kazakhstan» with the support of Alliance for Public Health under the Project “Accelerated response to HIV/TB epidemics among key populations in EECA cities” in April 2018. The goal of the project was to adapt and implement directly assisted HIV testing (DAST) for OCF and CITI. The OCF is a social network strategy (SNS) for HIV Testing Recruitment and is based on incentivized chain recruitment within the extended risk social networks of HIV-positive PWID and their partners [7]. Evidence suggests that HIV testing strategies focused on social networks, which include sexual or injecting partners, friends, and acquaintances of the PWID are effective in identifying more people with undiagnosed HIV [8–10]. Although there are several studies from Kazakhstan which have assessed HIV testing among PWID, there have been no studies of OCF intervention effect on HIV testing coverage, HIV case finding, and enrollment in harm reduction of PWID and their partners [11–13].

Thus, with this study we aimed to describe 1) the number of PWID and their partners who received HIV testing; 2) the number of HIV-positive PWID and their partners among the tested individuals, and 3) factors associated with HIV-positive test results for all PWID and their partners enrolled in OCF during 2018-2019 in Almaty, Kazakhstan.

Methodology

Study design

We conducted a descriptive cross-sectional study involving secondary analysis of the data collected during the OCF introduction in Almaty, Kazakhstan.

General Settings

Kazakhstan is a country in Central Asia that has a land area equal to that of Western Europe but one of the lowest population densities globally. The country

moved to the upper-middle-income group in 2006. The government has incorporated the Fast Track approach into the National HIV Strategy [14].

Almaty is the largest city in Kazakhstan with a population of around 1.5 million people.

The HIV epidemic in Almaty is concentrated among key populations such as PWID, SW, and MSM. According to the Integrated Biological Behavioral Surveillance (IBBS) conducted in 2018, the prevalence of HIV among PWID in Almaty is 7.9%, while in the whole country is 9.2%. The number of PWID reached by preventive services is 5,970, which is 74% of the estimated number [15,16].

Specific settings

Harm Reduction Services, including needle and syringe programs (NSPs) are available at the “Trust points” of the primary healthcare facilities, Nongovernmental Organizations (NGOs), and AIDS Centers [16]. Syringes and condoms, as well as counseling services, are provided by a trained social worker or a nurse. These services are funded by state and local budgets, while individual activities, such as behavioral research interventions aimed at expanding existing services, are funded by international projects.

The OCF model was developed by the Alliance for Public Health (APH) using results from the multicounty Project TRIP, based on data from Odesa [9]. TRIP data have particularly shown that networks included a higher proportion of undiagnosed HIV-positive people (14.6%) than IBBS (5.0%) or Outreach Testing (2.4%); with an odds ratio (OR) of 3.25 (95% CI 2.07, 5.12) versus IBBS and 7.03 (95% CI 5.95, 8.31) versus outreach testing respectively [17].

The OCF aims to support the expansion of HIV care and further medical treatment among HIV-positive PWID through improvements in HIV case finding and linkage to care. This strategy is based on recruitment of the extended risk social networks of HIV-positive PWID and their partners, the model uses a two-step recruitment algorithm where HIV-positive and high-risk to acquire HIV persons (so-called “seed”) identify and recruit persons for HIV testing from their social, sexual, or drug-using networks. Recruitment stops if two previous recruits are HIV-negative.

In order to improve access to HIV testing, DAST was used during the project. According to the DAST model, peer outreach workers carry rapid HIV tests when they are visiting PWID for the purpose of syringe or condom distribution. They offer assistance in conducting HIV self-testing, provide pre-test counseling, ensure the proper testing procedures,

provide post-test counseling, and follow up on positive cases by linking them to HIV care services. OraQuick oral fluid-based rapid tests for HIV were used for DAST at OCF [18].

The social workers of the Project were trained to identify PWID who have risky behavior and are not yet reached by harm reduction services, in order to offer DAST to them and their extended risk networks. Recruited Participants received incentives equivalent to \$2 USD for participation in the Project and partner's referral. All participants who tested positive through DAST were referred for confirmatory HIV testing to the "trust" points in the polyclinics.

All participants who received HIV positive test results were also offered case-management services as a part of the CITI, which is a short-term rapid linkage to treatment intervention to facilitate early treatment access for active drug users. This is an intervention that is aimed to locate HIV positive PWID and their partners and link them to HIV treatment using a case management approach.

OCF and CITI models were both included in Compendium of good practices in the health sector response to HIV in the WHO European Region [19].

Study population and Period

All participants of the OCF and CITI Interventions during the period of 2018-2019.

Table 1. Socio-demographic characteristics and HIV test results of clients enrolled in OCF Project in Almaty, Kazakhstan during 2018-2019.

