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# Behavioural and biological surveillance study on HIV among IDU, MSM and FSW in Kosovo 2011

Prishtina, October 2011

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*Technical Report*

October 2011

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# Executive Summary

Although Kosovo is a country with low HIV prevalence, the exposure to HIV among injecting drug users (IDUs) may be considerably higher. To assess the prevalence of HIV, Syphilis, HBV and HCV, as well HIV-related behavioral risks, a bio-behavioral RDS study was carried out in this key population in Prishtina in 2011. The study was a part of the second wave of HIV surveillance among most-at-risk populations. (The first wave was completed in 2006.)

In total, 205 IDUs (of whom five were seeds) were tested and interviewed in the July-August 2011 period. Age range in the sample was 19-54 (Mean age = 31.0; SD = 7.14). Most participants were men (179/200; EPP[1] = 88.7%). In regard to education, the largest percentage of recruited IDUs had completed secondary education (EPP = 49.3%). Slightly less than a third of participants were married at the time of the study (EPP = 30.9%). Permanent employment was reported by 35.1% (EPP) of IDUs in the sample.

No HIV+ cases were found. Four IDUs were infected with Syphilis (EPP = 2.0%; 95% CI = 0.3-4.3), 16 with HBV (EPP = 6.0%; 95% CI = 3.0-10.5) and 96 with HCV (EPP = 37.4%; 95% CI = 28.9-46.8). Of the HBV+ individuals, two were diagnosed as having an acute and nine as having chronic infection.

In the month preceding the study, 51 of 200 participants (EPP = 15.4%) injected drugs daily, with ten of them reporting four or more daily injections (EPP = 1.8%). While a large majority of IDUs injected drugs at home (EPP = 79.8%), a quarter of the sample reported injecting drugs in a shooting gallery or another closed location where IDUs gather (EPP = 20.2%). Heroin was the most frequently injected drug in the past month sample (EPP = 71.1%), followed by methadone (EPP = 28.7%).

A majority of IDUs were alone the last time they injected drugs (EPP = 63.0%). In the past week, 187 of 197 participants (EPP = 97.3%) did not share injecting equipment. A majority of IDUs (158/198; EPP = 83.8%) stated that they always use sterile injecting equipment. The last time they injected, a vast majority of surveyed IDUs (EPP = 99.2%) reported using a sterile needle and syringe. Although almost all participants mentioned buying sterile injecting equipment in pharmacies in the last month, a majority also obtained it from a needle-exchange program (EPP = 56.8%). About a half of the surveyed IDUs reported receiving free condoms in the past year (EPP = 53.2%). Using *Labyrinth* services in the same period was reported by 154 of 197 participants (EPP = 68.8%).

Slightly over a half of participants (EPP = 51.8%) were ever treated for drug abuse.

In regard to sexual behaviors, a majority of recruited IDUs were sexually active in the month preceding the study (EPP = 74.1%), of which about a quarter had

[1] EPP = estimated population proportion (RDS-weighted percentage)

multiple sexual partners (EPP = 27.1%). A minority of participants had regular sexual partner who was also injecting drugs (EPP = 8.5%). Less than a third of the surveyed IDUs used condoms consistently in the past month (EPP = 30.3%). The last time they had sexual intercourse with a regular partner or spouse, a condom was used by 28.4% (EPP) of participants. The percentage was notably higher when reporting about the last intercourse with a non-regular, casual partner (EPP = 60.3%). Ten participants (EPP = 3.4%), six men and four women, reported selling sex, or exchanging it for drugs, in the past 12 months. The identical proportion of IDUs bought sex for money or drugs in the same period. Condom use at most recent commercial sexual intercourse was reported by all participants who sold or bought sex in the past year.

About one fifth of participants (EPP = 22.0%) answered correctly to all five standard UNGASS HIV knowledge indicators. When asked whether "HIV can be transmitted using a needle and/or syringe already used by somebody else", almost all participants (196/200) gave a correct answer. Similarly, a majority of IDUs (181/200; EPP = 89.0%) knew that HIV can be transmitted by "sharing an already used needle or syringe which was washed in water before the next use".

Ever testing for HIV was reported by 156 participants (EPP = 75.0%), of whom 79 tested in the past 12 months. A great majority of IDUs received the result of their most recent HIV test (EPP = 96.4%). In regard to HIV risk self-assessment, almost a third of interviewed IDUs (EPP = 31.9%) assessed their risk of becoming infected with HIV as non-existent, with additional 36% qualifying it small. Less than ten percent of participants (EPP = 8.4%) considered the risk substantial. Twenty-two participants (EPP = 12.7%) reported being diagnosed with an STI in the past year. Only seven of them, however, seem to have undergone the prescribed treatment.

In comparison to the first surveillance wave carried out in 2006 (Impact, 2007), statistically significant increases in the proportion of IDUs who ever tested for HIV and who reported using sterile injecting equipment at most recent drug injecting episode were observed in 2011. In addition, in the observed period the prevalence of HBV among study participants decreased, while the prevalence of HCV increased by about three times.

Although the study met all basic requirements of RDS methodology (Johnston et al., 2009), generalizability of the findings should be approached with caution due to a relatively small sample size and the fact that a majority of recruited IDUs have used Labyrinth drop-in and needle-exchange services in the past. The findings point to low levels of injecting equipment sharing, although the prevalence of HCV infection suggests that this is a recent development. Relatively infrequent and inconsistent condom use, coupled with low HIV risk self-assessment, emphasizes a need for a stronger promotion of condom use in the population. Overall, the observed changes in the levels of risk-taking behaviors in this key population confirmed the importance of repeated high-quality bio-behavioral HIV surveys in this key population (Zaba et al., 2005; Brown, 2003).

# List of Abbreviations

BBS = Bio-behavioral surveillance

HBV = Hepatitis B virus

HCV = Hepatitis C virus

HIV = Human immunodeficiency virus

EPP = Estimated population proportion

IDU = Injecting drug use

IDUs = Injecting drug users

NGO = Non-governmental organization

RDS = Respondent-driven sampling

SGHS = Second generation HIV surveillance

STI = Sexually transmitted infection

UNGASS = United Nations General Assembly Special Session

VCT = Voluntary counseling and testing

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# Background

The fact that injecting drug use (IDU) has been responsible for a rapid spread of HIV epidemic in a number of countries world-wide (Aceijas & Rhodes, 2007; Reintjes & Wiesing, 2007; Jarlais, 2009) was taken as a starting point for setting surveillance priorities in Kosova. Apart from direct risks of HIV transmission through sharing injecting equipment, IDUs' vulnerability stems from the characteristics of the social environment in which they commonly live (Rhodes et al., 2005; Strathdee, 2010). Poverty and poor health, inaccessibility of health services, violence, and lack of social support are typical characteristics of the social world in which many IDUs live.[2] Coupled with the existential centrality of securing a daily dose of drugs, such living conditions foster short-term planning and a high tolerance to a range of health risks.

Despite the currently low levels of HIV risk in Kosovo (between 1986 and 2008, 74 HIV/AIDS cases were registered, mostly among migrant workers; Kosovar AIDS Committee, 2009), several potential drivers of the HIV epidemic remain present. Widespread poverty, high unemployment rates, and a rapid pace of societal transformation, which has been coupled with political instability and security issues related to the ongoing dispute with Serbia, provide a socio-cultural background conducive to risk taking. In addition, a growing drug problem (Arenliu & Donoghoe, 2001; Labyrinth, 2007) – closely associated with organized crime and the fact that Kosovo is on an important international drug trafficking route (heroin is relatively cheap in Kosovo) – has been increasing potential exposure to HIV, particularly among young people.

According to a 2007 research report, about 3000 individuals may be injecting drugs in Kosovo, a half of them in Prishtina (Labyrinth, 2007). The number was expected to rise to about 5000 in 2012. It has been suggested that age at first heroin injection is decreasing and that the prevalence of IDU may be increasing among young women. In the 2007 mapping study carried out by the Labyrinth, an NGO working with IDU population, difficulties with obtaining sterile injecting equipment were noted.

Taking into consideration the plan of action stipulated by Kosovo Strategic Plan on HIV/AIDS 2009-2013 (Kosovar AIDS Committee, 2009), which emphasized the need to strengthen the national HIV surveillance system focusing on key populations at risk, three BBS studies were carried out in 2011 among IDUs, female sex workers, and men who have sex with men. A commitment to using high-quality, state of the art methodology was judged essential for all research activities within the Second generation HIV surveillance (SGHS) framework – both in terms of capacity building and future data comparability. In this report, findings from the bio-behavioral surveillance study carried out using RDS methodology among IDUs in Prishtina are

[2] For the situation in Kosovo, see the recent Kosovar AIDS Committee report (2009).

presented and discussed. The primary aims of the study were to provide biological and behavioral indicators of HIV exposure in this key population and to compare the levels of risk exposure to those observed in the first surveillance round (2006; cf. Impact, 2007).

# Method

### *RDS Methodology*

Respondent-driven sampling (RDS) has been used in various settings to recruit hard-to-reach populations (Heckathorn, 1997; Malekinejad et al., 2008). By the end of 2007, RDS methodology has been used in at least 29 countries in the world (Johnston et al., 2009). One of the key advantages of RDS approach is that it can reach individuals who cannot be reached otherwise (e.g. in institutionalized settings or public venues). In brief, RDS is a chain referral method that starts with the selection of a limited number of initial respondents ("seeds") who are asked to recruit other members of the target population distributing coupons received from the study staff. Each recruited respondent who meets the eligibility criteria and participates in the study is given the same number of coupons and the recruitment continues until targeted sample size is reached. RDS sampling is based on the Markov theory of chains, which demonstrates that the bias introduced by non-random selection of initial respondents is eliminated as the recruitment progresses from wave to wave.[3] Usually after 4-6 waves, the sample composition becomes independent from the initial choice of seeds. Unless its core assumptions about peer recruitment are violated, RDS can produce a probability-based sample and enable generalization of findings (Abdul-Quader, 2006). Population estimates can be calculated using specific statistical software (RDSAT), which enables data weighting according to personal network size (recruitment probability) and recruitment patterns (selection probabilities).

To assess the feasibility of RDS methodology, formative research is carried out to collect information about personal network sizes, willingness to participate in a HIV bio-behavioral study, the desirable level of incentives, and the type of preferred study site. In the case of this study, only a brief and informal formative research was carried out among the IDUs who use Labyrinth services. As no major problems were encountered during the 2006 RDS study in the same population (see Impact, 2007), there was no need for a more detailed formative research.

### *The Site*

An NGO premises (Labyrinth) were used as the study site. Many IDUs were already familiar with the place as it is the only needle exchange center in Prishtina. The site was close to the city center and easily accessible. Operating hours were 12 – 6pm, five days a week.

[3] The point after which further recruitment cannot substantially change the distribution of a particular characteristic in the sample is called *equilibrium*.

### *Procedure and Participants*

According to inclusion criteria, an individual was eligible to participate in the study if he/she was: (a) 18-50 years of age, (b) spoke Albanian, (c) had injected drugs at least once in the past month, and (d) living and/or working in Prishtina (or having injected drugs there regularly for at least three months in the past year).

All eligible individuals were informed about the nature and requirements of the study (type of data collected, procedures, incentives, etc.) and asked for informed consent. After verbal consent was obtained, the participant was interviewed and then briefed about biological testing (pre-test counseling). Following blood drawing, the participant received primary incentive (10 EUR) and three coupons for peer recruitment. During the second visit, the participant was given post-test counseling, during which test results were communicated, and asked a few questions about recruitment ("How many IDUs refused your coupons and why?"). Secondary incentive was paid depending on how successfully the participant recruited (max. 3 x 2 EUR).

Participants who were found positive for HBV and HCV were referred for treatment to a specialist of Infectology at the Infectious Disease Clinic, University Clinical Centre of Kosova in Prishtina.

Data collection took place from July 3 to August 3, 2001. The total sample size was 205 IDUs, including five seeds (one female and four male IDUs). Of the men who visited the site, only two were found non-eligible – one tried to participate for the second time and the other was a non-injecting drug user.

### *Questionnaire and Measures*

The questionnaire was developed at the WHO Collaborating Center Zagreb. It was translated to Albanian, piloted for comprehension, and then slightly revised (cf. Appendix). In addition to sociodemographic data, information on IDU and related treatment, sexual behaviors, HIV knowledge, HIV testing, self-reported sexually transmitted infections (STIs), and HIV risk self-assessment was collected. The standardized UNGASS indicators (UNAIDS, 2007) were used as the core variables.

*Personal network size* was assessed by a sequence of the following questions: (1) How many IDUs who live in Prishtina do you know by name/nickname and they know you by name/nickname; (2) How many of them have you seen during the last three months; (3) How many of those you saw were younger than 18; (4) How many of them were older than 50?

### *Biological component*

Participants were tested for HIV, Syphilis, and Hepatitis B & C virus. ELISA tests produced by DIALAB Austria were used to detect HIV 1/2 antibodies, HCV antibodies, Syphilis antibodies, Hepatitis B Surface Antigen, Hepatitis B Surface Antigen Antibodies, Hepatitis B envelope antigen, total antibodies against Hepatitis B core antigen, and IgM antibodies.

### *Statistical Analysis*

RDSAT (version 6.0.1.) statistical software was used to obtain weighted population proportions with 95% confidence intervals of the variables of interest. Seeds were excluded from all analyses. Personal network size was constrained (pulled in) to the minimum of three and maximum of 150.

### *Ethical Considerations*

All study procedures were approved by the Professional Ethical Board of the Republic of Kosovo Ministry of Health and carried out in accordance with ethical principles stipulated in the Declaration of Helsinki. Informed consent for both the behavioral and biological data collection was asked from each participant. To protect participants' anonymity (no personally identifying information was collected at any point), screeners signed a consent form after the participant gave his/her consent orally. The signature testified that the consent was given. Interviews were conducted privately, in separate rooms, to ensure confidentiality. All team members received training on ethical conduct in the field.

# Results

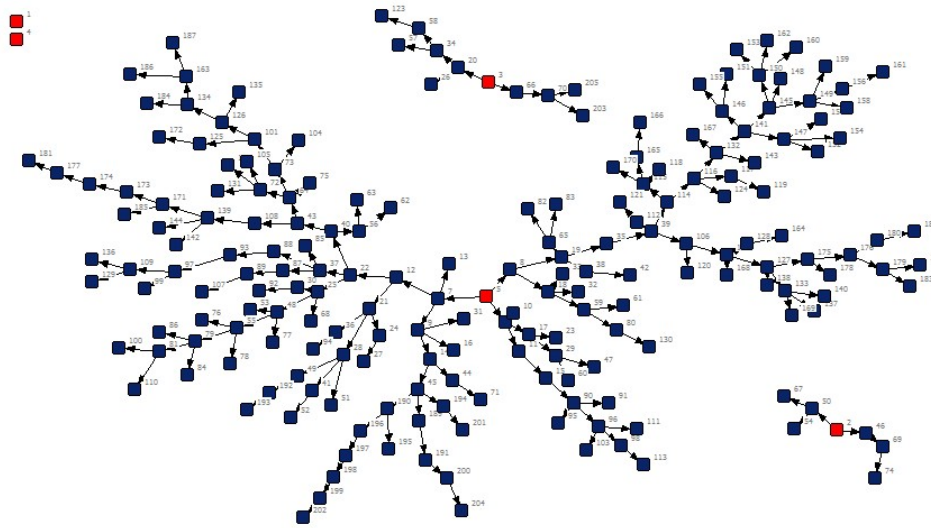
In this section we present the major findings from the study. We start with the sample sociodemographic characteristics and then proceed to report on HIV-relevant indicators using RDSAT weighted data.

### *Basic Sociodemographic Characteristics of the Sample*

The study included 205 IDUs, of whom five were seeds (non-randomly selected participants). The network structure of the sample is shown in Figure 1. Participants were well-networked; the mean personal network size was 12.6. Age range in the sample was 19-54 (Mean age = 31, SD = 7.14). Considering age structure, the 19-29 age group was the most numerous (EPP = 47.8%), followed by the 30-39 age group (EPP = 42.8%).

Most participants were men (179/200; EPP[4] = 88.7%). A majority of recruited IDUs had completed high school (100/200; EPP = 49.3%), while a fifth of participants reported at least some college education (EPP = 21.6%). Less than six percent (EPP = 5.8%) of IDUs had no income in the past month. A similar proportion of participants reported being financially supported by their family (EPP = 40.4%) and being employed – either permanently (EPP = 35.1%) or temporary (EPP = 10.8%). A majority of IDUs were living in their own apartment/house (EPP = 47.4%) or with their parents (EPP = 27.7%). About a half of participants were single (EPP = 48.4%), while slightly less than a third reported being married at the time of the study (EPP = 30.9%).

**Figure 1** – *The network structure of the IDU Prishtina 2011 study (seeds are shown as red nodes)*



[4] EPP = estimated population proportion (RDS-weighted percentage)

### *Biological Data*

No HIV+ cases were found in this study (Table 1). Four IDUs were infected with Syphilis (EPP = 2.0%; 95% CI = 0.3-4.3). HBV was diagnosed in 16 (EPP = 6.0%; 95% CI = 3.0-10.5) and HCV in 96 cases (EPP = 37.4%; 95% CI = 28.9-46.8). Of the former, two cases were diagnosed as an acute and nine as chronic HBV infection. As expected, HCV+ participants were moderately clustered within the sample network (see Figure 2), with a homophily rate of .33 among the infected IDUs.

**Figure 2** – Network clustering of HCV infection (red nodes = HCV+)

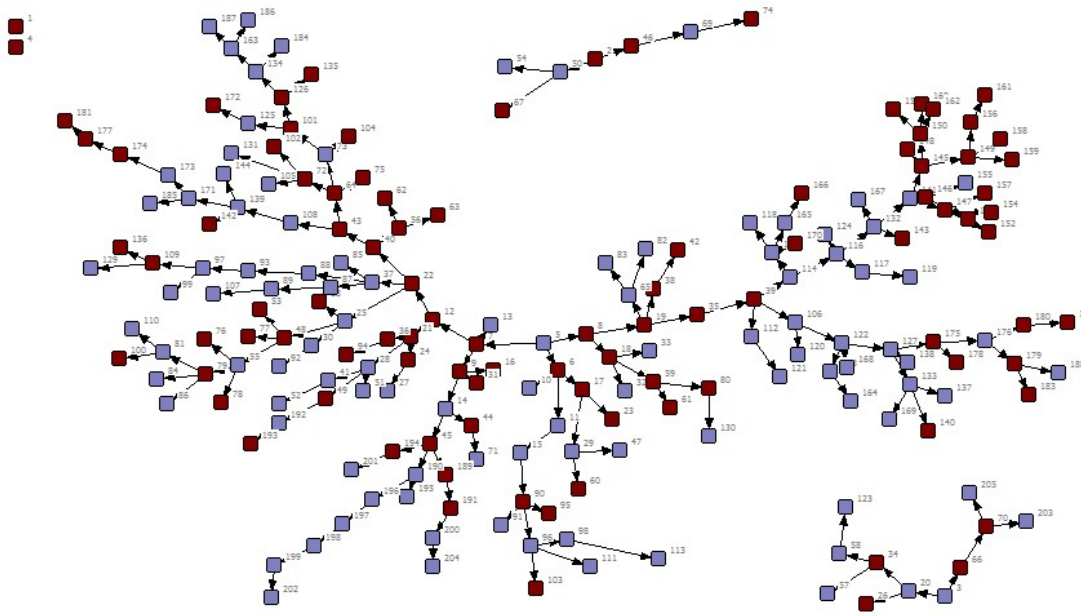


**TABLE 1** –*Sample and population prevalence of the core biological and behavioral indicators of HIV-related risk taking among IDU in Prishtina*

| *Indicator* | *n/N*[a] | *Sample prevalence (%)* | *Estimated population prevalence (%)*[d] | *Population prevalence 95% CI* | Equilibrium reached at wave #[e] |
|---|---|---|---|---|---|
| HIV | 0/200 | / | / | / | / |
| Syphilis | 4/200 | 2.0 | 2.0 | 0.3-4.3 | 3 |
| HBV | 16/200 | 8.0 | 6.0 | 3.0-10.5 | 1 |
| HCV | 96/200 | 48.0 | 37.4 | 28.9-46.8 | 3 |
| Shared injecting equipment in the last week | 10/197 | 5.1 | 2.7 | 0-4.5 | 3 |
| Used sterile injecting equipment at last injection | 197/200 | 98.5 | 99.2 | 98.1-100 | 1 |
| Injected drugs daily in the past month | 51/200 | 25.5 | 15.4 | 10.5-21.3 | 4 |
| Most often injected drug in the past month<br>Heroin<br>Methadone | <br>122/194<br>71/194 | <br>62.9<br>36.6 | <br>71.1<br>28.7 | <br>61.7-78.6<br>21.3-38.2 | 6 |
| Ever overdosed to the point of losing consciousness | 64/200 | 32.0 | 32.8 | 25.1-41.1 | 2 |
| Had sexual intercourse in the past month | 142/192 | 74.0 | 74.1 | 64.4-81.0 | 3 |
| More than one sexual partner in the past year | 30/105 | 28.6 | 27.1 | 16.0-39.2 | 4 |
| Used a condom at last sexual intercourse with regular partner or spouse | 65/184 | 35.3 | 28.4 | 21.1-37.9 | 2 |
| Used a condom at last sexual intercourse with a casual (non-regular) partner | 104/168 | 61.9 | 60.3 | 49.5-67.2 | 2 |
| Used condoms consistently in the past month (when having sexual intercourse) | 36/106 | 34.0 | 30.3 | 192-46.0 | 5 |
| Sold sex in the last 12 months[b] | 10/188 | 5.3 | 3.4 | 1.1-6.4 | 2 |
| Used a condom the last time he/she sold sex | 10/10 | / | / | / | / |

| | | | | | |
|---|---|---|---|---|---|
| Bought sex in the last 12 months[b] | 8/188 | 4.3 | 4.0 | 1.5-7.9 | 2 |
| Used a condom the last time he/she bought sex | 8/8 | / | / | / | / |
| Correctly identifies ways of preventing HIV transmission and rejects major misconceptions about HIV transmission[c] | 43/200 | 21.5 | 22.0 | 15.2-29.5 | 4 |
| Knows where free and anonymous HIV test is (locally) available | 142/197 | 72.1 | 64.9 | 56.8-73.3 | 2 |
| Received free condoms in the past year | 119/196 | 60.7 | 53.2 | 44.2-61.8 | 1 |
| Used Labirint services in the past 12 months | 154/197 | 78.2 | 68.8 | 60.5-77.8 | 2 |
| Ever attempted to quit or reduce drug abuse | 99/196 | 50.5 | 51.8 | 43.0-60.7 | 2 |
| Ever been to prison | 107/200 | 53.5 | 51.5 | 40.9-61.8 | 3 |
| Ever injected in prison | 4/69 | 5.8 | 6.4 | 0-23.4 | 4 |
| Ever tested for HIV | 156/197 | 79.2 | 75.0 | 65.7-84.0 | 3 |
| Tested for HIV in the past 12 months | 79/130 | 60.8 | 58.5 | 50.2-70.1 | 1 |
| Knows the result of his/her the most recent HIV test | 126/130 | 96.9 | 96.4 | 89.6-100 | 6 |
| Diagnosed with an STI in the last year | 22/193 | 11.4 | 12.7 | 7.0-17.8 | 2 |
| Self-assessed HIV risk | | | | | 3-4 |
| No risk | 61/192 | | 27.5 | 16.8-36.6 | |
| Low riks | 63 | | 31.8 | 22.8-42.5 | |
| Moderate risk | 30 | | 17.8 | 10.0-27.4 | |
| High risk | 38 | | 23.0 | 14.8-32.3 | |

[a]Seeds (n=5) are not included in the total number (N)
[b]Or exchanged it for drugs
[c]Answered correctly to all five UNGASS HIV knowledge questions
[d]RDS-weighted data
[e]The column contains information about the study wave in which equilibrium was reached for the particular indicator

### *Patterns of Injecting Drug Use*

On average, the surveyed IDUs were 22.3 years of age (SD = 6.39) when they first injected. In the month preceding the study, 51 of 200 participants (EPP = 15.4%) injected drugs daily, with ten of them reporting four or more daily injections (EPP = 1.8%). While a large majority of IDUs injected drugs at home (EPP = 79.8%), a quarter of the sample injected in a shooting gallery or at another closed location where IDUs gather (EPP = 20.2%). Last time they injected, a majority of IDUs were reportedly alone (EPP = 63.0%).

In the past week, 187 of 197 participants (EPP = 97.3%) did not share injecting equipment. Those who shared it mostly used the equipment that belonged to their friends. Asked about how often they use sterile injecting equipment, 158 of 198 participants stated that they always use sterile needles and syringes (EPP = 83.8%). As would be expected from the above findings, a vast majority of surveyed IDUs (EPP = 99.2%) reported that they used a sterile injecting equipment the last time they injected. However, 14 IDUs (EPP = 6.0%) reported that someone used the same needle or syringe afterwards.

Most participants who ever shared the equipment (42 IDUs of 45) claimed that they tried to clean or disinfect the needle and syringe they shared. Fifteen participants disinfected needles and syringes with boiling water, 15 tried to clean the equipment with cold or warm/hot water, and nine used alcohol. No one reported using bleach. When asked about where they obtained new needles and syringes in the past month, all but one participant reported buying them in a pharmacy. Importantly, a substantial proportion of IDUs also mentioned obtaining sterile injecting equipment from an NGO (EPP = 56.8%). It should be mentioned that 154 of 197 participants reported using Labyrinth services in the past 12 months (EPP = 68.8%).

In the month preceding the study, heroin was the most frequently injected drug in the sample (EPP = 71.1%), the one that almost all IDUs injected at least once (EPP = 97.3%). Methadone was the second most popular drug to inject (EPP = 28.7%). Ever to have lost consciousness due to overdosing was reported a third of IDUs (EPP = 32.8%). About a half of participants (EPP = 51.8%) were ever treated for drug abuse. In regard to the type of treatment, most IDUs mentioned a rehabilitation program in a medical setting (EPP = 72.5%).

In the past 12 months, 29 IDUs (EPP = 12.8%) were arrested for drug abuse (more than 45% reported ever being arrested). Ever being imprisoned was reported by a slight majority of participants (EPP = 51.5%). Four participants reported injecting themselves while in prison.

### *Patterns of Sexual Behavior*

Participants' mean age at first sexual intercourse was 15.7 (SD= 3.13). A majority of IDUs were sexually active in the month preceding the study (EPP = 74.1%), of which about a quarter had multiple sexual partners (EPP = 27.1%). On average, 1.4 sexual partners were reported in the past month. Less than a third of the surveyed IDUs used condoms consistently in that period (EPP = 30.3%). The last time they had sexual intercourse with a regular partner or spouse, a condom was used by 28.4% (EPP) of participants. Expectedly, the percentage was substantially higher when reporting about the last intercourse with a non-regular or casual partner (EPP = 60.3%).

Seventeen participants (EPP = 8.5%) revealed that their regular partner also injects drugs. A small minority of the surveyed IDUs (n=11; EPP = 5.7%) had sexual intercourse with a casual drug-injecting partner. Of the 51 IDUs who reported ever to have sex with such partner, 22 stated that they used a condom at most recent sexual intercourse with non-regular drug-injecting partner. The experience of anal intercourse was reported by 60 participants (EPP = 30.9%), 58 men and 2 women.

Ten participants (EPP = 3.4%), six men and four women, reported selling sex or exchanging it for drugs in the past 12 months. The identical proportion of IDUs bought sex for money or drugs in the same period. Condom use at most recent commercial sexual intercourse was reported by all participants who sold or bought sex.

### *HIV Knowledge, HIV Testing, HIV Risk Self-Assessment, and the Experience of Sexually Transmitted Infections*

About one fifth of participants (EPP = 22.0%) answered correctly to all five standard UNGASS HIV knowledge indicators. Additional 23% provided correct answers to four and 40.2% to three questions that assessed HIV knowledge. When asked whether "HIV can be transmitted using a needle and/or syringe already used by somebody else?", almost all participants (196/200) gave a correct answer. Similarly, a majority of IDUs (181/200; EPP = 89.0%) knew that HIV can be transmitted by "sharing an already used needle or syringe which was washed in water before the next use". A great majority of participants (EPP = 94.9%) stated that condoms can substantially reduce the risk of HIV infection.

In total, 156 participants ever tested for HIV (EPP = 75.0%), of whom 79 tested in the past year. Almost all IDUs received the result of their most recent HIV test (EPP = 96.4%). About a half of the surveyed IDUs reported that they were given free condoms in the past 12 months (EPP = 53.2%).

In regard to HIV risk self-assessment, almost a third of interviewed IDUs (EPP = 31.9%) assessed the risk of becoming infected with HIV as non-existent, with

additional 36% qualifying the risk as small. Less than ten percent of participants (EPP = 8.4%) considered the risk "substantial".

Finally, 22 participants were diagnosed (by a doctor) with an STI in the past 12 months (EPP = 12.7%). Only seven of them, however, reported that they completed a medical treatment for the infection.

# Discussion

Kosovo is currently characterized by low-level HIV epidemic, with most HIV/AIDS cases diagnosed among migrant workers. As pointedly summarized in the Kosovo Strategic Plan on HIV/AIDS 2009-2013, "incompleteness of routine case reporting, lack of accurate data, low utilization rates of VCT", and the existence of a number of economic, socio-cultural, and security-related potential drivers of HIV epidemic demand a systematic and reliable HIV surveillance among key populations (Kosovar AIDS Committee, 2009: 3-6). As a part of this agenda, the present BBS study assessed the prevalence of HIV-related risk taking behaviors, HIV, Syphilis, HBV, and HCV among IDUs in Prishtina. The study represented the second wave of HIV surveillance among IDUs (the first was carried out in 2006).

No HIV+ cases were found among 200 mostly heroin-using IDUs, aged 19-54 years. The prevalence of Syphilis and HBV were relatively low, unlike the prevalence of HCV (37%) which suggested considerable rates of needle and syringe sharing in the past. Although the levels of injecting equipment sharing were reportedly low, the self-reported character of the data requires caution.

In regard to sexual risk taking, the findings on inconsistent condom use and multiple sexual partners suggest a need for a more comprehensive condom use promotion in the population, especially as a majority of participants self-assessed the risk of becoming infected with HIV infection as low. (The finding that 22 participants reported being diagnosed with an STI in the past year further supports this conclusion.) Commercial sex did not seem to be a source of considerable exposure to HIV risks, although a small number of recruited women may have underestimated the prevalence of sex selling in this population.

The proportion of IDUs who ever tested for HIV was reasonably high. When compared to the results from the 2006 study (for details, see the next section), the finding that 79% percent of participants who ever tested reported that they tested for HIV in the past 12 months suggests a successful scaling up of HIV testing among IDUs in Prishtina.

### *Comparisons to the 2006 Surveillance Data*

In 2006, the first round of BBS was carried out among IDUs in Kosovo. Although the 2011 study used the same methodology (RDS approach), comparisons between the 2006 and 2011 study waves are limited due to the following differences:

(a) The 2006 study was carried out in Prishtina *and* Prizren, with over one third of IDUs recruited in Prizren;

(b) The 2006 study used 13 seeds, which resulted in shorter recruitment chains (the maximum length was 8 in 2006 and 13 in 2011). As suggested in literature (cf.

Abdul-Quader et al., 2006; Johnston et al., 2009), the longer the recruitment chains, the greater likelihood that some more specific and less connected parts of the population will be represented in the sample;

(c) Socio-demographic profiles of the 2006 and 2011 samples were somewhat different. The 2006 sample was younger (the average age was 26 in 2006 and 31 in 2011) and had fewer female participants (13 vs. 21);

(d) Finally, different biological tests were used to assess the prevalence of HIV, Syphilis, HBV, and HCV.

Keeping in mind these constraints, a number of similarities and differences between the two study waves should be briefly discussed. Apart from the fact that no HIV+ cases were discovered in either of the studies, a similarly high level of knowledge about HIV transmission routes was observed in both surveillance waves. The percentage of correct answers to the question whether HIV can be transmitted via injecting equipment sharing was slightly higher in 2011 (96%) than in 2006 (89%), but the difference was not statistically significant (the respected 95% confidence intervals overlapped).

A relative stability was also observed in the proportion of IDUs who were ever treated for their addiction in the observed period. In 2006, 40.5% of IDUs reported ever to have undertaken a treatment program, while in 2011 the percentage increased to51.8%. However, the difference was not statistically significant as 95% confidence intervals overlapped. Similarly, although rates of condom use at most recent sexual intercourse with a regular (2006 = 17.7%, 2011 = 28.4) and non-regular partner (2006 = 45.1%, 2011 = 60.3%) seemingly increased, the differences was statistically insignificant. The situation with HIV testing was, however, different. There was a substantial and statistically significant ($p < .05$) difference in the proportion of IDUs who reported ever to have tested for HIV in the two studies (2006 = 40.7% and 2011 = 75.0%). The most important 2006-2011 difference was a substantial increase in the proportion of IDUs who reported using sterile injecting equipment at most recent drug injection episode (2006 = 87.9% and 2011 = 99.2%). The difference was statistically significant and substantial: only three participants shared injecting equipment in 2011 in comparison to 26 in 2006.

There were also stark and statistically significant differences in the prevalence of HBV and HCV between the two surveillance studies. The proportion of HBV+ has substantially decreased from 2006 (20.1%) to 2011 (6.0%), while the proportion of HCV+ has equally dramatically increased in the same period (2006 = 12.5% and 2011 = 37.4%). At this moment, it is not clear how to account for these important differences. Additional analyses and data triangulation should assist in finding out whether the lower HCV prevalence reflects successful treatment of infected IDUs, as well as if the higher HCV prevalence should be attributed to somewhat older population in the 2011 sample, different tests used in the studies, a higher level of behavioral risks or a combination of these factors.

### *Validity of RDS Approach*

Basic requirements of respondent driven sampling are that members of a given population are sufficiently networked and that they do not discriminate when recruiting each other. Information about the average network size in this study confirmed that IDUs in Prishtina are well-connected. Another important methodological requirement of RDS is that the person who recruits and the one who is recruited by him are not strangers, as this would violate the core principle of network-based sampling. In this study, only nine IDUs (4.5%) reported that they received a coupon from someone they did not know from before.[6] There were no reports of coupon refusals in this study.

Overall, the study seems to have fulfilled all basic methodological requirements (cf. Johnston et al., 2009). As shown in Table 1, recruitment chains proved to be sufficiently long to reach equilibrium on all core indicators and to enable reaching less connected segments of the population.

### *Study Limitations*

The issue of representativeness (e.g. how well the sample mirrors the population of IDUs in Prishtina) should be considered in the context of the sociodemographic structure of this study sample, as well as in the light of the fact that a majority of participants (almost 70%) have used Labyrinth services in the past. It cannot be ruled out that the study under-represented IDUs who are not affiliated with this NGO that focuses on harm reduction and who, thus, may be more exposed to HIV risks. If feasible, future studies should attempt to reduce this possible bias by selecting seeds unfamiliar with Labyrinth.

As the behavioral part of this study relied on self-reporting, the validity of some of the findings needs to be assessed taking into account that all interviews took place at Labyrinth premises. Considering that a majority of IDUs in this study use services offered by the NGO, it is possible that some participants felt pressured to provide socially desirable answers (particularly when questions were associated with the services offered by Labyrinth). Such bias would have resulted in an underestimation of risky behaviors.