Characteristics	Total (N = 5983) n (%)
Age group	
< 15	2 (0.03)
15-19	48 (0.80)
20-24	269 (4.50)
25-39	3454 (57.73)
40-49	1812 (30.29)
50+	398 (6.65)
Sex	
Female	1933 (32.3)
Male	4032 (67.4)
Not recorded	28 (0.3)
Harm reduction	
Yes	2422 (40.5)
No	2216 (37.0)
Not recorded	1345 (22.5)
HIV test result	
Negative	5834 (97.4)
Positive	149 (2.5)
Not Recorded	6 (0.1)
Vulnerable group	
PWID	5758 (96.2)
Others groups	225 (3.8)

OCF: optimized case finding; PWID: people who inject drugs.

Data collection and data analysis

A real-time data collection mobile application called OCFApp was used for program monitoring to record each test result and linkage to care information, as well as for scanning the QR codes on referral coupons. All data was entered directly by social workers on the screen of tablets/phones.

Information on variables related to the study objectives were extracted from the OCFApp database. Variables used in the study were, age groups (< 15, 15-19, 20-24, 25-39, 40-49, 50 and above), sex (male, female), harm reduction (yes/used harm reduction service at least once, no/never used harm reduction service), HIV test result (positive, negative) and vulnerability group (PWID, other groups of contacts referred to the project). Data were exported to Microsoft excel and analyzed using EpiData Analysis statistical software (version 2.2.3.187). Descriptive statistics and measures of central tendency were used for reporting. OR were calculated as parameter estimates for differences between groups and Chi-square tests were used for checking significance. Differences where the *p* value was less than 0.05 were considered to be statistically significant.

Ethical considerations

Ethical approval was received from the Ethics Committee of the High School of Health, MoH on 29.09.2017 (approval number: #03-10-479). As this was a retrospective analysis the de-identified data were extracted from project records. All participants consented to participation in the Project prior to enrollment.

Results

There were 5,983 persons (PWIDs and their partners) who were tested for HIV. Among them, 149 (2.5%) received HIV positive test result. The majority of the identified PLWH (145, 97%) were newly identified. Most of the project participants 3454 (58%) were in the age group of 25-39 years old. Of all participants tested for HIV 1933 (32%) were females. Group of PWID (5758, 96%) constituted the majority of participants enrolled in testing and 225 (4%) participants have reported as partners from "other groups". Around one-third of all participants (2216, 37%) reported that they have never received harm reduction services before; 2424 (40.5%) reported that they received harm reduction services at least once before and 1345 (22.5%) did not provide any information in this regard. All socio-demographic

characteristics and HIV testing results are presented in Table 1.

Factors associated with HIV positive test results

The characteristics (risk factors) which had a statistically significant association with HIV positive test results included: age group 15-19 (OR 4.12, 95% CI 1.44 – 11.7); age group 20-24 (OR 1.97, 95% CI 1.03-3.8); age group 50+ (OR 2.45, 95% CI 1.48-4.1); male sex (OR 1.78; 95% CI 1.2-2.6), participants who have previously received harm reduction services (OR 1.48; 95% CI 1.0-2.2); partners from “other groups” (OR 2.31, 95% CI 1.3-4.2). Details are presented in Table 2.

Discussion

Study findings show that the OCF approach using directly assisted HIV self-testing and Social Network Strategy for HIV Testing Recruitment allowed enrolling of a substantial number of participants (5,893) and 2.5% of them were HIV positive. Among them, a significant proportion (37%) have not been reached by harm reduction services before. According to the official data from Kazakhstan’s Republican AIDS Center, only 47.5% of PWID attend harm reduction services in Kazakhstan. [15] People from key populations are less likely to visit healthcare these facilities due to stigma and discrimination, fear of disclosure of status or social visibility, hostile attitude of medical staff, and geographical remoteness of the clinic [20]. Despite the availability of harm reduction services which are located in the health care facilities

(around 130 in Kazakhstan) access to these services is still not optimal and needs further evaluation and research to implement evidence-based models for recruiting new clients and improving access in general. Strategies that involve lay providers (health services delivery without professional certification) in organizing HIV testing for key populations are known to be effective in engaging people for HIV testing and care, especially those who have not been reached by the conventional HIV testing programs before [21–24]. Data from Ukraine suggests that OCF was 35% more effective in enrolling HIV-positive clients in harm reduction programs compared to conventional models of HIV testing [7]. Our study also demonstrates that OCF model can be effective in reaching new clients who will benefit from harm reduction and HIV prevention services and is critical in settings where a large number of key population members are not using harm reduction services.

The majority of participants were PWID and their injecting partners recruited within their risk and social networks. Only 225 (3.8%) participants were categorized as partners from “other groups”, this category usually includes sexual partners. The yield of HIV testing was twice higher in this group and constituted 5.3%. Globally, it is documented that PWID would often have non-injecting sex partners and unsafe sexual behaviors are still common and hard to change [25–27]. There is a need to develop, evaluate and implement strategies that will specifically engage sexual partners of PWID. Assisted partner notification (APN) for PLWH was implemented in Kazakhstan and

Table 2. Factors associated with HIV-positive test results among participants enrolled in OCF Project in Almaty, Kazakhstan during 2018-2019.