The final study limitation is a relatively small sample size – determined solely by financial constraints – which reduced statistical power of the presented analysis.

[6] Up to 10% of «blind» recruitments are usually tolerated in RDS studies.

# Recommendations

*A/ Methodological Issues*

- In the future HIV surveillance waves, larger sample sizes should be considered to improve statistical power (it has been recently suggested that even the design effect of two may not be sufficient for RDS studies);
- To increase sample heterogeneity and generalizability of findings, future studies should attempt to recruit seeds unfamiliar with the available NGO services.

*B/ HIV Surveillance and Prevention/Intervention Issues*

- To enable a wider reach of the currently existing NGO services, outreach work (including peer-to-peer HIV and STI information dissemination) should be intensified in this key population;
- Although the crucial role of opioid substitution in HIV prevention among IDUs is well-established, particularly in low-prevalence settings (Strathdee et al., 2010; Degenhardt et al., 2010; Jarlais, 2009), implementation of this harm-reduction strategy in Kosovo will need to take into account the finding that methadone is often injected;
- Inconsistent condom use in this study suggests a need for a more comprehensive promotion of protected sex among IDUs. The distribution of free condoms should be intensified and coupled with targeted sex education and information dissemination. A brochure targeting IDUs, which would focus on the importance of safer sex (to protect oneself and one's partner/s from STIs) should also be considered;
- Targeted education about HCV infection that would include prevention and treatment messages and guidelines should be intensified. The recent efforts in that direction, which were undertaken by Labyrinth, should be supported and expanded;
- STI diagnostics and treatment should be improved in the population;
- HIV surveillance surveys among IDUs should be continued at regular intervals (every 2-3 years) using comparable high-quality methodology and standardized behavioral indicators;
- In regard to high unemployment among young Kosovars and the overall economic situation, a qualitative analysis of commercial sex involving IDUs of both genders is needed to provide a better understanding of the phenomenology of this bridging route for HIV infection and its potential to spread in the population.

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# APPENDIX – *Study Questionnaire*

## RDS study among injecting drug users, 2011

| RDS personal code label – HERE! |
|---|

**DEMOGRAPHIC CHARACTERISTICS**

First, I would like to ask you some questions regarding your life in general.

01. Which year you were born?

| | Enter the year |
|---|---|

02. Sex? (*do not read the answers)*

1. Male
2. Female

03. What is the **highest level** of education you completed?

1. No formal education
2. Some primary
3. Primary
4. Some secondary
5. Secondary
6. Some college
7. College/university

04. Currently, are you:
1. Married
2. Divorced
3. Widowed
4. In a steady relationship
5. Single

05. Where did you live most of the time during the last three months? (*do not read the answers*)

**ONLY ONE ANSWER!**
1. In your own house or apartment *(house or apartment of your spouse or partner*)
2. In a rented house or apartment *(house or apartment of your spouse or partner*)
3. In your parents' house or apartment
4. In someone else's house or apartment *(of your relatives, friends)*
5. No permanent location *(e.g., street, park, abandoned building)*
6. Prison
7. Somewhere else (where?) _____

06. What was the main source of your income during the last month?

1. No income in the last month
2. Permanent employment
3. Temporary job/part-time job
4. Family support
5. Selling drugs
6. Stealing and/or begging
7. Something else (what?) _____

07. How many injecting drug users who live in Prishtina do you know by name (and they know you be name or nickname)?

_____

08. How many of them have you seen during the last three months?

_____

09. How many of those you saw were younger than 18? _____

10. How many were older than 50? _____

11. Who was the person who gave you the coupon to participate in this study?

1 – Friend
2 – Acquaintance
3 – Relative
4 – Stranger; never saw that person before

12. Why did you accept the coupon and came here? **SEEDS ARE NOT ASKED THIS QUESTIONS** (*Do not read the answers!* ***ONLY ONE ANSWER***)

1. Because of money
2. Because I want to be tested on HIV
3. I want to be tested for syphillis
4. Because a friend/acquaintance/relative ask me to do it
5. Had nothing better to do
6. Something alse (state what): _____

**DRUG USE**

Now, I would like to ask you some questions about drug use.

13. How old were you when you started injecting drugs? _____ years

14. How frequently you injected the drug during the last month?

1. Once
2. 2-3 times
3. Once a week
4. 2-3 times a week
5. 4-6 times a week
6. Once a day
7. 2-3 times a day
8. 4 or more times a day

15. How many times did you inject the drug yesterday? (ENTER “0” IF PARTICIPANTS DID NOT INJECT DRUGS)

_____ time(s)

16. During the last month, where did you inject drugs? (MULTIPLE ANSWERS ARE POSSIBLE)

1. At my home
2. In a private house or apartment
3. In a public place, e.g. a bar, shop, toilet
4. In a dealer's house or apartment
5. On the street or in the park
6. In a shooting gallery or in another place where IDUs gather
7. In a prison
8. Someplace else (where?) _____
9. Refused to answer

17. The last time you injected, how many people were injecting drugs with you? _____ (Enter "0" if the participant was by himself)

Now, I will ask you a few questions about drugs that you have injected so far.

18. Which drugs have you injected, ever?

| **DRUG** | | **YES (x)** |
|---|---|---|
| 1 | Heroin | |
| 2 | Cocaine | |
| 3 | Heroin and cocaine together | |
| 4 | Amphetamine | |
| 5 | Morphine | |
| 6 | Opium | |
| 7 | Methadone | |
| 8 | | |
| 9 | | |

19. Which of the above mentioned drugs did you inject **most often in the last month**?

_____

20. Have you ever overdosed to the point of loosing consciousness?
1. Yes
2. No
3. Don't remember

21. Have you ever been treated in a medical center for overdosing?
1. Yes
2. No
3. Don't remember

22. During the **last week**, from how many different people have you taken used needles and/or syringes to inject yourself with?

_____ (**"0" if from nobody; "100" if from MANY**)

23. Who were the people whose already used needle and/or syringes you have used for injection **during the 12 months**? (**MULTIPLE ANSWERS ARE POSSIBLE**)

1. I did not inject with already used needles or syringes
2. Unknown person(s)
3. Friend(s) or acquaintance(s)
4. My sexual partner
5. Family member or a relative
6. Dealer
7. Other (who?).....

24. The last time you injected drugs, did you use a sterile needle and syringe (i.e. the needle and syringe that no one used before you)?

1. Yes
2. No

25. The last time you injected drugs, did someone else use the needle and/or syringe that you have already used?

1. Yes
2. No

26. The last time you shared injecting equipment, have you tried in any way to clean or disinfect the needle/syringe you used?

1. Yes
2. No

| | |
|---|---|
| **!** | If the answer was NO skip the following question and go to **question number 28** |

27. How did you try to clean the needle/syringe? (DO NOT READ ANSWERS; ONLY ONE ANSWER)

1. With cold water
2. With warm water
3. With hot water
4. With boiling water
5. With soap or detergent
6. With bleach
7. With alcohol
8. Other (HOW?)_____

28. How often do you use sterile needle and syringe to inject drugs?

1. Always (100%)
2. Most of the time (75%)
3. About every second time (50%)
4. Sometimes (25%)
5. Rarely (about 10%)
6. Never or almost never

29. At which of the following places you obtained sterile needles/syringes during the last month?

*(Multiple answers are allowed)*

| | | Yes (x) |
|---|---|---|
| 1 | I buy them in a pharmacy or hospital | |
| 2 | I buy them in the street | |
| 3 | I buy them/get them from a dealer | |
| 4 | I get them from people I inject drugs with | |
| 5 | I get them from friends or family members **who are not drug users** | |
| 6 | I get them from a non-governmental organization (e.g. needle exchange program, counseling center, outreach program, etc.) | |
| 7 | Other: What?_____ | |

30. Have you used Labirint services during the last year?

1. Yes
2. No

**TREATMENT FOR DRUG ADDICTION**

31. Have you ever undertaken treatment that could help you reduce or quit consumption of drugs?

1. Yes
2. No

| ! | If NO, go to **section EXPERIENCE WITH POLICE AND PRISON** |
|---|---|

32. How old were you when you went for the treatment (ASK ABOUT THE MOST RECENT TREATMENT IF PARTICIPANT REPORTED MULTIPLE TREATMENTS)?

I was_____years old.

33. What kind of treatment it was?

1. Rehabilitation program run by an NGO
2. Rehabilitation program in a medical treatment
3. Rehabilitation treatment in prison
4. Detoxication treatment by my family

5. Self-help (tried by my own)
6. Other (describe)_____

**EXPERIENCE WITH THE POLICE AND PRISON**

Now, I would like to ask you about your experience with the police.

34. Have you ever been arrested for drug use?

1. Yes
2. No

35. Have you been arrested for drug use during the last year?

1. Yes
2. No

36. Have you ever been to prison?

1. Yes
2. No

| | |
|---|---|
| ! | If NO, skip the next question and proceed to the **SEXUAL PRACTICES** section |

37. Have you **injected drugs** during your prison time?
1. Yes
2. No
3. Refused to answer

**SEXUAL PRACTICES**

Now, I would like to ask you some questions about your sexual behavior.

38. How old were you when you had your first sexual intercourse (penis in vagina)? I was _____
(IF PARTICIPANT DID NOT HAVE SUCH EXPERIENCE, ENTER "0")

39. Have you had sexual intercourse in the last month?

1. Yes
2. No

| | |
|---|---|
| ! | If NO, skip the next question and go to **question 42** |

40. With how many different people did you have sexual intercourse in the past month?

with_____ individuals

41. During the last month, have you used condoms each time you had sex?

1. Yes
2. No
3. Don't remember

42. Have you used a condom the last time you had sexual intercourse with your regular partner or spouse?

1. Yes
2. No

43. Does your regular sex partner (spouse or boy/girlfriend) inject drugs?

1. Yes
2. No
3. No, but he/she used to inject

44. Have you used a condom the last time you had sexual intercourse with a casual (non-regular) partner?

1. Yes
2. No

45. In the last month, did you have sexual intercourse with a non-regular (casual) partner who also injects drugs?

1. Yes
2. No

46. Did you use a condom the last time you had sex with a casual partner who injected drugs?

1. Yes
2. No
3. I don't remember

47. Have you ever had anal sex (penis in anus)?
1. Yes
2. No
3. Refused to answer

| ! | If NO or REFUSED TO ANSWER, go to **the next section (SEX WORK)**. |
|---|---|

48. You had anal sex:
1. Only with women
2. Only with men
3. Both with women and men

49. The last time you had anal sex, did you use a condom?
1. Yes
2. No

**SEX WORK**

50. During the last 12 months, did you have sex with somebody who paid you (or gave you drugs) for sex?

1. Yes
2. No

| | |
|---|---|
| ! | If NO, skip the next question and go to **question number 52**. |

51 Did you use a condom the last time you had sex with a person who paid you (or gave you drugs) for sex?

1. Yes
2. No
3. Don't remember

52. During the last 12 months, did you pay someone for sex or gave them goods or drugs to have sex with you?

1. Yes
2. No

| | |
|---|---|
| ! | If NO, skip the next question and go to **the SEXUALLY TRANSMITTED INFECTIONS AND HIV TESTING section** |

53. Did you use a condom the last time you had sex that you paid for (with money or drugs)?

1. Yes
2. No
3. Don't remember

**SEXUALLY TRANSMITTED INFECTIONS AND HIV TESTING**

54. In the last 12 months, have you been given free condoms (through an outreach service, drop-in centre or sexual health clinic...)?

1. Yes
2. No

Now, I will ask you a few questions about sexually transmitted infections (STIs).

55. During the last year, have you been diagnosed (a doctor told you that you are infected...) with a sexually transmitted disease (STD)?

1. Yes
2. No

| | |
|---|---|
| ! | If NO, skip the next question and **go to the question 57** |

56. Were you medically treated for that infection (did you take prescribed medicine)?

1. Yes
2. No

57. Do you know where you can go if you wish to receive a free and anonymous HIV test?

1. Yes
2. No

If NO, skip the next question and **go to the question 59**

58. Please name the place:
_____

59. Have you ever tested for HIV?

1. Yes
2. No

**!** If NO, go to **the next section (HIV KNOWLEDGE)**

60. Have you been tested for HIV in the last 12 months?

1. Yes
2. No

61. I don't want to know the results, but did you receive the results of your most recent HIV test?
1. Yes
2. No

**HIV KNOWLEDGE**

Now, I will ask you a few questions about transmission of HIV.

62. Can having sex only with one faithful, uninfected partner reduce the risk of HIV transmission?

1. Yes
2. No
3. I don't know

63. Can using condoms reduce the risk of HIV transmission?

1. Yes
2. No
3. I don't know

64. Can HIV be transmitted using a needle and/or syringe already used by somebody else?

1. Yes
2. No
3. I don't know

65. Can a healthy-looking person be infected with HIV?

1. Yes
2. No
3. I don't know

66. Can a person get HIV by using the same toilet with a person infected with HIV?

1. Yes
2. No
3. I don't know

67. Can a person get HIV by sharing a meal with someone who is infected?

1. Yes
2. No
3. I don't know

68. Can a person get HIV by sharing an already used needle or syringe which was washed in water before the next use?

1. Yes
2. No
3. I don't know

69. Thinking about the risk of getting infected with HIV, how much do you think you are exposed to this risk?

1. I am not exposed to any risk
2. The risk is small
3. The risk is moderate
4. The risk is substantial

*Thank you very much for your time and participation!*

# Behavioural and biological surveillance study on HIV among MSM in Kosovo 2011

*Technical Report*

October 2011

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# Executive Summary

Unprotected sex among men has been identified as one of the major generators of HIV epidemic in central and southeastern European countries (cf. Božičević et al., 2011). In 2006, a bio-behavioral HIV surveillance study carried out in a small sample of MSM in Prishtina (n = 69) found relatively high levels of sexual risk taking in the population (Impact, 2007). To provide more robust data on the prevalence of HIV, Syphilis, HBV and HCV, as well HIV-related behavioral risks, another bio-behavioral RDS study was carried out in this key population in Prishtina in 2011 in close collaboration with the NGO Center for Social Group Development. The study was a part of the second wave of HIV surveillance among most-at-risk populations.

The study included 204 MSM, of whom four were seeds (non-randomly chosen participants). Age range in the sample was 18-49, with the mean age of 24.8 (SD = 7.31). The mean personal network size in the sample was 10.3. One half of participants had primary or no formal education (EPP[1] = 49.7%), while less than 10% (EPP = 7.3%) reported at least some college education. One fifth of MSM were permanently employment (EPP = 20.2%) and another 28.1% (EPP) had temporary or part-time job. A majority of participants reported a monthly income of up to 200 EUR (EPP = 58.4%). Over two thirds of men were able to access Internet from home (EPP = 70.6%).

No HIV+ cases were fund in the study. Four men were diagnosed with syphilis (EPP = 2.4%), seven with hepatitis B (EPP = 2.2%) and one with hepatitis C. In comparison to the 2006 surveillance study, the point estimate of the HBV prevalence was seven times lower in 2011 (15% vs. 2%). Interestingly, an almost identical discrepancy was observed in the case of IDUs, when comparing the findings from the 2006 and 2011 studies.

A majority of MSM reported multiple partners: 55.4% (EPP) of men reported oral sex and 49.9% (EPP) anal intercourse with five or more sex partners in the past 12 months. Sexual partners were most often found through friends (EPP = 38.1%), via Internet (EPP = 30.9%) or by cruising public places (EPP = 27.2%). About one fourth of the sample (EPP = 26.8%) reported sex with a foreigner, mostly of Albanian or Macedonian nationality, in the last 12 months.

Slightly more than a half of participants (EPP = 52.5%) used a condom at most recent anal intercourse. A comparable proportion of MSM reported that they also used lubricant at the same occasion (EPP = 49.5%). About a quarter of men used condoms consistently when having anal intercourse in the last 12 months (EPP = 21.1%). Encouragingly, a substantial proportion of MSM reported that they received free condoms in the past 12 months (EPP = 66.9).

Over one third of participants sold, or received gifts for, oral or anal sex in the past year (EPP = 37.7%). A majority of these men reported that a condom was used at

[1] EPP = estimated population proportion

most recent anal intercourse with a client. Only eight of the sampled MSM acknowledged buying oral or anal sex in the last 12 months.

A substantial minority of MSM (EPP = 30.1%) was reportedly married or in a stable relationship with a female partner at the time of the study. Lifetime sexual activity with a woman was reported by 66.7% (EPP) of participants. In comparison to condom use at most recent anal intercourse with a men, a substantially smaller percentage of participants used a condom use at most recent vaginal or heterosexual anal intercourse (EPP = 32.2%).

Alcohol and drug abuse was relatively infrequent in the sample. Only two of the interviewed MSM injected drugs in the past 12 months. The frequency of non-injectable drug use "immediately before or during sex" was also low, with marijuana being the somewhat more frequently reported substance. Less than a tenth of interviewed men (EPP = 9.4%) reported regular alcohol use before or during sexual activity.

A minority of the sampled MSM (EPP = 26.9%) answered correctly to all five standard UNGASS HIV knowledge indicators. Every second participant (EPP = 49.6%) assessed the risk of getting infected with HIV as low or non-existent, while only 6.2% (EPP) considered it to be high. A majority of participants (EPP = 66.6%) knew that free and anonymous HIV testing is available in Prishtina. In comparison to the figure reported in the 2006 study (31%), a substantially higher percentage of participants in the 2011 study ever tested for HIV (EPP = 45.8%). Of those, 67.9% (EPP) tested in the past 12 months. When asked if they know the HIV status of their current or most recent steady partner, a great majority of men (EPP = 85.7%) answered that they know nothing about it.

Although the reported study met all basic requirements of RDS methodology (Johnston et al., 2009), generalizability of the findings may be limited to young MSM. Overall, the findings point to a low level of non-sexual and relatively high level of (HIV-relevant) sexual risks. Considering that a majority of participants reported multiple sexual partners and, mostly unprotected, sex with a woman, relatively low levels of consistent condom use point to a considerable potential for the spread of any sexually transmitted infection in and outside – through heterosexual bridging – the MSM population. According to this study findings, condom availability can be further improved, particularly through peer-based outreach. In addition to increasing HIV knowledge in the population, there seem to be a need for an intervention focusing on making STI and HIV risk self-assessment among MSM more realistic. Due to a reasonably good access to Internet among the sampled MSM, this communication chanell should be used for HIV prevention and intervention activities more extensively.

# List of Abbreviations

HIV = Human immunodeficiency virus

EPP = Estimated population proportion

MSM = Men who have sex with men

NGO = Non-governmental organization

RDS = Respondent-driven sampling

SGHS = Second generation HIV surveillance

STI = Sexually transmitted infection

UNGASS = United Nations General Assembly Special Session

VCT = Voluntary counseling and testing

# List of Tables & Figures

## Background

The highest proportion of the total number of HIV cases in Europe was reported among men who have sex with men (European Centre for Disease Prevention and Control, 2009). A recent overview pointed that male-to-male sexual contacts seem to be the main mode of HIV transmission in a number of central and southeastern European countries (Božičević et al., 2011). Although this region remains rather heterogeneous in terms of HIV infection generators – with heterosexually acquired cases of HIV representing more than 50% of all diagnoses in Albania, Bosnia and Herzegovina, Romania, and the former Yugoslav Republic of Macedonia, but with more than 50% of all diagnoses reported among MSM in Croatia, Czech Republic, Hungary, Serbia, Slovakia, and Slovenia – the number of HIV cases among MSM has more than doubled in the region, from 209 in 2004 to 466 in 2008 (European Centre for Disease Prevention and Control, 2009).

Despite the currently low levels of HIV risk in Kosovo (between 1986 and 2008, 74 HIV/AIDS cases were registered, mostly among migrant workers; Kosovar AIDS Committee, 2009), widespread poverty, high unemployment rates, and a rapid pace of societal transformation, which has been coupled with political instability and security issues related to the ongoing dispute with Serbia, provide a socio-cultural background conducive to risk taking. Keeping in mind high stigmatization of homosexuality in Kosova, due to a strong patriarchic tradition, vulnerability to STI & HIV infection may be substantial among MSM. Unfortunately, there is little available data on the population, as the 2006 surveillance study failed to reach the desired sample of MSM in Prishtina (see Impact, 2007).

Taking into consideration the plan of action stipulated by Kosovo Strategic Plan on HIV/AIDS 2009-2013 (Kosovar AIDS Committee, 2009), which emphasized the need to strengthen the national HIV surveillance system focusing on key populations at risk, three BBS studies were carried out in 2011 among IDUs, female sex workers, and men who have sex with men. A commitment to using high-quality, state of the art methodology was judged essential for all research activities within the Second generation HIV surveillance (SGHS) framework – both in terms of capacity building and future data comparability. In this report, findings from the bio-behavioral surveillance study carried out using RDS methodology among MSM in Prishtina are presented and discussed. The primary aims of the study were to provide biological and behavioral indicators of HIV exposure in this key population and to compare the levels of risk exposure to those observed in the first surveillance round (2006; cf. Impact, 2007).

# Method

### *RDS Methodology*

Respondent-driven sampling (RDS) has been used in various settings to recruit hard-to-reach populations (Heckathorn, 1997; Malekinejad et al., 2008). By the end of 2007, RDS methodology has been used in at least 29 countries in the world (Johnston et al., 2009). One of the key advantages of RDS approach is that it can reach individuals who can not be reached otherwise (e.g. in institutionalized settings or public venues). In brief, RDS is a chain referral method that starts with the selection of a limited number of initial respondents ("seeds") who are asked to recruit other members of the target population distributing coupons received from the study staff. Each recruited respondent who meets the eligibility criteria and participates in the study is given the same number of coupons and the recruitment continues until targeted sample size is reached. RDS sampling is based on the Markov theory of chains, which demonstrates that the bias introduced by non-random selection of initial respondents is eliminated as the recruitment progresses from wave to wave.[2] Usually after 4-6 waves, the sample composition becomes independent from the initial choice of seeds. Unless its core assumptions about peer recruitment are violated, RDS can produce a probability-based sample and enable generalization of findings (Abdul-Quader, 2006). Population estimates can be calculated using specific statistical software (RDSAT), which enables data weighting according to personal network size (recruitment probability) and recruitment patterns (selection probabilities).

The feasibility of RDS methodology in estimating HIV-related risks among MSM in Kosova was confirmed in 2006, when the first wave of bio-behavioral HIV surveillance was carried out in the population (Impact, 2007). Appropriate levels of incentives to be used in the 2011 study were established through informal contacts with MSM who use the services of the Prishtina-based NGO *Center for Social Group Development* (CSGD).

### *The Site*

The CSGD premises, located at walking distance from the center of Prishtina, were used as RDS site. Well-known to MSM, the premises were spacious, yet inconspicuously positioned, which seemed perfect for the study. The site operated from 12 to 7 pm on working days and from 12 to 3 pm on Saturdays.

[2] The point after which further recruitment can not substantially change the distribution of a particular characteristic in the sample is called *equilibrium*.

### *Procedure and Participants*

According to inclusion criteria, an individual was eligible to participate in the study if he: (a) was between 18 and 50 years of age, (b) spoke Albanian, (c) had sex with another men at least once in the last year, (d) was living or having sex in Prishtina on regular basis (e.g. on weekends) for at least three months during the past 12 months, and (e) was able and willing to give informed consent for participation in *both* behavioral and biological part of the survey. All eligible individuals were informed about the nature and requirements of the study (type of data collected, procedures, incentives, etc.) and asked for informed consent.[3] After verbal consent was obtained, the participant was interviewed and then briefed about biological testing (pre-test counseling).

Following blood drawing, the participant received primary incentive (5 EUR) and three coupons for peer recruitment. During the second visit, the participant received post-test counseling, during which he learned about the results of his biological tests, and were later asked a few questions about recruitment. (Participants who were found positive for syphilis, HBV, or HCV were referred for treatment to a specialist of Infectology at the Infectious Disease Clinic, University Clinical Centre of Kosova in Prishtina.) Secondary incentive was paid depending on how successfully the participant recruited peers (max. 3 x 4 EUR).

Data collection took place from July 6 to September 6, 2001. The total sample size was 204 MSM, including four seeds.

### *Questionnaire and Measures*

The questionnaire used in the study was developed at the WHO Collaborating Center Zagreb (cf. Appendix). It was translated into Albanian and piloted for comprehension. In addition to sociodemographic data, information on sexual behaviors, drug abuse, HIV knowledge, HIV testing, self-reported symptoms of sexually transmitted infections (STIs), and HIV risk self-assessment was collected. The standardized UNGASS indicators (UNAIDS, 2007) were used as the core variables.

*Personal network size* was assessed by the following sequence of questions:

(1) How many MSM who live in Prishtina do you know by name/nickname and they know you by name/nickname;
(2) How many of them have you seen during the last three months;
(3) How many of those you saw were younger than 18;
(4) How many of them were older than 50?

[3] Four men were screened out as non-eligible. Two of them did not have male-to-male sex in the past 12 months, while another two refused to give blood (after initially consenting to all procedures).

### *Biological component*

Participants were tested for HIV, Syphilis, and Hepatitis B & C virus. ELISA tests produced by DIALAB Austria were used to detect HIV 1/2 antibodies, HCV antibodies, Syphilis antibodies, Hepatitis B Surface Antigen, Hepatitis B Surface Antigen Antibodies, Hepatitis B envelope antigen, total antibodies against Hepatitis B core antigen, and IgM antibodies.

### *Statistical Analysis*

RDSAT (version 6.0.1.) statistical software was used to obtain weighted population proportions with 95% confidence intervals of the main variables of interest. Seeds were excluded from all analyses. Before the analyses were carried out, personal network size was constrained (pulled in) to the minimum of three.

### *Ethical Considerations*

All study procedures were approved by the National Research Ethical Review Committee of the Federal Ministry of Health on December 2, 2010 and carried our in accordance to the principles stipulated in the Declaration of Helsinki. Informed consent for both the behavioral and biological data collection was asked from each participant. To protect participants' anonymity (no personally identifying information was collected at any point), only oral consent was asked. Screeners were required to sign a consent form to confirm that the consent was given. Interviews were conducted in private (in separate rooms) to ensure confidentiality. All team members received training on ethical conduct in the field.

# Results

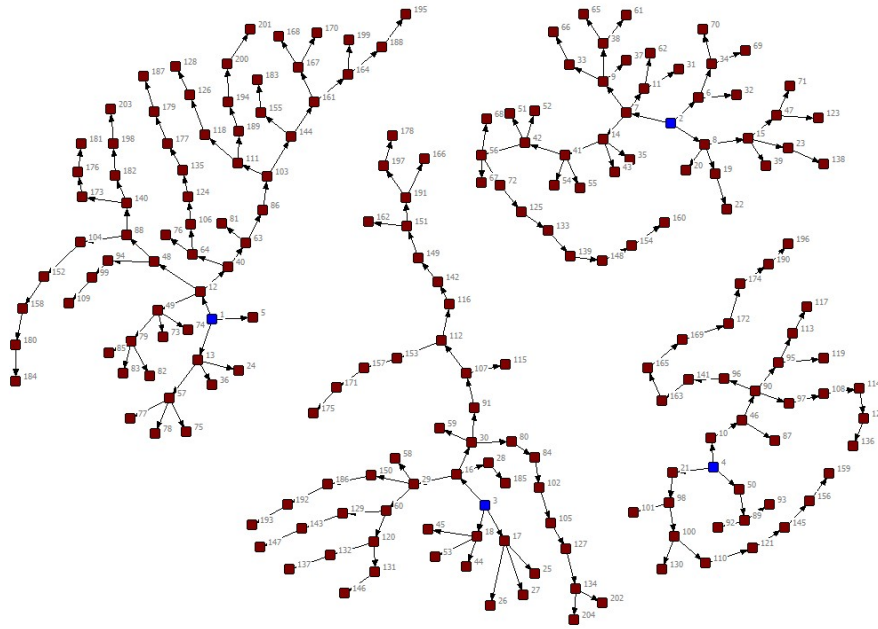
### *Basic Sociodemographic Characteristics of the Sample*[4]

The study included 204 MSM, of whom four were seeds. The network structure of the sample is shown in Figure 1. Age range in the sample was 18-49, with median age of 23 years. One half of participants had primary or no formal education (EPP = 49.7%)[5]. Less than 10% of the sample (EPP = 7.3%) reported at least some college education. About a half of the participating MSM considered themselves religious (EPP = 48.3%).

One fifth of MSM had permanent employment (EPP = 20.2%), 28.1% (EPP) had temporary or part-time job, while almost a half reported relying on family support (EPP = 48.5%). A majority of participants had monthly income up to 200 EUR (EPP = 58.4%). Internet access from home was reported by a majority of MSM (EPP = 70.6%).

Asked about their sexual orientation, a majority of participants self-identified as homosexual (EPP = 66.9%). Most of the remaining men reported bisexual orientation (EPP = 29.7%). About 60% (EPP = 59.8%) of the sample were single. A substantial minority of MSM (EPP = 30.1%) were married or in a stable relationship with a female partner at the time of the survey.

**Figure 1** – *The network structure of the MSM Prishtina study (seeds are shown as blue nodes)*



[4] Seeds were included in this analysis.
[5] EPP = estimated population prevalence (RDS-weighted proportion)

### *Biological Data*

No HIV+ MSM were found in the study. Four men were diagnosed with syphilis (EPP = 2.4%). Testing on hepatitis B and C resulted in seven HBV+ cases (EPP = 2.2%) and only one HCV+ case (cf. Table 1).

**TABLE 1** – *Prishtina MSM study: Sample and population prevalence of the core biological and behavioral indicators of HIV-related risk taking (RDS weighted data)*

| *Indicator* | *n/N* | *Sample prevalence (%)* | *Estimated population prevalence (%)* | *Population prevalence 95% CI* | Equilibrium reached at wave #[a] |
|---|---|---|---|---|---|
| Syphilis prevalence | 4/200 | 2.0 | 2.4 | 0.4-5.1 | 3 |
| HBV prevalence | 7/200 | 3.4 | 2.2 | 0.6-4.5 | 3 |
| HCV prevalence | 1/200 | 0.5 | 0.1 | 0-0.4 | 2 |
| Two or more anal sex partners in the past 12 months | 177/200 | 88.7 | 88.1 | 82.6-93.3 | 2 |
| Had at least one concurrent sexual partnership in the past 12 months | 45/83 | 59.5 | 53.0 | 37.9-68.4 | 3 |
| Had oral sex in which a partner ejaculated in his mouth in the past month | 44/200 | 23.0 | 20.0 | 13.9-27.5 | 2 |
| Had oral or anal sex with a foreigner in the past 12 months | 65/200 | 32.4 | 26.8 | 19.4-34.5 | 3 |
| Used a condom at most recent anal intercourse | 109/200 | 55.4 | 52.5 | 45.0-61.1 | 2 |
| Used a lubricant at most recent anal intercourse | 104/200 | 52.0 | 49.5 | 42.2-56.9 | 2 |
| Consistent condom use at anal intercourse in the past 12 months | 49/200 | 25.0 | 21.2 | 15.3-28.2 | 3 |
| Sold oral or anal sex in the past 12 months | 73/196 | 36.0 | 37.7 | 27.5-48.2 | 4 |
| Used a condom at anal sex with the most recent client | 23/36[b] | 63.9 | / | / | / |
| Bought oral or anal sex in the past 12 months | 8/191 | 4.5 | 2.8 | 0.6-5.8 | 2 |

| | | | | | |
|---|---|---|---|---|---|
| Ever had oral, vaginal or anal sex with a woman | 133/198 | 67.3 | 66.7 | 59.7-73.7 | 3 |
| Had vaginal or anal intercourse with a woman in the past 12 months | 85/98 | 88.3 | 90.1 | 79.8-96.2 | 2 |
| Used a condom at most recent vaginal or anal intercourse with a woman | 32/97 | 33.8 | 32.2 | 20.9-42.3 | 2 |
| Injected drugs in the past 12 moths | 2/200 | 1.0 | 0.7 | 0-2.0 | 1 |
| Experienced genital discharge in the past 12 months | 7/197 | 3.4 | 2.7 | 0.4-5.6 | 3 |
| Had genital ulcers in the past 12 months | 3/200 | 1.5 | 1.5 | 0-3.7 | 2 |
| Had anal ulcers in the past 12 months | 1/200 | 0.5 | 0.1 | 0-0.2 | 6 |
| Experienced pain on urination in the past 12 months | 19/200 | 9.8 | 9.6 | 5.4-14.9 | 2 |
| Sought medical care when the above symptoms were most recently experienced | 11/26[b] | 42.3 | / | / | / |
| Diagnosed with an STI in the past 12 months | 4/198 | 2.0 | 2.5 | 0.1-5.6 | 2 |
| Correctly identifies ways of preventing HIV transmission and rejects major misconceptions about HIV transmission[c] | 63/200 | 32.8 | 26.9 | 18.5-33.7 | 2 |
| Knows that free and anonymous HIV testing can be obtained in Prishtina | 145/197 | 73.9 | 66.6 | 56.3-76.8 | 3 |
| Ever tested for HIV | 117/200 | 59.3 | 45.8 | 35.6-55.3 | 5 |
| Most recent HIV test in the past 12 months | 74/106 | 65.7 | 67.9 | 57.8-79.8 | 2 |
| Knows the result of his/her the most recent HIV test | 93/95 | 97.6 | 97.4 | 95.0-100 | 2 |
| Was given condoms the last time he tested for HIV | 144/200 | 72.5 | 66.9 | 59.1-75.3 | 2 |

| | | | | | |
|---|---|---|---|---|---|
| Self-assessed HIV risk | | | | | 4 |
| No risk | 32/192 | 16.2 | 14.3 | 8.8-19.5 | |
| Low risk | 65/192 | 34.8 | 35.3 | 28.3-44.6 | |
| Moderate risk | 79/192 | 40.9 | 44.2 | 35.0-51.9 | |
| High risk | 16/192 | 8.1 | 6.2 | 3.3-9.7 | |

[a]The column contains information about the study wave in which equilibrium was reached for a particular indicator

[b]When N < 50, percentages are not reported to avoid irrelevant conclusions

[c]Participants who provided correct answers to all five UNGASS indicators of HIV knowledge

### *Patterns of Sexual Behavior*

On average, the interviewed men were 17.2 year old at first anal intercourse with another man. While one third of the sample (EPP = 33.4%) reported being versatile (both "active" and "passive"), a relative majority of participants (EPP = 48.7%) stated that they were never "passive" or receiving partners.

In the past year, 19 MSM had oral and 23 MSM anal sex with only one or no partners. A majority reported multiple partners: 55.4% (EPP) of men reported oral sex and 49.9% (EPP) anal intercourse with five or more sex partners. On average, 9.8 anal sex partners were reported in the past 12 months.[6] Concurrent sexual partnerships, defined as having anal intercourse "with a man while you were in a steady relationship with another man", were reported by 45 of the 83 men (EPP = 53.0%) who were ever in a steady relationship.

Most often, sexual partners were found through friends (EPP = 38.1%), followed by via Internet (EPP = 30.9%) and by cruising public places (EPP = 27.2%). Somewhat less than a third of participants (EPP = 31.7%) reported using Internet at least once a week for finding sexual partners. Reflecting the current situation in Prishtina and Kosova in general, closed commercial places such as bars, clubs or saunas were not mentioned in the context of finding partners.