Characteristics	Total (N = 5983)	Negative (N = 5834)		Positive (N = 149)		Odds Ratio	95% CI
		n	(%)	n	(%)		
Age group							
< 15	2	2	(100)	0	(0)	-	-
15-19	49	45	(92)	4	(8)	4.12*	1.4 – 11.7
20-24	270	259	(96)	11	(4)	1.97*	1.0 – 3.8
25-39	3453	3380	(98)	73	(2)	Ref	
40-49	1811	1770	(98)	41	(2)	1.07	0.7 – 1.6
50 +	398	378	(95)	20	(5)	2.45*	1.5 – 4.1
Sex							
Female	1933	1901	(98)	32	(2)	Ref	
Male	4032	3915	(97)	117	(3)	1.78*	1.2 – 2.6
Not recorded	18	18	(100)	0	(0)	-	
Harm reduction							
No	2216	2175	(98)	43	(2)	Ref	
Yes	2422	2353	(97)	69	(3)	1.48*	1.0 – 2.2
Not recorded	1345	1306	(97)	37	(3)	1.43	0.9 – 2.2
Vulnerable group							
PWID	5758	5621	(98)	137	(2)	Ref	
Other groups	225	213	(95)	12	(5)	2.31*	1.3 – 4.2

OCF: optimized case finding; CI: confidence interval; * : statistically significant result; PWID: people who inject drugs.

showed promising results in reaching partners of PWID. The recent study by Little *et al.* suggests that APN resulted in significant increases in partners recruited per index case, and significant reductions in the number of index cases needed to find a new HIV-positive partner [28].

In our study, the HIV positivity yield was at the level of 2.5%, which echoes the data from Tajikistan where a similar approach called “active case finding”, showed a 1.5% HIV positivity yield while the HIV prevalence among PWID in Tajikistan is 13.5% [29]. However, it is significantly different from the results of the OCF implementation in Ukraine, with HIV positivity yields in OCF from 9% to 20% [7]. There are several possible explanations for this: firstly, in Ukraine, the HIV prevalence among PWID is 22% compared to 8.5% in Kazakhstan; secondly, the presence of HIV testing at harm reduction programs in Ukraine has ensured effective referral of HIV-positive PWID-identified as “seeds” which were the starting point for recruitment in OCF and “seeds” were not included in denominator while calculating yield. While in Almaty search for positive “seeds” was a part of the intervention and all positive and large numbers of negative “seeds” were included in the reporting, which could potentially influence the proportion of HIV-positive cases due to the high number of HIV-negative participants tested outside the SNS model. In order to assess the HIV case finding the potential of the SNS interventions, the HIV positivity yield among SNS “peers”, or people recruited in the model, should be evaluated separately from the testing done to identify “seeds”, as these are different HIV testing modalities. Unfortunately, we were not able to conduct a separate analysis for the number of tests done to identify HIV-positive “seeds” and HIV-positive “peers” due to the significant amount of missing data in this category. The issue of data quality should be separately addressed when planning and implementing the SNS interventions, as it is crucial to be able to provide separate analyses for each of the HIV testing modalities. It is important to note that 97% of the identified PLWH were newly identified cases that are more likely to spread infection and thus, the OCF is preventing the further spread of HIV.

Interestingly, participants from the youngest (15-19 years) and oldest 50 + age groups were around 4 and 3 times more likely to be HIV-positive while those from the 20-24 age group were twice more likely to get positive test results compared to the 25-39 age group. Similarly, males are almost twice more likely to get positive test results compared to females. It can

possibly be related to the lack of person-centered HIV prevention services which reflect the needs of each of these groups. Further qualitative research would help to identify the gaps in the current service provision for these groups.

There were a few limitations present in the study. First, we were not able to control for the data entry and the data was collected mainly for programmatic monitoring purposes; second, some data was not collected during the routing monitoring, thus a number of variables could not be included in the analysis; third, all information collected during the study except the results of the rapid test is based on self-reporting from the participants, which could be influenced by different factors, such as recall bias.

The strength of the study is that we collected and analyzed all available programmatic data for the defined period and it potentially reflects the reality of the implementation of the SNS intervention on the ground.

Despite the limitations, this study has an important implication. OCF and similar projects have good potential to identify HIV-positive persons who are not aware of their HIV status and should be introduced and expanded in settings with low uptake of harm reduction services by key populations.

Conclusions

Through the OCF project in Almaty considerable amount of PWID and HIV positive persons were identified among key populations. Factors associated with getting positive HIV test results are identified for the key population included in the study. Low threshold HIV testing and harm reduction services, like OCF using directly assisted self-testing and social network strategies are essential in reaching key populations with HIV prevention, increasing access to HIV testing and care. These models have shown promising results in a variety of settings and should be considered for adopting to the local context and further scale up especially in settings with low uptake of harm reduction services by key populations.

Acknowledgements

We are thankful to the Special Programme for Research and Training in Tropical Diseases at the World Health Organization (TDR) for supporting this research project.

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Conflict of interests: No conflict of interests is declared.