Although a majority of the surveyed MSM (EPP = 61.5%) never had sex with a foreigner, about one fourth of the sample (EPP = 26.8%) reported such sexual contact in the past 12 months – mostly with Albanian or Macedonian men.

Slightly more than a half of participants (EPP = 52.5%) used a condom at most recent anal intercourse. (A comparable proportion of MSM reported the use of lubricant at the same occasion (EPP = 49.5%).) About a quarter of the sample used condoms consistently when having anal intercourse in the last 12 months (EPP = 21.1%).

[6] Median number of male anal sex partners was five.

A substantial minority of MSM sold (or received gifts for) oral or anal sex in the past year (EPP = 37.7%), with a majority reporting that a condom was used at most recent anal intercourse with a client (23/36). In contrast, only eight men acknowledged buying oral or anal sex in the last 12 months.

Two thirds of the sampled MSM reported sexual activity with a women (EPP = 66.7). A great majority of the men with lifetime heterosexual experience, had sex (defined as vaginal or anal intercourse) with a women in the past 12 months (EPP = 90.1%). In comparison to reported condom use at most recent homosexual anal intercourse, a substantially smaller percentage of men used a condom use at most recent vaginal or heterosexual anal intercourse (EPP = 32.2%).

### *Alcohol and Drug Abuse*

Overall, very low levels of substance abuse were observed in the sample. Only two of the 200 interviewed MSM injected drugs in the past 12 months[7]. The frequency of non-injectable drug use "immediately before or during sex" was also low, with marijuana being the most frequently reported substance (3.4% (EPP) of participants used it often). Alcohol use was somewhat more frequent; 9.4% (EPP) of interviewed men reported that they often drink alcohol before or during sexual activity.

### *HIV Knowledge, HIV Testing, HIV Risk Self-Assessment, and the Symptoms of Sexually Transmitted Infections*

About a fourth of the sampled MSM (EPP = 26.9%) answered correctly to all five standard UNGASS HIV knowledge indicators. A similar proportion (EPP = 23.8%) of participants had only one incorrect answer. Every second MSM (EPP = 49.6%) assessed the risk of getting infected with HIV as low or non-existent, while only 6.2% (EPP) considered it to be high.

Slightly less than a half of the sample ever tested for HIV (EPP = 45.8%), with 67.9% (EPP) of them reporting that they tested in the past year. Almost all received their test results (EPP = 97.4%). When asked if they know the HIV status of their current or most recent steady partner, a great majority of participants (EPP = 85.7%) answered that they have no information about it. Among those who provided a positive answer, no one stated that their partner is HIV+. However, eleven surveyed MSM reported that they know a HIV+ person.

The occurrence of four STI-related symptoms was assessed in the questionnaire: (a) genital discharge, (b) genital ulcer(s), (c) anal ulcer(s), and (d)

[7] When asked whether they used sterile injecting equipment the last time they injected, one confirmed and the other declined to answer the question.

burning pain on urination. Very few men experienced the above symptoms in the past 12 months. Seven MSM reported genital discharge (EPP = 2.7%), three had genital (EPP = 1.5%) and one MSM anal ulcers, while 19 reported pain on urination (EPP = 9.6). Of the men who experienced these symptoms, 11 sought medical treatment. Only four MSM (EPP = 2.5%) were diagnosed with an STI in the past 12 months.

### *Utilization of Services*

A majority of participants (EPP = 66.6%) knew that it is possible to obtain a free and anonymous HIV test in Prishtina. When asked to name the place, all but one of the participants who answered the question (n = 101) mentioned CSGD. Importantly, two thirds of MSM surveyed in this study reported that they received free condoms in the past 12 months (EPP = 66.9).

# Discussion

Overall, the findings point to a low level of non-sexual and relatively high level of sexual risk taking among MSM in Prishtina. Considering that a majority of participants reported multiple sexual partners and, mostly unprotected, sex with a woman, relatively low levels of consistent condom use point to a considerable potential for the spread of STIs, including HIV, in and beyond (through heterosexual bridging) the MSM population. The conclusion is supported by the finding that a sizeable proportion of participants sold or exchanged anal sex in the past 12 months and that over a third of sampled men reported having sex with a foreigner.[8]

### *Comparison to the 2006 Surveillance Study*

The fact that the first round of bio-behavioral HIV surveillance among MSM was carried out on a substantially smaller sample (n = 69), without the continued assistance from non-governmental sector (cf. Impact, 2007), the following comparisons should be taken with great caution.[9] Sociodemographic characteristics of the 2006 and 2011 samples were relatively similar in age (median age was 24 in 2006 and 23 years in 2011) and employment status (39% and 48% of participants were employed in 2006 and 2011, respectively). However, the 2006 sample was substantially more educated, with 31.5% of college educated MSM in comparison to only seven percent in the 2011 sample. The difference suggests that the 2011 study managed to sample a more diverse subset of the population.

In regard to biological findings, the only marked difference was observed in the HBV prevalence. In 2006, the point estimate of the prevalence was seven times higher than in 2011 (15% vs. 2%).[10] Interestingly, an almost identical discrepancy was observed in the case of IDUs, when comparing the findings from the 2006 and 2011 studies. This suggests that the change is systematic, whether caused by different testing protocols, slightly different sampling strategies or external reality.

Finally, the levels of condom use at most recent anal intercourse (56% in 2006 and 52.5% in 2011), of lifetime sexual contact with a women (73% and 67%, respectively), and of the knowledge about availability of free and anonymous HIV testing in Prishtina (74% and 67%, respectively) were comparable in the two studies. A more substantial difference was found in the proportion of MSM who reported ever to have tested for HIV. The figures were 31% in 2006 and 46% in 2011. However, due to a

[8] Most of them stated that they had sex with a citizen of Albania. In 2006, a bio-behavioral HIV surveillance study carried out among MSM in Tirana found HIV and syphilis prevalence of 0.8% and 0.6% (EPP), respectively (Family Health International, 2007). In addition, the Albanian study pointed to a combination of HIV-related risks, as 27% (EPP) of the sampled MSM stated that they inject drugs.

[9] The two studies utilized different questionnaires with only a subset of identical questions.

[10] Interestingly, the identical HBV prevalence (14.9%) was found among 200 MSM sampled in the 2006 Tirana study (cf. Family Health International, 2007).

small sample size, 95% confidence intervals of the 2006 study findings are very wide – making all but extremely large differences statistically insignificant.

### *Validity of RDS Approach*

Basic requirements of respondent driven sampling are that members of a given population are sufficiently networked and do not discriminate when recruiting each other.[11] Information about personal network sizes in the Prishtina MSM study confirmed that participants were sufficiently networked. Another important methodological requirement of RDS is that the person who recruits and the one who is recruited by him are not strangers, as this would violate the core principle of network-based sampling. In this study, no recruitment by strangers was reported. Keeping in mind that the length of recruitment chains was sufficient to reach equilibrium on all core indicators (as presented in Table 1), the RDS study carried among MSM in Prishtina seems to have fulfilled all basic methodological requirements (cf. Johnston et al., 2009).

### *Study Limitations*

The issue of representativeness (e.g. how well the sample mirrors the population of MSM in Prishtina) should be considered against the fact that a majority of the surveyed men were in their 20s. The study likely underrepresented older MSM, which may be characterized by different type and levels of HIV-associated risk taking. (This limitation has also been reported in other RDS studies carried among MSM in the region; see Štulhofer et al., 2008; Sharra & Bani, 2009.) Future studies should try to reduce this age bias by selecting older seeds.

As the behavioral part of this study relied on self-reporting, the validity of some findings needs to be assessed within the Kosovar socio-cultural context, characterized by the strong stigmatization of homosexuality. In addition, some participants may have felt the pressure of social expectations – particularly if they regularly used the CSGD's services and have befriended the staff. Such ties may have resulted in socially desirable answers and, consequently, in lower estimates of HIV risk exposure.

[11] A majority of the surveyed MSM reported that they participated because they wanted to be tested for HIV (EPP = 54.0%) or syphilis (EPP = 31.0%). Only 13.5% (EPP) of participants stated the monetary incentive as the main motivation.

## Recommendations

- HIV knowledge and the awareness of HIV risks should be improved among MSM, primarily through NGO activities and peer outreach; HIV information brochures, tailored specifically for MSM, should be disseminated in the population.
- Free and anonymous HIV testing should be scaled up (the proportion of MSM who ever tested for HIV was markedly smaller than the proportion among IDUs sampled in a recent study). As STI testing is usually expensive and/or potentially exposing (the risk to be *outed* by medical personnel) for MSM[12], availability of testing and treatment for STIs should be – incentive for MSM.
- According to this study findings, condom availability can be further improved (particularly through peer-based outreach and other NGO activities), while strengthening condom use intentions remains the priority. As many MSM also have sex with a woman, the importance of promoting condom use in the heterosexual context should not be overlooked.
- The use of lubricants is sporadic. Considering the importance of water-based (if a condom is used) and oil-based (when "barebacking") lubricants in preventing lesions of the anal tissue, lubricant use should be promoted and encouraged. Free condoms should be handed out together with fee doses of water-based lubricant.
- As a majority of MSM seem to have access to Internet at home, this communication channel should be used more extensively for sexual health information dissemination, announcement of new HIV prevention programs, and other relevant activities.
- Bio-behavioral HIV surveillance surveys among MSM in Prishtina should be repeated at regular intervals (every 2-3 years) using probability sampling. Future surveys should be also used to monitor outcomes of the intervention programs sketched above.

[12] For many MSM, free and anonymous HIV and syphilis testing was the primary motivation for participating in this study.

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# Appendix – Study Questionnaire

| RDS PERSONAL CODE LABEL |
|---|

**Survey on the prevalence of HIV and risk behaviors among men who have sex with men in Pristine, 2011**

***A. DEMOGRAPHIC CHARACTERISTICS***

First, I would like to ask you a few questions regarding your background.

**1. Which year you were born?**

| Year | |
|---|---|

**2. What is the highest level of education you completed?**

1. No formal education
2. Some primary school education
3. Completed primary school
4. Some secondary school education
5. Completed secondary school
6. Some college education
7. Completed college or university

**3. Are you currently? (More than one answer is possible)**

1. Married
2. In a steady relationship with a man
3. In a steady relationship with a woman
4. Single

**4. If you are currently married or in a steady relationship, do you live with your spouse/partner?**

1. Yes
2. No
3. Not currently married or in a steady relationship

**5. What was the main source of your income during the last month? (Circle only one answer)**

1. Permanent employment
2. Temporary jobs or a part-time job
3. Family support
4. Spouse or partner support
5. Social welfare
6. Selling sex
7. Other (explain): _____

**6. What was your average monthly income during last 6 months?**

1. Up to 100 EUR
2. 100 - 200 EUR
3. 200 - 300 EUR
4. 300 – 400 EUR
5. More than 400 EUR
6. No income
7. Refused to answer

**7. How would you describe your sexual orientation?**

1. Homosexual
2. Bisexual
3. Heterosexual
4. Other: _____

**8. Do you consider yourself a religious person?**

1. Yes
2. No
3. No answer

**9. Do you live in Pristine?**

1. Yes
2. No

**10. In the last 12 months did you travel outside of Kosova?**

1. Yes
2. No

| | |
|---|---|
| ! | If the answer was NO, skip the following question and go to the question number **12** |

**11. If you did travel outside of Kosova in the last 12 months, in which country did you spend the most time?**

Name of the country:

**12. How many men who have sex with men who live or regularly have sex in Pristine you know by name or nickname (and they know you by your name or nickname)?**

(enter the number)

_____

**13. How many of them have you seen during the last three months?**

(enter the number)

_____

**14. How many of those you saw in the last three months were younger than 18?**

(enter the number)

_____

**15. How many of those you saw in the last three months were older than 50?**

enter the number)

_____

**16. Who was the person who gave you the coupon to participate in this study? (SEEDS ARE NOT ASKED THIS QUESTION!)**

1. Friend
2. Acquaintance
3. Partner/lover
4. Relative
5. Stranger (someone I never saw before

**17. Why did you accept this coupon? (*Only one answer; do not read out answers!*)**

1. I need money
2. I want to be tested for HIV
3. I want to be tested for syphilis
4. Because the person who gave me the coupon ask me to do it
5. I had nothing better to do
6. Something else (explain): _____

***B. HIV/AIDS KNOWLEDGE***

**18. How would you rate the risk of getting infected with HIV that you are personally exposed to?**

1. There is no risk
2. The risk is small
3. The risk is moderate
4. The risk is high

**19. Can having sex with only one faithful, uninfected partner reduce the risk of HIV transmission?**

1. Yes
2. No
3. Don't know

**20. Can one protect himself from getting infected with HIV by using a condom correctly every time he has anal sex?**

1. Yes
2. No
3. Don't know

**21. Can HIV be transmitted by using a needle and/or syringe already used by somebody else?**

1. Yes
2. No
3. Don't know

**22. Can a healthy-looking person have HIV?**

1. Yes
2. No
3. Don't know

**23. Can a person get HIV by using the same toilet with a person already infected with HIV?**

1. Yes
2. No
3. Don't know

**24. Can a person get HIV from mosquito bites?**

1. Yes
2. No
3. Don't know

**25. Can a person get HIV by sharing a meal with someone who is infected?**

1. Yes
2. No
3. Don't know

**26. Do you personally know anyone who is infected with HIV or who has died of AIDS?**

1. Yes
2. No
3. Refused to answer

***C. SEX WITH MEN***

The following questions refer to sexual activities with men. A passive partner in anal or oral sexual intercourse is the one who has his partner's penis in the anus or mouth, while the active partner is the one whose penis is in his partner's anus or mouth (*use this explanation if needed*).

**27. How old were you when you had your first oral sex with a man (regardless of whether you were active or passive partner)?**

| | |
|---|---|
| | **age** |

Note: Don't remember = 777

**28. How old were you when you had your first anal intercourse with a man (regardless of whether you were active or passive partner)?**

| | |
|---|---|
| | **age** |

Note: Don't remember = 777; No such experience = 888

**29. Regarding anal sex, which of the following experiences you had?**

1. I was an "active" partner (Placed your penis in the anus of another man)
2. I was a "passive" partner (Another men placed his penis in your anus)
3. I was both an active and a passive sexual partner with other men

**30. In the last 12 months, how many men did you have oral sex with (regardless of whether you were active or passive partner)?**

| |
|---|
| |

Note: Don't remember = 777

**31. In the last 12 months, how many men did you have anal sex with (regardless of whether you were active or passive partner)?**

| |
|---|
| |

Note: Don't remember = 777

**32. Did you participate in group sex (more than one sexual partner in the same time) in the past 12 months?**

1. Yes
2. No

**33. In the last month, did you have oral sex in which your sexual partner ejaculated into your mouth?**

1. Yes
2. No

***Now, please remember your most recent anal intercourse with a male partner.***

**34. With whom did you have your most recent anal intercourse?**

1. With regular partner (a man with whom you are in a relationship)
2. With casual partner (a man with whom you occasionally have or once had sex without being in a relationship)
3. With someone you paid for sex
4. With someone who paid you for sex

**35. Was a lubricant used at that most recent anal intercourse with a man?**

1. Yes
2. No

**36. Was a condom used the last time you had anal intercourse with a man (regardless of whether you were active or passive partner)?**

1 Yes
2 No

| | |
|---|---|
| ! | If the answer was NO, skip the following question and go to question number **38**. |

**37. If a condom was NOT used during your last anal intercourse with a male partner, what was the main reason for not using it? (*Only one answer; do not read out answers!*)**

1. A condom was not available at that moment
2. I am in a steady relationship
3. Condoms are too expensive
4. I don't like sex with condoms
5. My partner did not want to use a condom
6. I thought that condoms are not necessary with that partner
7. I don't use condoms because they create problems with my erection
8. Other (explain):

_____

**38. In the last 12 months, how often did you use a condom during anal intercourse?**

1. Always (100%)
2. Most of the time (75%)
3. About every second time (50%)
4. Sometimes (25%)
5. Rarely
6. Never

**39. In the last 12 months, did you experience a condom breaking or coming off during anal sex (regardless of whether you were active or passive partner)?**

1. Yes
2. No
3. I haven't used condoms in the last 12 months

**40. In the last 12 months, how often have you used lubricants during anal sex with men**

1. Always (100%)
2. Most of the times (75%)
3. About every second time (50%)
4. Sometimes (25%)
5. Rarely (below 10%)
6. Never

**41. In the last 12 months, what kind of lubricant did you use most often for anal intercourse? (Circle only one answer; do not read out answers!)**

1. Did not use any lubricant during in the last 12 months
2. Vaseline
3. Regular body cream
4. Hand lotion
5. Cooking oil/butter
6. Water-based condom lubricant
7. Saliva
8. Other (write):

   _____

**42. In the last 12 months, did you have anal intercourse with a man while you were in a steady relationship with another man?**

1. Yes
2. No

**43. In the last month, did you always use a condom when having anal intercourse with casual (non-steady) partners?**

1. Yes
2. No
3. Did not have anal sex with casual partners in the last month

**44. Do you know the HIV status of your steady male partner (or, if you are currently not in a relationship, the last steady partner)?**

1. No
2. Yes, he is HIV-negative
3. Yes, he is HIV-positive

**45. In the last 12 months, did you have oral or anal sex with a man who paid you (or gave gifts) to have sex with him?**

1. Yes
2. No
3. Refused to answer

| ! | If the answer was NO, skip the following question and go to question number **47** |
|---|---|

**46. Was a condom used the last time you had anal intercourse with a client (someone who paid you or gave you gifts to have sex with him)?**

1. Yes
2. No
3. Never had anal sex with a client

**47. In the last 12 months, did you have oral or anal sex with a man whom you paid (or gave gifts) to have sex with you?**

1. Yes
2. No
3. Refused to answer

| | |
|---|---|
| ! | If the answer was NO, skip the following question and go to question number **49** |

**48. Was a condom used the last time you had anal intercourse for which you paid?**

1. Yes
2. No

**49. How often do you leave the place in which you live to meet potential male sexual partners?**

1. Never
2. Every few years
3. A few times a year
4. Once a month
5. A few times a month
6. About once a week or more

**50. In the last 12 months, did you have anal or oral sex with a foreigner, a person who is not from Kosova?**

1. Yes
2. No

| | |
|---|---|
| ! | If the answer was NO, skip the following question and go to the question number **52** |

**51. In the last 12 months, did you always use a condom when having anal sex with a foreigner?**

1. Did not have anal sex with a foreigner in the last 12 months
2. Yes
3. No
4. Don't remember

**52. Please tell us the country from which the most recent foreign man you had sex with came from?**

1. Never had sex with a foreigner
2. Don't know his country of origin
3. The name of the country (enter below):

**53. In the last 12 months, where did you find male sexual partners – most often? (Only one answer)**

1. In commercial places (e.g. bars, clubs)
2. In public places (e.g. parks)
3. On Internet
4. Through friends
5. Newspaper ads
6. Other (write): _____

**54. In the last 12 months, how often did you go to commercial places that are frequented by men who have sex with men? This includes places such as bars, clubs, saunas etc.**

1. Never
2. A few times
3. Once a month
4. A few times a month
5. About once a week or more

**55. In the last 12 months, how often did you go to public places that are frequented by men who have sex with men? This includes places such as parks, abandoned buildings, and other.**

1. Never
2. Few times
3. Once a month
4. Few times a month
5. About once a week or more

**56. Do you have regular Internet access at home? By regular Internet access we mean that you own or have daily access to a computer (or a cell phone) with an Internet connection.**

1. Yes
2. No

**57. If you do not have regular Internet access at home, can you access Internet at work or in coffee shops or similar places that provide Internet access?**

1. Yes
2. No

**58. In the last 6 months, how often did you use Internet to search for male sexual partners?**

1. Never
2. Few times
3. Once a month
4. Few times a month
5. About once a week or more
6. Every day

### *D. SEX WITH WOMEN*

***The following questions refer to sex with women.***

**59. Are you currently in a relationship or married to a woman?**

1. Yes
2. No

**60. Did you ever have oral, vaginal or anal sex with a woman?**

1. Yes
2. No

| | |
|---|---|
| ! | If the answer was NO, skip the following question and go to SECTION E (question **63**) |

**61. In the last 12 months, with how many women did you have oral, vaginal, or anal sex?**

Note: Refused to answer = 888

**62. The last time you had vaginal or anal sex with a woman, did you use a condom?**

1. Yes
2. No

### *E. DRUG AND ALCOHOL USE*

We would now like to ask you a few questions regarding the use of drugs and alcohol.

**63. Did you inject drugs in the last 12 months?**

1. Yes
2. No
3. Refused to answer

| | |
|---|---|
| ! | If the answer was NO, skip the following two questions and go to the question number **66** |

**64. The last time you injected drugs, did you used sterile injecting equipment – a needle and syringe that no one has used before you?**

1. Yes
2. No

**65. In the last 12 months, have you been given sterile needles and syringes (e.g. by an outreach worker, a peer educator or from a needle exchange programme)?**

1. Yes
2. No

**66. In the 12 months, how often did you use the following substances <u>immediately before or during sex</u>?**

| | Never | Rarely | Sometimes | Often |
|---|---|---|---|---|
| Alcohol | 1. | 2. | 3. | 4. |
| Cocaine or crack | 1. | 2. | 3. | 4. |
| Amphetamine (ecstasy) | 1. | 2. | 3. | 4. |
| Marijuana | 1. | 2. | 3. | 4. |
| Amyl nitrate (“poppers”) | 1. | 2. | 3. | 4. |
| Hallucinogenic drugs (LSD etc.) | 1. | 2. | 3. | 4. |

Note: Circle one number in each row.

### *F. SEXUAL HEALTH*

***Now, we would now like to ask you a few questions regarding sexual health-related problems.***

**67. During the last 12 months, did you have one or more of the following? (Multiple answers are possible):**

1. Genital discharge (yes/no)
2. Burning pain on urination (yes/no)
3. Genital ulcers/sores (yes/no)
4. Swellings in groin area (yes/no)
5. Ulcers/sores on the anus (yes/no)

**68. Did you ask for professional help because of the symptoms described in the previous question?**

1. I did not have any such symptoms
2. Yes, I called or visited a private doctor
3. Yes, I visited a public doctor
4. No, I did not ask for professional help

**69. Were you ever diagnosed with? (Multiple answers are possible)**

1. Chlamydia
2. Gonorrhea
3. Human papiloma virus (HPV)
4. Syphilis
5. Genital herpes
6. Hepatitis C (HCV)
7. Hepatitis B (HBV)
8. Other (write):

_____

**70. Were you diagnosed with a sexually transmitted infection in the last 12 months?**

1. Yes
2. No

### *G. HIV TESTING*

**71. Is it possible to test for HIV anonymously and free of charge in Pristine?**

1. Yes
2. No

**72. Can you tell me the name of that place?**

_____

**73. Have you ever tested for HIV?**

1. Yes, once
2. Yes, more than once
3. No

| ! | If the answer was NO, skip the two following questions and go to SECTION H (question number **76**) |
|---|---|

**74. Have you tested for HIV in the last 12 months?**

1. Yes
2. No

**75. I don't want to know the result, but did you receive the result of your most recent HIV test?**

1. Yes
2. No

***H. DISCRIMINATION AND VIOLENCE***

**76. Have you ever been physically attacked because you are attracted to men?**

1. Yes, once
2. Yes, multiple times
3. No

**77. Have you ever been exposed to ridicule, insults, threats, or any other kind of psychological abuse because you are attracted to men?**

1. Yes, once
2. Yes, multiple times
3. No

**78. Have you ever been exposed to violence or abuse from the police because you are attracted to men?**

1. Yes
2. No
3. Refused to answer

**79. Have you ever been to prison?**

1. Yes
2. No
3. Refused to answer

**80. Does someone in your family know that you are attracted to men?**

1. Yes
2. No

**81. Does anyone of your close friends - who are not gay - know that you are attracted to men?**

1. Yes
2. No

**82. Has someone ever forced you to have sex with him?**

1. Yes
2. No
3. Refused to answer

**83. How many of your friends are also men who have sex with men?**

1. All or almost all
2. Around a half
3. A few
4. None

***I. CONDOMS AND PREVENTION COVERAGE***

**84. Can you obtain condoms when you need them?**

1. Yes
2. No
3. I do not use condoms

| | |
|---|---|
| ! | If the answer was YES, skip the next question and go to the question number **86** |

**85. If you can't get a condom every time you need it – what is the main reason? (Only one answer; do not read out answers!)**

1. They are too expensive
2. Not available in shops
3. Shop/pharmacy is too far away
4. Shops/pharmacy are closed when I need condoms
5. Shy to buy condoms
6. Don't know where to buy them
7. Other (explain):

_____

**86. In the last 12 months, have you been given free condoms (e.g. through an outreach service, NGO, or sexual health clinic)?**

1. Yes
2. No

**87. When was the last time you heard or read something about HIV or safer sex?**

1. In the last month
2. In the last year
3. More than a year ago
4. Never

***Thank you for your participation!***

# Behavioural and biological surveillance study on HIV among FSW in Kosovo 2011

*Technical Report*

October 2011

## Research team

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# Executive Summary

In accordance with the plan of action stipulated by Kosovo Strategic Plan on HIV/AIDS 2009-2013 (Kosovar AIDS Committee, 2009), which stressed the importance of strengthening the national HIV surveillance system by focusing on key at-risk populations, a bio-behavioral study (BBS) among female sex workers (FSWs) was carried out in 2011. Two hundred FSWs, sampled in Ferizaj (n = 100) and Prizren (n = 100), participated in the study. The aims of the study were to provide biological and behavioral indicators of HIV exposure in this population and to compare the current levels of HIV risks among FSWs to the levels observed during the first HIV surveillance round in 2006 (cf. Impact, 2007).

A convenience sample was used in this study which recruited FSWs visiting two private gynecological offices. The mean age in the sample was about 30 years (M = 29.97, SD = 7.41), with median age of 28. Participants in the Ferizaj subsample were significantly older ($p < .001$) than those in the Prizren subsample (33.0 and 26.9, respectively). Most surveyed FSWs were Albanian (36%), followed by Moldovan (21.0%) and Bulgarian women (17.5%). A majority of FSWs had at least some primary education (55.5%), while over a third reported at least some secondary education (37.4%). Participants from Prizren had significantly lower education in comparison to those sampled in Ferizaj ($p < .05$). About a third of participants were single (32.5%) and only 10% were married. Additional source of income was reported by 26.5% of surveyed women.

No HIV+ cases were found in the study. Six FSWs, all from Ferizaj, were infected with Syphilis (3.5%). No HCV+ cases were observed, but HBV was diagnosed in four women (2.5%). Again, all four were surveyed in Ferizaj.

The mean age at first commercial sex was lower in the Ferizaj (17 years) than in Prizren subsample (21 years). A majority of participants interviewed in Prizren most often found clients in bars and nightclubs (70%), while participants in Ferizaj stated phone contacting (61%), followed by hotels (32%). Over a half (51%) of FSWs in both cities reported that they usually sell sex at different places. Statistically significant difference in the mean number of clients during the past week was found between FSWs in the two subsamples ($p < .01$). Participants from Ferizaj reported 4.8 (SD = 5.81) and those from Prizren 2.5 (SD = 1.07) clients in the period. On the whole, an average of 4.13 clients in the past week was reported in the study (SD = 5.04; median no. = 3). One quarter of FSWs sampled in Ferizaj had five or more partners in the week preceding the study.

Overall, about one fifth of the surveyed FSWs stated that they do not use condoms. Over forty percent of FSWs (42.5%) used a condom at most recent commercial vaginal sex. As expected, a much lower proportion (25.5%) stated that a condom was used at last sexual intercourse with a non-paying partner. On both occasions, more participants from Ferizaj then those from Prizren reported condom

use ($p < .05$). When asked about condom use at most recent commercial anal intercourse, the percentage of FSWs who used a condom was low (22.5%). Only 4.5% of participants stated that they usually obtain condoms from NGO workers. A majority (18%) mentioned friends/colleagues, other individuals (probably pimps; 11.5%), and clients (11%). Asked if they agreed to unprotected sex the last time a client has offered more money not to use condom, 36% of participants confirmed.

Consistent condom use with clients during the week preceding the study was reported by one quarter of the sample (25%), but only 14.5% of participants stated that they always have condoms at hand.

One half of FSWs reported a regular non-paying sexual partner. About a half of them (51%) have discussed HIV/AIDS with their regular partner.

When asked if they were ever forced to have sex (by paying or non-paying partners), a majority of women in the Prizren subsample refused to answer. In Ferizaj, over a half of the interviewed FSWs reported that they were sexually abused (55%).

Injecting use was reported only in the Ferizaj subsample where twenty FSWs acknowledged injecting drugs in the past month. Asked whether they shared injecting equipment the last time they injected drugs, 13 FSWs confirmed. Regarding alcohol use, 15% of FSWs reported that they often used alcohol before selling sex.

Only 13% of the sampled FSWs answered correctly to all five UNGASS questions assessing HIV knowledge. A minority of women ever tested for HIV (12%), with five of these 24 women who tested reporting that they have tested in the past 12 months. All women who reported being tested for HIV knew the result of their most recent test. Importantly, less than 40% of FSWs (36.5%) knew where free and anonymous HIV testing can be obtained.

Forty one percent of FSWs reported abnormal vaginal discharge or genital pain and 46.5% reported some itching, redness, ulcerations or skin lesions in the genital area in the past 12 months. Only 12% of participants who reported the above symptoms sought medical treatment for the problem. Overall, a majority of women stated that they have been diagnosed with an STI in the past: 22% have been diagnosed in the past 12 months and 38% earlier. Asked to self-assess the risk of becoming infected with HIV, almost one third of participants (31.5%) were unable to provide an answer. Only 7.5% of women (all of them from the Ferizaj subsample) indicated that the risk is high. A majority of FSWs (50.1%) described the risk as low or non-existent.

When compared to the findings from the first HIV surveillance wave carried out in 2006, the FSWs sampled in the 2011 study were slightly less educated. While no HIV+ cases were found in either study, differences in the prevalence of syphilis and HCV were observed. No syphilis-infected and 3.3% of HCV+ participants were reported in 2006, in contrast to 3.5% of syphilis-infected and no HCV+ participants in 2011. The most notable difference was observed in HBV prevalence, as 18% of HBV+

cases were reported in the first and only 2.5% in the second study wave. (Comparable differences in HBV prevalence between the first and second surveillance wave were also observed in the MSM and IDU studies carried out in Prishtine using respondent-driven sampling.)

The mean number of clients in the week preceding the study was higher in the second wave (2.7 vs. 4.1). Similar dynamics were found when analyzing condom use at most recent commercial vaginal intercourse. Condom use at last sexual intercourse with a client increased from 35% in 2006 to 42.5% in 2011. Consistent condom use with clients also increased, from 15% to 25%. In both waves, about a fourth of FSWs reported condom use at most recent sexual intercourse with a non-paying partner (23.5–25.5%).

The largest discrepancy was found in the proportion of FSWs who reported ever to have tested for HIV. In 2006, the percentage was 40% and in this study only 12% (or 18% if those who refused to answer are filtered out). Such a large difference is highly unlikely and it points to possible inflation of self-reported HIV tests in the 2006 study due to social desirability. It remains unclear if the same hypothetical explanation may be applicable to the difference in the proportion of FSWs who reported IDU in the month preceding the study (1.3% in 2006 and 10% in 2011).

When data from the Kosovo sample are compared to the findings from recent studies carried out in the same population in Croatia and Montenegro, a number of important differences emerge. In comparison to Croatian and Montenegrin FSWs, participants in this study reported less condom use with clients and more STI diagnoses, lower levels of HIV knowledge and HIV testing, but also a substantially lower exposure to HIV risks related to injecting drug use.

A couple of study limitations need to be mentioned. The sample used in this study was non-probabilistic, which precludes any generalization of findings from the sample to the population. As the 2006 sample was also non-probabilistic, the statistical analyses of differences between the two waves – which are based on the assumption of probability sampling – should be taken with great caution. Future studies to be carried among FSWs should explore possibilities for probability sampling of the population to secure robust surveillance.

Another limitation is reflected in the fact that many FSWs, particularly in the Prizren study, refused to answer a number of questions, especially the behavioral indicators. This suggests that a substantial number of FSWs did not feel comfortable during the interview and that the established rapport with the interviewers was less than ideal.

It is recommended that a more comprehensive promotion of condom use directed towards FSWs, their pimps, clients, and the owners of the premises where client solicitation and/or sex work is undertaken, as well as a more intensive distribution of free condoms. Outreach work and the existing network of private gynecological offices should be used as primary channels for information

dissemination and targeted interventions. In addition, HIV testing should be substantially increased in the population. To this purpose, establishing VCT centers in a number of larger cities may represent an efficient long-term strategy of tackling HIV risks among various at-risk populations in the country.

## List of Abbreviations

BBS = Bio-behavioral surveillance
HBV = Hepatitis B virus
HCV = Hepatitis C virus
HIV = Human immunodeficiency virus
FSW = Female sex work (FSWS = female sexual workers)
IDU = Injecting drug use
NGO = Non-governmental organization
SGHS = Second generation HIV surveillance
STI = Sexually transmitted infection
UNGASS = United Nations General Assembly Special Session
VCT = Voluntary counseling and testing

## List of Tables and Figures

## Background

Kosovo is currently characterized by low levels of HIV risk. In the period between 1986 and 2008, 74 HIV/AIDS cases were registered, a majority of them among male migrant workers (Kosovar AIDS Committee, 2009). However, several potential drivers of the HIV epidemic –such as widespread poverty, high unemployment rates, and a rapid pace of societal transformation (aggravated by the ongoing political and territorial dispute with Serbia) – provide a socio-cultural background that is conducive to risk taking, particularly among disadvantaged and stigmatized social groups.

Globally, female sex workers (FSWs) have been recognized as a population highly vulnerable to HIV infection. Many aspects of sex work, which are often markedly interrelated (cf. Jeal, Salisbury, & Turner, 2008), systematically contribute to high HIV risk exposure observed among FSWs. The existing studies carried out in the Southeastern European region confirm that FSWs are highly stigmatized and, most often, socially and economically marginalized (Štulhofer et al., 2010; Simić et al., 2006; Rhodes et al., 2008). In addition, substantial proportions of surveyed FSWs reported that they have endured physical and sexual violence committed by their partners, clients, pimps, and the police (Rhodes et al, 2008; Štulhofer et al., 2010). All these factors, including the restriction of movement and strict control that some FSWs are subjected to (see Simić et al., 2006), contribute to a substantial vulnerability to HIV among women who sell sex.

In accordance with the plan of action stipulated by Kosovo Strategic Plan on HIV/AIDS 2009-2013 (Kosovar AIDS Committee, 2009), which stressed the importance of strengthening the national HIV surveillance system by focusing on key at-risk populations, three BBS studies were carried out in 2011. In this report, findings from the bio-behavioral surveillance study carried out among FSWs in Ferizaj and Prizren are reported. The aims of the study were to provide biological and behavioral indicators of HIV exposure in this population and to compare the current levels of HIV risks with the levels observed during the first HIV surveillance round in 2006 (cf. Impact, 2007).

# Method

### *Procedure and Participants*

According to inclusion criteria, an individual was eligible to participate in the study if she: (a) was 16-60 years of age, (b) spoke Albanian, (c) had sold sex at least once in the past month, and (d) has consented to participate in the study.

All eligible individuals were informed about the nature and requirements of the study (type of data collected, procedures, incentives, etc.) and asked for informed consent. After verbal consent was obtained, the participant was interviewed and then briefed about biological testing (pre-test counseling). Following blood drawing, the participant received the incentive (10 EUR) and was asked to revisit the site in a week to learn about her test results.

Data collection took place over the period from July to September 2011. The total sample size was 200 FSWS, of which 100 were surveyed in Ferizaj and 100 in Prizren.

### *Study Site*

In both cities, a private gynecological office[1] – where local sex workers usually get their regular gynecological check ups – was used for interviewing and blood drawing. Interviews were carried out by female nurses working in the office.

### *Questionnaire and Measures*

The questionnaire was developed at the WHO Collaborating Center Zagreb. It was translated to Albanian, piloted for comprehension, and slightly revised (cf. Appendix). In addition to sociodemographic data, information on IDU and related treatment, sexual behaviors, HIV knowledge, HIV testing, self-reported sexually transmitted infections (STIs), and HIV risk self-assessment was collected. The standardized UNGASS indicators (UNAIDS, 2007) were used as the core variables. In total, the questionnaire contained 62 variables.

[1] Over years, the two gynecologists who own these offices have seemingly established a working relationship with the sex industry in their respective cities and have built trust with FSWs and, in many instances, their pimps. A recent qualitative study carried out among FSWs reported that a great majority of participants stated that their pimps arrange for them regular visits to gynecologists (KOPF, 2010: 30)

### *Biological component*

Participants were tested for HIV, Syphilis, and Hepatitis B & C virus. ELISA tests produced by DIALAB Austria were used to detect HIV 1/2 antibodies, HCV antibodies, Syphilis antibodies, Hepatitis B Surface Antigen, Hepatitis B Surface Antigen Antibodies, Hepatitis B envelope antigen, total antibodies against Hepatitis B core antigen, and IgM antibodies.

### *Statistical Analysis*

SPSS 17 statistical software was used to obtain sample proportions. Differences between the two subsamples (Ferizaj and Prizren) were calculated using $\chi^2$ or t-tests and reported with corresponding level of statistical significance.

### *Ethical Considerations*

All study procedures were approved by the Professional Ethical Board of the Republic of Kosovo Ministry of Health and carried out in accordance with ethical principles stipulated in the Declaration of Helsinki. Informed consent for both the behavioral and biological data collection was asked from each participant. To protect participants' anonymity (no personally identifying information was collected at any point), screeners signed a consent form after the participant gave his/her consent orally. The signature testified that the consent was given. Interviews were conducted in separate rooms to ensure confidentiality. All team members received training on ethical conduct in the field.

# Results

### *Basic Sociodemographic Characteristics of the Sample*

The mean age in the sample was about 30 years (M = 29.97, SD = 7.41), with median age of 28. Participants in the Ferizaj subsample were significantly older ($p < .001$) than those in the Prizren subsample (33.0 and 26.9, respectively). Most surveyed FSWs were Albanian (36%), followed by Moldovan (21.0%) and Bulgarian women (17.5%). A majority of FSWs had at least some primary education (55.5%), while over a third reported at least some secondary education (37.4%). Participants from Prizren had significantly lower education in comparison to those sampled in Ferizaj ($p < .05$).

At the time of the survey, a majority of FSWs lived either alone (32.5%) or with friends/colleagues (30.5%). Every fifth participant reported living at the place where she sells sex. Somewhat less than a half of FSWs (42.5%) were divorced. About a third of participants were single (32.5%) and only 10% were reportedly married. A substantial number of women stated that they also financially support someone else (42.5%), with 26.5% of women reporting an additional source of income (aside from sex work). Additional income was significantly more frequently reported among women sampled in Ferizaj than those in Prizren ($p < .001$).

Asked about their personal peer-network size, the average answer in the sample was four FSWs.

### *Biological Data*

No HIV+ cases were found in this study (Table 1). Seven FSWs, six from Ferizaj and one from Prizren, were infected with Syphilis (3.5%). No HCV+ cases were observed, but HBV was diagnosed in five women (2.5%) – four in Ferizaj and one i Prizren.

**TABLE 1** – *Sample prevalence of the main biological and behavioral indicators of HIV-related risk taking among FSWs in Ferizaj and Prizren*

| *Indicator* | *Ferizaj* | *Prizren* | *Total sample* |
|---|---|---|---|
| | % | % | % (n) |
| Age | | | |
| ≤ 22 | 9 | 14 | 11.5 (23) |
| 23-28 | 24 | 55 | 39.5 (79) |
| 29-34 | 26 | 25 | 25.5 (51) |
| 35-40 | 22 | 5 | 13.5 (27) |
| ≥ 41 | 18 | 1 | 9,5 (19) |
| Nationality | | | |
| Kosovar | 9 | 7 | 8.0 (16) |
| Albanian | 48 | 24 | 36.0 (72) |
| Ukrainian | 10 | 6 | 8.0 (16) |
| Moldovan | 6 | 36 | 21.0 (42) |
| Bulgarian | 19 | 16 | 17.5 (35) |
| Other | 8 | 11 | 9.5 (19) |
| Level of education | | | |
| Illiterate | 5 | 5 | 5.0 (10) |
| Primary school or less | 48 | 63 | 55.5 (111) |
| At least some secondary school | 43 | 31 | 37.4 (74) |
| At least some college | 3 | 0 | 1.5 (3) |
| Currently lives: | | | |
| With parents/grandparents | 3 | 8 | 5.5 (11) |
| Husband or partner | 15 | 0 | 7.5 (15) |
| At the place where she works | 15 | 8 | 20.0 (40) |
| Colleagues or friends | 17 | 44 | 30.5 (61) |
| Alone | 45 | 20 | 32.5 (65) |
| Other | 4 | 2 | 3.0 (6) |
| Family status | | | |
| Single | 18 | 47 | 32.5 (65) |
| Married | 20 | 18 | 10 (20) |
| Divorced or separated | 43 | 42 | 42.5 (85) |
| Other | 18 | 11 | 14.5 (29) |
| Has a regular sexual partner | 63 | 37 | 50.0 (100) |
| Currently supports financially someone other than herself | 44 | 41 | 42.5 (85) |
| Has an additional source of income | 49 | 4 | 26.5 (53) |
| HIV | 0 | 0 | 0 |
| Syphilis | 6 | 1 | 3.5 (7) |
| HBV | 4 | 1 | 2.5 (5) |
| HCV | 0 | 0 | 0 |
| Injected drugs in the past month | 20 | 0 | 10.0 (20) |
| Refused to answer | 26 | 9 | 17.5 (35) |

| | | | |
|---|---|---|---|
| Shared injecting equipment the last time she injected | 13 | 0 | 6.6 (13/61) |
| Did not share | 61 | / | 30.5 (61) |
| Refused to answer | 26 | 9 | 17.5 (35) |
| Five or more clients in the past week | 25 | 3 | 12.5 (25) |
| Refused to answer | 7 | 64 | 35.5 (71) |
| Usually sells sex: | | | |
| At home | 23 | 5 | 14.0 (28) |
| At someone else's place | 6 | 10 | 8.0 (16) |
| In a hotel/motel | 14 | 5 | 11.0 (22) |
| At different places | 51 | 51 | 51.0 (102) |
| Other | 3 | 3 | 3.0 (6) |
| Refused to answer | 3 | 23 | 13.0 (26) |
| Used a condom at most recent sexual intercourse with a client | | | |
| Refused to answer | 58 | 27 | 42.5 (85) |
| | 13 | 41 | 27.0 (54) |
| Consistently used condoms when having sexual intercourse with clients in the past month | 32 | 18 | 25.0 (50) |
| Used a condom at most recent anal intercourse with a client | 33 | 12 | 22.5 (45) |
| Refused to answer | 20 | 18 | 19.0 (38) |
| Never had anal sex with a client | 10 | 52 | 31.0 (62) |
| Used a condom at most recent sexual intercourse with a non-paying partner | 36 | 15 | 25.5 (51) |
| Ever discussed HIV/AIDS with her regular partner | 72 | 30 | 51 (102) |
| Always has condoms with her | 17 | 12 | 14.5 (29) |
| Refused to answer | 9 | 20 | 14.5 (29) |
| Did not use a condom the last time a client offered more money for unprotected sex | 60 | 12 | 36.0 (72) |
| Refused to answer | 10 | 49 | 29.5 (59) |
| Experienced increase in vaginal discharge or pain in the genital area in the past year | 56 | 26 | 41.0 (82) |
| Refused to answer | 8 | 40 | 24.0 (48) |
| Experienced itching, redness, ulcerations or skin lesions in the genital area | 66 | 27 | 46.5 (93) |
| Refused to answer | 9 | 42 | 25.5 (51) |
| Consulted a medical professional for the above problems | 16 | 8 | 12.0 (24) |
| Refused to answer | 3 | 29 | 16.0 (32) |
| Diagnosed with an STI | | | |
| Never | 52 | 26 | 39.0 (78) |
| In the last 12 months | 26 | 18 | 22.0 (44) |
| In the past, but not in the last 12 months | 22 | 54 | 38.0 (76) |
| Ever been forced to have sex | 55 | 17 | 36.0 (72) |
| Refused to answer | 13 | 55 | 34.0 (68) |
| Correctly identifies ways of preventing HIV transmission and rejects major misconceptions about the transmission[a] | 18 | 8 | 13.0 (26) |
| Knows where free and anonymous test can be obtained | 52 | 21 | 36.5 (73) |
| Ever tested for HIV | 14 | 10 | 12.0 (24) |
| Tested for HIV in the past 12 months | 4 | 1 | 2.5 (5) |

| | | | |
|---|---|---|---|
| Knows the result of her most recent HIV test | 14 | 10 | 12.0 (24) |
| Self-assessed risk of becoming infected with HIV in the past year | | | |
| No risk | | | |
| Very low risk | 9 | 46 | 27.5 (55) |
| Moderate risk | 25 | 22 | 23.5 (47) |
| High risk | 18 | 0 | 9.0 (18) |
| Don't know | 15 | 0 | 7.5 (15) |
| | 32 | 31 | 31.5 (63) |

[a] Answered correctly to all five UNGASS HIV knowledge questions

### *Patterns of Sexual Behavior*

The mean age at first commercial sex was lower in the Ferizaj (17) than in Prizren subsample (21). Differences were also observed in the client soliciting strategies. A majority of participants interviewed in Prizren most often found clients in bars and nightclubs (70%), while participants in Ferizaj stated phone contacting (61%), followed by hotels (32%). Over a half (51%) of FSWs in both cities reported that they usually sell sex at different places.

Statistically significant difference in the mean number of clients during the past week was found between FSWs in the two subsamples ($p < .01$). Participants from Ferizaj reported 4.8 (SD = 5.81) and those from Prizren 2.5 (SD = 1.07) clients in the period. On the whole, an average of 4.13 clients in the past week was reported in the study (SD = 5.04; median no. = 3). One quarter of FSWs sampled in Ferizaj had five or more partners in the week preceding the study. The proportion was marginal in the Prizren subsample, but over a half of participants (64%) refused to answer the question regarding the number of clients.

Overall, about one fifth of the surveyed FSWs stated that they do not use condoms. Over forty percent of FSWs (42.5%) used a condom at most recent commercial vaginal sex. As expected, a much lower proportion (25.5%) stated that a condom was used at last sexual intercourse with a non-paying partner. On both occasions, more participants from Ferizaj then those from Prizren reported condom use ($p < .05$). When asked about condom use at most recent commercial anal intercourse, the percentage of FSWs who used a condom was low (22.5%).

Only 4.5% of the sampled FSWs stated that they usually obtain condoms from NGO workers. A majority (18%) mentioned friends/colleagues, other individuals (probably pimps; 11.5%), and clients (11%). However, over a third of FSWs from Ferizaj (35%) reported that they "do not use condoms".[2] Asked if they agreed to unprotected sex the last time a client has offered more money not to use condom, 60% of participants in Ferizaj and 12% of those in Prizren confirmed.

[2] In Prizren, eight percent of FSWs revealed the same.

Consistent condom use with clients during the week preceding the study was reported by one quarter of the sample (25%). Significantly more FSWs from Ferizaj than from Prizren were characterized by consistent condom use at commercial sex ($p < .05$). Interestingly, only 14.5% of participants stated that they always have condoms at hand.

Exactly one half of FSWs reported a regular non-paying sexual partner. Regular partner was significantly more frequently reported among women in the Ferizaj than those in the Prizren subsample ($p < .01$).[3] Overall, about a half of the partnered participants (51%) have discussed HIV/AIDS with their regular partner.

When asked if they were ever forced to have sex (by paying or non-paying partners), a majority of women in the Prizren subsample refused to answer. In Ferizaj, over a half of the interviewed FSWs reported that they were sexually abused (55%).

### *Injecting Drug Use*

Twenty participants from Ferizaj study acknowledged injecting drugs in the past month. Even more (n = 26), however, refused to answer this questions. Asked whether they shared injecting equipment the last time they injected drugs, 13 FSWs confirmed. Sixty one participants reported that they did not share injecting equipment. Answering the question about the (non-injectable) drug most frequently used before having sexual intercourse with a client, 12.5% of participants mentioned tranquilizers and eight percent stated cocaine.

Regarding alcohol use, 19% of FSWs reported that they sometimes used alcohol before selling sex. Another 15.5% of participants used alcohol often on such occasions.

### *HIV Knowledge, HIV Testing, HIV Risk Self-Assessment, and the Experience of Sexually Transmitted Infections*

Only 13% of the sampled FSWs answered correctly to all five UNGASS questions assessing HIV knowledge. On average, women in Ferizaj correctly answered 2.6 (SD = 1.51) and women in Prizren 2.4 (SD = 1.52) of five questions (the difference was statistically insignificant). A minority of women ever tested for HIV (12%), with five of these 24 women who tested reporting that they have tested in the past 12 months. All women who tested for HIV knew the result of their most recent test. Importantly, less than 40% of FSWs (36.5%) knew where free and anonymous HIV testing can be obtained.

[3] A substantial proportion of FSWs from Ferizaj (40%) stated that their regular non-paying partner also has sex with other women.

Participating women were also asked if they experienced abnormal vaginal discharge and genital pain or/and itching, redness, ulcerations or skin lesions in the genital area in the past 12 months. Forty one percent of FSWs reported the former and 46.5% the latter symptoms. In both cases, more women sampled in Ferizaj than Prizren acknowledged the symptoms ($p <. 001$). Only 12% of participants who reported the above symptoms sought medical treatment for the problem. Overall, a majority of women disclosed being diagnosed with an STI in the past. About a fifth (22%) have been diagnosed in the past 12 months and 38% earlier. More women from the Ferizaj than Prizren subsample reported that they have never been diagnosed with an STI ($p < .001$).

Asked to self-assess the risk of becoming infected with HIV, almost one third of participants (31.5%) were unable to provide an answer. Only 7.5% of women (all of them from the Ferizaj subsample) indicated that the risk is high. A majority of FSWs (50.1%) described the risk as low or non-existent.

# Discussion

Kosovo is currently characterized by low-level HIV epidemic. However, as recently emphasized in the Kosovo Strategic HIV/AIDS 2009-2013 Plan, "incompleteness of routine case reporting, lack of accurate data, low utilization rates of VCT", and the existence of a number of economic, socio-cultural, and security-related potential drivers of HIV epidemic demand a systematic and reliable HIV surveillance among key populations" (Kosovar AIDS Committee, 2009: 3-6). As a part of this agenda, the present BBS study assessed the prevalence of HIV-related risk taking behaviors and the prevalence of HIV, Syphilis, HBV, and HCV among FSWs in two Kosovar towns, Ferizaj and Prizren. As this at-risk population was already sampled in the two cities in 2006 (Impact, 2006), the findings from the 2011 study can also be used to assess change in risk exposure.

No HIV+ cases were found among 200 FSWs surveyed in Ferizaj and Prizren. The prevalence of Syphilis and HBV were relatively low (3.5 and 2.5, respectively). Although 20 women reported injecting drugs in the past month, with 6.5% of those who ever injected reporting that they used shared injecting equipment the last time they injected, no HCV+ cases were registered.

In regard to sexual risk taking, the findings emphasize relatively low levels of condom use at commercial sex.[4] Worryingly, the rates of condom use at anal sex are almost marginal, which points to substantial exposure to risks of STIs, including HIV. In addition, there is evidence that a substantial number of FSWS would consent to unprotected sex if a client offers more money.[5] Comparably high rates of STI diagnoses in the sample seem to support these behavioral findings. Substantial sexual risk taking in the sample was coupled with low levels of HIV knowledge and a tendency toward underestimating personal exposure to the risk of HIV infection.

On the positive side, the prevalence of IDU seems to be comparably low among FSWs in this study.[6] In addition, only a minority of FSWs who ever injected drugs reported not using sterile injecting equipment the last time they injected.

In general, the FSWs sampled in Ferizaj seem to be exposed to higher levels of HIV risks than their peers in Prizen. Although both biological and behavioral findings support such conclusion, a substantially higher proportion of missing data and refusals to answer questions observed in the Prizren subsample strongly suggests caution when comparing the levels of risk exposure in the two cities.

When data from the Kosovo sample are compared to the findings of recent studies carried out in the region, which also used convenience sampling of FSWs, a

[4] Sporadic condom use and low self-assessed HIV risk among FSWs was also found in a recent qualitative study (KOPF, 2010).
[5] There is some evidence that clients often refuse condom use (KOPF, 2010).
[6] In two recent studies carried out in Croatia and Montenegro, the percentage of FSWs who reported injecting drugs in the past month was 36% and 49%, respectively (Štulhofer et al., 2010).

number of important differences emerge (cf. Štulhofer et al., 2010). In comparison to the FSWs sampled in Croatia and Montenegro, participants in this study reported less condom use with clients and more STI diagnoses, lower levels of HIV knowledge and HIV testing, but also a substantially lower exposure to HIV risks related to injecting drug use. The FSWs sampled in Ferizaj reported similar number of clients in the past week as FSWs in the Croatian and Montenegrin studies.

### *Comparisons to the 2006 Surveillance Data*

In both 2006 and 2011, FSWs were surveyed in Ferizaj and Prizren using convenience sampling strategy. In socioeconomic terms, the FSWs sampled in 2006 and 2011 samples were of identical average age, with participants in the first wave being slightly more educated than those interviewed in the second surveillance wave.[7] While no HIV+ cases were found in either study, there were differences in the prevalence of syphilis and HCV. No syphilis-infected and 3.3% of HCV+ participants were reported in 2006, in contrast to 3.5% of syphilis-infected and no HCV+ participants in 2011. The most notable difference was observed in HBV prevalence, as 18% of HBV+ cases were reported in the first and only 2.5% in the second study wave. Comparable differences in HBV prevalence between the first and second surveillance waves were also observed in the studies carried out among men who have sex with men and injecting drug users in Prishtine using respondent-driven sampling.

The mean number of clients in the week preceding the study was higher in the second wave (2.7 vs. 4.1). Similar dynamics were found when analyzing condom use at most recent commercial vaginal intercourse. Condom use at last sexual intercourse with a client increased from 35% in 2006 to 42.5% in 2011. Consistent condom use with clients also increased, from 15% to 25%. In both waves, about a fourth of FSWs reported condom use at most recent sexual intercourse with a non-paying partner (23.5–25.5%).

The largest discrepancy was found in the proportion of FSWs who reported ever to have tested for HIV. In 2006, the percentage was 40% and in this study only 12% (or 18% if those who refused to answer are filtered out). Such a large difference is highly unlikely and it points to possible inflation of self-reported HIV tests in the 2006 study due to social desirability.[8] It remains unclear if the same hypothetical explanation may be applicable to the difference in the proportion of FSWs who reported IDU in the month preceding the study (1.3% in 2006 and 10% in 2011).

[7] It is possible that a minority of FSWs participated in both studies.

[8] At least in theory, a high turnover of FSWs and a substantial difference in the structure of nationality of FSWs sampled in the two waves could provide an explanation for this unexpected difference. This does not seem very likely, as most FSWs in the 2006 sample were from Bulgaria and Albania and in the 2011 sample from Albania and Moldova. To simplify a bit, the logic described above would demand that HIV testing is far more prevalent in Bulgaria then Moldova.

### *Study Limitations*

A couple of study limitations need to be briefly discussed. Firstly, the 2011 sample is non-probabilistic, which precludes any generalization of findings from the sample to the population. As the 2006 sample was also non-probabilistic, the statistical analyses of differences between the two waves – which are based on the assumption of probability sampling – are of questionable reliability and should be taken with great caution. Future studies to be carried among FSWs should explore possibilities for probability sampling of the population to secure robust surveillance.

On the positive side, relatively large samples of FSWs from Ferizaj and Prizren provide, most likely, a good illustration of HIV-related risks among FSWs in the two cities. The findings, however, do not seem to reflect the situation of elite FSWs, as these women almost invariably avoid participation in HIV surveillance and other studies.

Another limitation is reflected in the fact that many FSWs, particularly in the Prizren study, refused to answer a number of questions, especially those that focused on behaviors. This points that a substantial number of FSWs did not feel comfortable being surveyed and that the established rapport with the interviewers was less than ideal. A reduced number of valid answers is a limitation not only in terms of less robust statistical analyses but also in the sense that it may reflect reduced validity. Future studies in the population should try to minimize this problem by providing extensive training for interviewers and by exploring possible differences in the characteristics of sex work in the two cities.

Finally, in contrast to the two RDS studies carried out in Prishtine, quality control was hardly possible in the case of the FSWs study. The privacy of a gynecological office did not allow for direct observation and close supervision – unlike at the RDS sites. This may have affected interviewer's motivation, particularly as the study took months to complete.

# Recommendations

*A/ Methodological Issues*

- In regard to future HIV surveillance waves, additional efforts should be undertaken to explore the possibility of using probability sampling in the population of FSWs. At present, qualitative studies and ethnographic research seem to suggests that neither respondent-driven sampling[9] nor time-location sampling are viable options. However, some combination of cluster sampling (using bars/hotels/brothels as clusters), with interviewing and rapid testing done on the spot, may be feasible in the case a better rapport with bar owners and pimps can be established. The task to , would certainly be time consuming and at times frustrating (cf. Simić et al., 2006), but it is essential that probability sampling is introduced in the HIV surveillance among FSWs. Only high quality (and generalizable) data can provide a robust framework for reliable tracking of the epidemic and efficient allocation of HIV prevention and intervention resources.
- In future studies to be carried out among FSWs, peer-interviewing should be considered. The advantage of using especially motivated and well-trained FSWs or ex-FSWs as interviewers is a more rapidly established and more solid rapport with participants, which may increase data validity. In addition, the use of peer-interviewers can greatly facilitate the process of screening out ineligible women.

*B/ HIV Surveillance and Prevention/Intervention Issues*

- To enable a wider reach of the currently existing NGO services, outreach work (including peer-to-peer HIV and STI information dissemination) should be intensified in this key population;
- Infrequent and inconsistent condom use observed in this study points to an urgent need for a more comprehensive promotion of protected sex directed towards FSWs, their pimps, clients, and the owners of the premises where client solicitation and/or sex work takes place. The distribution of free condoms should be intensified and coupled with targeted sex education and information dissemination. A brochure targeting FSWs, which would focus on the importance of safer sex (to protect oneself and one's partner/s from STIs) should also be considered. Outreach work and the existing network of private gynecological offices should be used as primary channels for information dissemination and targeted intervention (condom distribution and condom use promotion).

[9] The mean personal network size in the sample was 4.1 (SD = 2.68), which is a bare minimum for the peer-recruitment flow required by RDS methodology.

- Although the large discrepancy in the proportion of FSWs who reported ever to have tested for HIV in 2006 and 2011 remains intriguing, it seems warranted to recommend that HIV testing be substantially increased in the population. To this purpose, establishing VCT centers in a number of larger cities is strongly recommended as a long-term strategy of tackling HIV risks among various at-risk populations in the country.
- HIV surveillance surveys among FSWs should be continued at regular intervals (every 2-3 years).

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# APPENDIX – *Study Questionnaire*

**Date: _____** **Personal number:**

**Interviewer's initials:_____**

## FSW Kosova 2011 Questionnaire

**Introduction**

I *(introduce yourself)* work for the National AIDS Control Programme in Kosova. We are conducting a study that focuses on HIV and STI risks among female sexual workers and would be very grateful if you agree to participate. The study is anonymous (we do not record your name or any other identifier) and completely confidential – which means that the information collected will be made available only to researchers for the purpose of scientific analyses. In addition to this interview, in which we will ask you some personal questions, we will offer you free and anonymous gynecological examination, as well as free and anonymous testing for HIV, hepatitis B & C, and syphilis. If needed, we will refer you to treatment, free of charge. We will award you with a gift if you agree to participate in all three parts of this study (interview, gynecological exam, and blood drawing).

You can refuse to answer any question and end the interview whenever you wish. Also, you can quit the study at any stage.

**NOW THAT YOU ARE INFORMED ABOUT THE STUDY, DO YOU AGREE TO PARTICIPATE?**

Interviewer's signature BELOW confirms that the participants agreed to participate:

_____

| | |
|---|---|
| The time when the interview began: | |
| The time when the interview ended: | |

**Section 1: Socio-demographic information**

| No. | Question | Answer | COMMENT |
|---|---|---|---|
| Q 101 | What is your age | …….. (years) | |
| Q 102 | What is your nationality? | 1- Kosovar<br>2- Albanian<br>3- Serbian<br>4- Ukrainian<br>5- Moldovan<br>6- Bulgarian<br>7- Romanian<br>8- Macedonian<br>9- Other (Specify:<br>……<br>….)<br>99- Refused to answer | |
| Q 103 | Level of Education | 1- Illiterate<br>2- Can read and write, but no school<br>3- Unfinished primary education<br>4- Primary education (finalized)<br>5- Unfinished secondary education<br>6- Secondary education (finalized)<br>7- Tertiary education | |
| Q 104 | Where do you live right now? | 1- Prizren<br>2- Ferizaj<br>3- Prishtine<br>4- Some other place (Specify:<br>…….....……<br>…)<br>99– Refused to answer | |
| Q 105 | With whom do you live? | 1- Parents or grandparents<br>2- Husband<br>3- Employer/at worksite<br>4- Colleagues, friends<br>5- Alone | |

| | | | |
|---|---|---|---|
| | | 6- Someone else (Specify:<br><br>……<br>…) | |
| Q 106 | What is your family status right now? | 1- Single<br>2- Married<br>3- Divorced<br>4- Widow<br>5- Separate<br>6- Other (specify:<br><br>……) | |
| Q 107 | Right now, do you **financially** support someone (children, husband, parents etc.) | 1- Yes<br>2- No | |

**Section 2: Information regarding regular sex partner and sex work**

| No. | Question | Answer | COMMENT |
|---|---|---|---|
| Q 201 | Right now, do you have a regular non-paying sex partner (someone you have sex with) - like husband or, for example, a boyfriend who does not finance you? | 1- Yes<br>2- No<br>99- Refused to answer | IF THE ANSWER IS "NO" GO TO QUESTION 203 |
| Q 202 | Does your regular sex partner has sex with other women or men? | 1- Yes<br>2- No<br>3- I do not know<br>99- Refused to answer | |
| Q 203 | At what age have you started selling sex? | I was ….…… years old<br>99- Refused to answer | |
| Q 204 | How many other FSWs that you personally know have you talked to in the last two months. | Enter the number:<br>_____ | |

| | | | |
|---|---|---|---|
| Q 205 | How do you find clients? | 1- In hotels<br>2- In bars/nightclubs<br>3- On the street, bus stop, beach<br>4- By phone calls<br>5- Through middlemen (e.g taxi drivers)<br>6- Other (specify:<br><br>……..……) | MULTIPLE ANSWERS POSSIBLE: CIRCLE ALL THAT IS MENTIONED |
| Q 206 | Where do you **usually** (or *most often*) provide sexual services? | 1- At home<br>2- At someone else's house/apartment<br>3- In a hotel<br>4- In a car or truck<br>5- At different places<br>6- Someplace else (specify:<br><br>…….)<br>99- Refused to answer | |
| Q 207 | Have you ever been forced to have sex that you did not want? Here we do not refer only to your clients but also to non-paying partners (like husband or a boyfriend). | 1- Yes<br>2- No<br>99- Refused to answer | |
| Q 208 | Do you have another source of income (aside from sex work)? | 1- Yes<br>2- No | |

**Section 3 – Information about alcohol and drug use**

| No. | Question | Answer | COMMENT |
|---|---|---|---|
| Q 301 | During the last month, how often did you drink before having sexual intercourse (vaginal | 1- Never<br>2- Rarely<br>3- Sometimes<br>4- Often<br>99- refused to answer | |

| | | | |
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| | or anal intercourse) with client? | | |
| Q 302 | Some people take illegal drugs. During the last month, did you take any illegal drug before having sexual intercourse (vaginal or anal) with a client? | 1- Yes<br>2- No<br>99- Refused to answer | IF "NO", GO TO Q 304 |
| Q 303 | Which drug did you use **most often** (or *most frequently*)? | 1- Hashish<br>2- Cocaine<br>3- Heroin<br>4- Amphetamines<br>5- Tranquilizers<br>6- Ecstasy<br>7- Something else (what:<br><br>……) | DO NOT READ OUT OPTIONS, BUT WAIT FOR THE PARTICIPANT TO ANSWER |
| Q 304 | During the last month, have you injected drugs (used drugs intravenously)? | 1- Yes<br>2- No<br>99- Refused to answer | |
| Q 305 | The last time you injected drugs, did you share injecting equipment (needles or syringes)? By sharing we mean that you used the equipment that someone else has already used or that someone has used the equipment that you have used. | 1- Yes<br>2- No<br>99- Refused to answer | |

**Section 4: Number of clients and condom use**

| No. | Question | Answer | COMMENT |
|---|---|---|---|
| Q 401 | During the **LAST WEEK,** with how many clients (people who paid you for sex) did you have sexual intercourse (vaginal or anal)? | ……. (enter the number)<br>99- Refused to answer | |
| Q 402 | Last time you had vaginal intercourse (penis in vagina) with a client, did you use condom? | 1- Yes<br>2- No<br>99- Refused to answer | IF SHE SAYS "YES", CHALLENGE HER A LITTLE BIT BY SAYING: "BUT I HEARD THAT MOST CLIENTS WOULD REFUSE TO USE CONDOMS?" |
| Q 403 | Last time you had anal intercourse (penis in anus, butt) with a client, did you use condom? | 1 - Yes<br>2 - No<br>3 – Non applicable - never had anal sex with a client<br>99- Refused to answer | |
| Q 404 | During the last month, did you use condoms with clients **each and every time** you had sexual intercourse? | 1- Yes<br>2- No | |

**Section 5: Information on non-paying/regular (steady) partner**

| IF THE ANSWER TO Q 405 WAS "0", GO TO SECTION 6 | | | |
|---|---|---|---|
| No. | Question | Answer | COMMENT |
| Q 501 | At your last sexual intercourse (vaginal or anal) with a non-paying partner, was a condom used? | 1- Yes<br>2- No | |
| Q 502 | Have you ever talked about HIV/AIDS with your regular partner (husband or boyfriend)? | 1- Yes<br>2- No | |

**Section 6: Information on condom availability**

| No. | Question | Answer | COMMENT |
|---|---|---|---|
| Q 601 | Where do you **usually** (*most often*) obtain condoms? ONLY ONE ANSWER | 1- I do not use condoms<br>2- I get them from medical workers<br>3- I get them from NGO workers<br>4- I get them from clients<br>5- I get them from friends<br>6- I get them from someone else<br>7- I buy them in pharmacy/shop<br>8- I buy them from bars/hotel management<br>9- I buy them from other sex workers<br>10- Something else (Specify:<br>……..……..….)<br>99- Refused to answer | DO NOT READ OUT OPTIONS, BUT WAIT FOR THE PARTICIPANT TO ANSWER<br><br>IF THE ANSWER IS "1" GO TO Q701 |
| Q 602 | Do you always have condoms with you? | 1- Yes<br>2- No<br>99- Refused to answer | |
| Q 603 | The last time a client offered you more money for having sex without | 1- Yes<br>2- No<br>3- No client ever suggested it<br>99- Refused to answer | |

| | | | |
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| | condom, did you agreed? | | |

**Section 7: Information on STI symptoms and treatment**

| No. | Question | Answer | COMMENT |
|---|---|---|---|
| Q 701 | During the last year, have you experienced increase in vaginal discharges or pains in the genital area? | 1- Yes<br>2- No<br>99- Refused to answer | |
| Q 702 | During the last year, have you experienced itching, redness, ulcerations or skin lesions in the genital area? | 1- Yes<br>2- No<br>99- Refused to answer | IF BOTH Q701 AND Q702 ARE "NO", GO TO Q 705 |
| Q 703 | Whom did you consult for the treatment of the above mentioned problems? | 1- Medical doctor, health worker<br>2- Friend or relative<br>3- Traditional healer<br>4- Nobody, I treated myself<br>5- Nobody, I did not treat it<br>6- Other (Specify:<br>……..……<br>…)<br>99- Refused to answer | DO NOT READ OUT OPTIONS…<br><br>IF THE ANSWER IS NOT "1", GO TO Q 705 |
| Q 704 | Why have you not consulted a doctor? | 1- Too expensive<br>2- Health facility is too far away<br>3- I do not like to go to doctors<br>4- I prefer using traditional medicine<br>5- I prefer treated myself<br>6- I had no time<br>7- I did not think it was necessary<br>8- I was afraid/shy<br>9- Something else (Specify:<br>…..……<br>…)<br>99- Refused to answer | DO NOT READ OUT OPTIONS, BUT… |

| | | | |
|---|---|---|---|
| Q 705 | Have you ever been diagnosed with an STI? | 1 – Never<br>2 – During the last 12 months<br>3 – In the past, but not in the last 12 months | |

**Section 8: HIV knowledge, attitudes toward HIV+, HIV testing, and personal risk-assessment**

| | | | |
|---|---|---|---|
| Q 801 | Can having sex with only one faithful and uninfected partner reduce the risk of HIV infection? | 1- Yes<br>2- No<br>3- I don't know | |
| Q 802 | Can the practice of using condoms reduce the risk of HIV infection? | 1- Yes<br>2- No<br>3- I don't know | |
| Q 803 | Can a healthy looking person be infected with HIV? | 1- Yes<br>2- No<br>3- I don't know | |
| Q 804 | Can a person get HIV from mosquito bites? | 1- Yes<br>2- No<br>3- I don't know | |
| Q 805 | Can a person get HIV by sharing a meal with someone who is infected? | 1- Yes<br>2- No<br>3- I don't know | |
| Q 806 | Do you know a place where you can test for HIV for free and anonymously? | 1- Yes<br>2- No | |
| Q 807 | Have you ever tested for HIV? | 1- Yes<br>2- No<br>99- Refused to answer | IF "NO" GO TO Q 811 |
| Q 808 | When did you test the last time? | 1- In the last year<br>2- More than one year ago | |
| Q 809 | Where was this last | 1- Health facility | |

| | | | |
|---|---|---|---|
| | test done? | 2- Private clinic/laboratory<br>3- NGO site<br>4- Abroad (outside of Kosova)<br>5- Someplace else (Specify:<br><br>…….) | |
| Q 810 | Do you learn the result of your (last) HIV test? *Do not tell me the result…* | 1- Yes<br>2- No | |
| Q 811 | If you think about your behaviors **in the last year**, how possible do you think it is that you become infected with HIV? | 1- Not possible<br>2- Very low possibility<br>3- Moderate possibility<br>4- High possibility<br>5- I don't know | |

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